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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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MEETING ON 10 CFR PART 53 "LICENSING AND REGULATION
OF ADVANCED NUCLEAR REACTORS" SUBPART F AND 10 CFR
PART 73 EMERGENCY PREPAREDNESS AND SECURITY

PRELIMINARY PROPOSED RULE LANGUAGE

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THURSDAY,

JUNE 10, 2021

+ + + + +

The Rulemaking Group met via Video
Teleconference, at 10:00 a.m. EDT, Bob Beall,
Facilitator, presiding.

PRESENT:

BOB BEALL, Facilitator, NMSS

BRAD BAXTER, NSIR

AMY CUBBAGE, NRR

JURIS JAUNTIRANS, NSIR

ISMAEL GARCIA, NSIR

PAUL HARRIS, NSIR

PETE LEE, NSIR

ROBERT TAYLOR, NRR

ERIC SCHRADER, NSIR

STEVEN VITTO, NSIR

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WILLIAM ("BILL") RECKLEY, NRR

NANETTE VALLIERE, NRR

JOHN MCKIRGAN, NMSS

JOHN SEGALA, NRR

JAMES "JIM" MALTESE, ESQ, OGC.

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

10:02 a.m.

MR. BEALL: Good morning, everyone. I want to welcome everyone and thank you for participating in today's public meeting to discuss the risk-informed, technology inclusive regulatory framework for advance reactors or the Part 53 rulemaking.

My name is Bob Beall, and I'm from the NRC's Office of Nuclear Materials Safeguards and Security. 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 informational and productive. This is a comment gathering public meeting to encourage active participation and information exchanged 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 the public meeting on the Part 53

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rulemaking. We hope that the use of Microsoft Teams will allow stakeholders to participate more freely during the meeting.

Slide 2 please. The agenda for today includes discussion on topics related to security and emergency preparedness in the Part 53 rulemaking.

Topic number one will be a discussion of the preliminary proposed rule language for emergency preparedness and the security programs in Part 53, Subpart F, "Requirements for Operations."

Topics 2 through 4 will be a discussion of the preliminary proposed rule language for Part 73, "Physical protection of plants and materials."

The Part 73 preliminary proposed rule language includes physical security, cyber security, and access authorization.

And Topic 5, the NRC staff will provide an overview of proposed fitness for duty requirements.

The last topic will be an open discussion about manufacturing licenses and other topics from previously released Part 53 subparts.

We will also have a one-hour lunch break around 12:15 p.m. and at least one 15-minute break this afternoon.

Please note that due to the number of

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topics and expected discussions on each topic, the start times may need to be adjusted during the meeting.

Slide 3 please. I would now like to introduce Rob Taylor. Rob is the Deputy Office director for new reactors in the Office of Nuclear Reactor Regulation. Rob will give the opening remarks for today's meeting. Rob.

MR. TAYLOR: Thanks, Bob. Good morning everyone. And every appreciate all the stakeholders who've turned out for today's meeting.

We do appreciate all the efforts that you have provided in participating in the Part 53 rulemaking effort. And we recognize the significant commitment of resource a project like this entails, so thank you for making yourselves available, and thank you for participating in the meeting.

We remain committed, as we've said before, to developing a technology inclusion and risk-informed regulatory framework in accordance with the Commission approved schedule.

As you know, we've been using this novel approach of releasing preliminary rule language to facilitate the discussion and recognize that this requires an iterative dialogue as the language is

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refined.

We understand the challenge that releasing a Part 53 rule language in small pieces has presented to stakeholders and the ACRS. And we're seeking ways to lessen that challenge and make the effort more comprehensive and transparent.

We remain committed to a framework that achieves the goals of the Commission's advance reactor policy statement, and our NRC principles of good regulation. So hopefully that will come across today, that commitment, as we talk about the rule text, and staff presents from the Office of Nuclear Security Incident Response on the security aspects of the role as we envision them.

We look forward to your feedback on the staff's ideas. Especially on the security aspects because we know that's a key element for some of these advance reactors as they look at how the safety and security interfaces work.

We want to ensure that we collect valuable input from a wide range, a wide variety of stakeholders and that we continue to reflect on the changes to the preliminary rule language.

As we've stated before, and want to make sure we continue to state, the rule language will

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remain open for comment as the staff looks towards providing the Commission with the proposed rule. So I'm really looking forward to the meeting today in a constructive, and dialogue with our stakeholders and hearing all the different views that folks have.

And with that, I think I'll turn it back over to you, Bob.

MR. BEALL: Okay. Thank you, Rob. I would now like to introduce the NRC staff who will be leading the discussion of today's topics.

Myself, as the rule making project manager and a meeting facilitator. And from the Office of Nuclear Security and Incident Response we have Brad Baxter, Paul Harris, Juris Jauntirans, Eric Schrader and Steve Vitto.

Bill Reckley and Nanette Valliere from NRR will also be speaking during today's meeting. Along with representatives from the Nuclear Energy Institute, U.S. Nuclear Industry Council, and the Union of Concerned Scientists.

If you are not using Microsoft Teams to attend this meeting and you would like to view or have a copy of the presentation slides, they are located in the NRC ADAM's document database on regulations.gov. I have also placed a link to the slides in the Teams

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chat window for today's meeting. The ADAM's accession number for today's presentation is ML21148A059.

Slide 4 please. The purpose of today's meeting is to exchange information, answer questions, and discuss the Part 53 rulemaking.

This is a continuation of a series of public meetings where the NRC staff will discuss various topics related to the Part 53 rulemaking.

Today's meeting will focus on the preliminary proposed rulemaking for Parts 53 and 73 related to emergency preparedness and security programs, such as physical protection, cyber security, and access authorization. In addition, the staff will provide an overview of the fitness for duty program for Part 53.

I have placed a link in the Team's chat window for this meeting for the preliminary proposed rule language.

This is 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.

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After everyone has had a chance to ask their question, we will circle back and allow people to ask additional questions if we have time.

As I mentioned before, we are using Microsoft Teams for this public meeting. Today's meeting is using a workshop format so the number of formal presentations and the corresponding number of slides have been reduced to allot more time for open discussion on the various topics. This will require all of us to ensure, continuously ensure that we, our phones are muted when we are not speaking and to do our best not to speak over each other.

To help facilitate the discussion during the meeting, we request that you utilize the raised hand feature in Teams so we can identify who would like to speak next. The staff would then call on the individual to ask their question.

The raised hand button, which is shaped like a small hand, is along the top row of the Team's 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 rule. The chat window is not part of the official meeting record and is reserved to identify when

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somebody 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 that they have a question or comment.

If you join 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 will need to press the *6 to unmute your phone.

The staff will pause at the end of each topic to ensure all participants have an opportunity to ask a question before moving on to the next topic.

After your comment has been discussed, your phone line will be muted again. If you would like to ask additional questions on a topic, you will have to press the *6 to unmute your phone.

If there is a particulate topic you would like to discuss, please send me an email after the meeting and we'll 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

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please mute their phones when they are not speaking and to identify themselves with the company or group you may be affiliated with.

A summary, a meeting summary and the transcript of today's meeting will be publicly available on or before July 10th, 2021.

Finally, this meeting is not designed nor intended 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 that towards the end of the presentation, 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. And with that, I'll turn the meeting over to Steve Vitto to start today's discussion on the Part 53 rulemaking. Steve.

MR. VITTO: Okay, great. Good morning and thank you, Bob. My name is Steve Vitto. I'm with the Nuclear Security and Incident Response Office, security specialist. I'll be taking you through this first slide, as well as some other security specific topics later on in the presentation.

So starting off today we wanted to include

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an overview slide to focus our objectives for security and emergency preparedness that will be discussed throughout this public meeting.

So we are aiming to develop a technology-inclusive regulatory program for advanced reactors that applies a performance-based, graded approach for both emergency preparedness and a comprehensive range of security areas. So this framework will offer flexibility to right-size their program by providing performance-based requirements that are commensurate with the risk to the public health and safety.

The proposed framework was developed in coordination with other current rulemaking activities. For example, the emergency preparedness requirements for SMR and ONT rulemakings and the rulemaking for physical security for advance reactors.

Operating experience for the new current fleet and in other NRC regulated facilities we use to develop the graded approach. And we want to stress the importance of stakeholder input.

Feedback on the proposal is very important to facilitate our ability to develop this program.

Next slide please. So at this point I'll turn it over to Eric to discuss the emergency

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preparedness section of Subpart F.

MR. SCHRADER: Good morning. Next slide. As Steve said, my name is Eric Schrader. I'm a emergency preparedness specialist in the Nuclear Security and Incident Response section of the NRC.

I'll be talking about the emergency preparedness section for the proposed Part 53 rule. The intent of the emergency preparedness regulatory framework for Part 53 rule is to leverage the current EP preparedness requirements for small modular reactors and other new technologies, proposed rulemaking efforts and the existing emergency preparedness regulatory framework of 10 CFR 50.47 in Appendix E.

Under the proposed Part 53, in this section an applicant would have the option of choosing compliance with a performance-based, technology inclusive, and risk-informed consequential oriented approach of the proposed 10 CFR 50.160 rule, proposed rule, or the current more prescriptive regulatory format of 10 CFR 50.47 in Appendix E.

It's a short section. And that's all I have.

MR. BEALL: Okay, thank you, Eric. Are there any questions?

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MR. YOUNG: Well, this is Dave Young at NEI. Hey, Eric, I've just got one suggestion for you on the draft, the language that you put out there on the 10 CFR 53.820.

On the phrase where it talks about maintain and emergency response plan that it provides, I just want to suggest that maybe delete the word response so that it would read, "maintain an emergency plan that provides." The emergency plan, as you know, terminology is used virtually everywhere else in regulations and guidance. We tend to call it an emergency response plan, we call it the emergency plan. So, I just wanted to offer that suggest to you for consideration.

MR. SCHRADER: All right. Thanks, Dave. I have read that slide many, many times and it said exactly what I thought it said, but apparently it didn't. Thank you.

MR. BEALL: Marcus, you have your hand up?

MR. NICHOL: Yes, thanks. Just a question for clarification, and I apologize if you stated this. It wasn't clear to me if you did.

But the requirement you put out, 53.20, has parenthesis, work in progress. Does that work in progress, is that just indicating that the SMR EP rule

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is still in progress and so there could be conforming changes here or is that a consideration that you're, or is that indicated that you're considering additional things in Part 53 outside of that rulemaking?

MR. SCHRADER: No, it's strictly indicating that the EP for SMR and ONT is still in the proposed state and working its way through being finalized.

MR. NICHOL: Okay, thank you.

MR. SCHRADER: Yes.

MR. BEALL: Cyril, you have your hand up?

MR. DRAFFIN: Yes. This is Cyril Draffin from the U.S. Nuclear Industry Council.

Just to clarify on the emergency preparedness requirements, they require the applicants to meet the proposed rule for SMRs 50.160 or 50.47 in Appendix E.

There were comments provided by Industry on that draft language for 50.160 when it was initially released. And I know it's, the proposed rule was in process. But at that time we didn't think that it went far enough and that there still would be a need for exemptions.

And in the rule language, I guess you're

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just going to wait for the proposed rule to go forward, but we did at least want to highlight a couple of concerns we had in those, in our previous comments. And I'll give you two examples.

The demonstration for emergency preparedness, the drill capability when you're drilling it 18 months prior to the core load, may be a challenge for the construction schedules that are on a significantly shorted schedule. In other words, the 18-month period we raised as being too far in advance.

And also, the proposed rule focuses on demonstration of emergency preparedness through drills and exercises. However, advance reactor designs may not rely on human actions for emergency planned functions.

And for those, they should be able to demonstrate using alternative methods. And in certain cases, the safety profile of an advance reactor may obviate the rule and associated guidance identified in emergency response capabilities.

So, I just wanted to see whether you had been following, whether those comments had been considered as part of the ongoing proposed rule for 50.160 that you plan on referencing?

MR. SCHRADER: Absolutely. And both of

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those comments were addressed. To the extent that they were addressed, we'll have to wait for the final rule to come out.

MR. DRAFFIN: Okay, thank you.

MR. SCHRADER: Yes.

MR. BEALL: Are there any more questions or comments on this section? If you're on the phone line you can unmute your phone by hitting *6.

Okay, not hearing anyone, can we go to Slide 9 please. Okay, Steve, can you lead us through this section?

MR. VITTO: Yes, sure. Thanks, Bob. So, we can go to the next slide please.

Okay. So, now on Slide 10 we're going to be talking about Subpart F, which is 53.830, "Security Program."

The current power reactor security related requirements in Part 73 were developed for large light water reactors and do not fully consider the variety of designs anticipated for advance nuclear reactors.

Our goal is to support the development of new requirements for advance reactors by establishing an alternating technology inclusive regulatory framework.

So, the Part 53 regulatory framework

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envisioned will provide an alternate to the existing prescriptive requirements that will be commensurate with the risk posed by advance reactors. The proposal will build on the consequent based approach developed for the limit scope rulemaking and physical security requirements for advance nuclear reactors by applying a performance-based graded approach to arrange those security areas.

So providing this alternative framework with a performance-based graded approach will contribute greatly to the NRC's ability to provide for predictable, efficient, and timely reviews for advance nuclear reactors by decreasing the reliance on licensed conditions and the use of exemption process in the areas of security.

So, the performance-based regulatory approaches are meant to try to reflect ability for licensees to introduce new technologies, processes, and procedures. And at the same time, allow the NRC to adjust its requirements to improvements in science, technology, and safety.

So where practicable, prescriptive requirements were removed for how and by what means regulatory requirements must be met and performance-based requirements were implemented in their place.

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Overall, the NRC is seeking to recognize and respond to both new and evolving security threats and new technologies by allowing licensee's flexibility to deal with those challenges without compromising security objectives and maintaining the same or higher level of security.

Next slide please. So, the operational security section 53.830(a). The security program section would establish the security requirements imposed at the advance reactor facility.

The protection of special nuclear material based on the form, enrichment, and quantity would be in accordance with Part 73, as applicable. And the protection of any Category 1 and Category 2 material would be in accordance with Part 37, as applicable.

Next slide please. So, the licensee is required to meet the provisions set forth in 73.55 or 73.100, unless they can demonstrate the potential consequences resulting from a design basis threat attack would not lead to offsite radiation hazards that would endanger public health and safety.

The resulting consequence would need to be below the acceptance dose values in the first tier safety criteria. And those values are at the bottom of your screen.

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If the site-specific analysis is able to demonstrate that the criteria met are bounding design basis threat attack, then the licensee would only be required to protect the material in the material security requirements in Part 73 and 37, as applicable.

So, the criteria proposed is anticipated to expand on the limited scope proposed rulemaking on alternating physical security requirements for advanced reactors and the associated guidance that is currently in development.

When the criteria is met, the resulting physical protection requirements will be those for protection of the material. The risk shifts away from radiological sabotage concern to focusing on the security of the material or, for example, DBT of the material.

The staff expects that applicants proposing to meet the criteria, will perform the consequence analysis, assuming something like a maximum hypothetical accident that would bound consequences from any event, including attack by design basis threat adversary. Essentially, an applicant would show that the loss of key safety functions would not result in a major release of

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radionuclides and therefore the design would not have a combination of failures from an attack that could result in consequences exceeding the dose values.

Those not able to show that the consequences from a hypothetical and mitigating event will not endanger public health and safety. The rule technical proposed will permit the licensee to choose one of two paths to provide physical protection.

So, one is the current set, are requirements in 10 CFR 73.55, which would incorporate the ongoing limited scope rulemaking on alternate physical security requirements for advanced reactors that provides predetermined alternatives.

And the other is a proposed new performance based 10 CFR 73.100 technology neutral physical protection of licensed activities at advanced nuclear plants against radiological sabotage.

So next slide please. So, we want to provide a little flow chart that sort of explains our methodology behind that language.

So, if you see the two sides. If you start on the left side, the criteria is not met, the consequence would endanger the public. Or could potentially endanger public health and safety.

They're required to protect against design

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basis threat or radiological sabotage. And they would apply 73.55 or 73.100, which is a performance-based requirements to protect against the design basis threat.

On the right side, if the criterion is met, consequences are below the values defined in 53.210(b)(1) and (2). Then they would apply the material security requirements as applicable, via Part 73 and 37, commensurate with the form enrichment quantity as applicable.

Next slide please. So, getting into the other security programs that would be required in this section. Each licensee under this part must establish, maintain, and implement a fitness for duty program other requirements of Part 26.

An access authorization program that meets the requirements in 73.120, if the criterion is met, or 73.56, if the criterion is not met.

Cyber security program that meets the requirements of the new 73.110 section, and information protection section in accordance with 73.21, 22, and 23, as applicable.

So, these, most of these programs, will actually be discussed later on in the presentation, so you'll have a good sense of what we're proposing in

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these new sections. 73.110, 120 and the overview for Part 26 as well.

Next slide please. Okay, so that completes the Subpart F for the security programs. Happy to address any comments or questions.

MR. BEALL: Tammy, you have your hand up?

MS. MORIN: Thanks. So, said differently maybe, this is the way I interpret it, this section. And that flowchart was very helpful.

But so, if you, at a minimum, anybody who applies, under Part 53, the requirements for the security program, at a minimum, is that they meet the 10 CFR Part 73 as applicable for Category 1, Category 2, and 10 CFR Part 37.

And then if, said in the opposite I guess, if you don't meet the performance-based requirements you would have to also meet either 73.55 or 73.100. Is that correct?

MR. VITTO: That is correct.

MS. MORIN: Okay. Yes, it didn't, I guess when I read the text at first I didn't really get that number one was kind of like the minimum requirements. And then I guess I just turn them. When you put the flowchart it helped a lot in the presentation, so thank you for that. Okay. My understanding --

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MR. VITTO: Okay.

MS. MORIN: -- Is on the same page as yours, so thank you for that.

MR. VITTO: You're welcome. Yes, and that's exactly why we wanted to put the flowchart to make sure everyone is aware what our overall framework was establishing.

So usually those requirements for the material security aren't imposed through license conditions, through the possession license. So that's where you're trying to have those as a minimum security requirements required for the possession of the material.

MR. BEALL: Okay. Ed Lyman, you have a question?

MR. LYMAN: Yes, hi. Thanks. I think you may have answered my question but just to restate it more clearly, that flowchart, as written, is missing something. Because if the radiological, if the criterion is not met, the licensee may not only have to apply the design basis threat for sabotage, but if they have Category 1 material they will also have to protect against a design basis threat for theft. And the flowchart doesn't really clearly show that, so you might want to make that clear.

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MR. VITTO: Okay, yes. Thank you for that comment.

MR. LYMAN: And the other thing I'd say, this has been discussed in the parallel meetings on the limited scope rule, but the phrase, unmitigated event is not clear. And I think you really need to clarify it because it's not clear if you mean the event is an attack and you're mitigating the attack or the damage the attack does before core damage occurs or you're mitigating after core damages occurs. So, I really think that has to be clarified. Those are my comments. Thank you.

MR. VITTO: Okay, great. Thank you, sir. Yes, and with the ongoing limited scope we anticipate iterations on this ruling was based on both the progressions of both rules.

MR. BEALL: Okay, Alex, do you have a question?

MS. RENNER: Yes, hi. This is Alex Renner from OKLO.

Steve, can you go back to the part that you talked about the accident being hypothetical? Can you just clarify what you mean by maximum hypothetical accident with DBT?

MR. VITTO: Yes, sure. So, this would be

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an event that would, you would have to analyze an event, a consequent based event that would expand on the current safety analysis that's being done, that's required for an applicant.

So, it would be an event that would be, up to an including, a design basis threat. So more like a bounding event that we could say that there is reasonable assurance that if an attack were to occur that there were still, consequences would be below the reference dose values associated with that site.

So, the guidance is going to play a key part in the finding of that analysis. So that's still in development currently.

And I recommend also being tuned into the limited scope rulemaking for discussions regarding that. So currently the analysis and the phrasing are being adjusted in the concurrent rule makings. But hopefully that helps a little bit.

MS. RENNER: I think what I'm understanding is that, at least as described now, is that essentially whatever consequence that came from the safety analysis, essentially the staff is suggesting that the analysis from a security threat needs to be within that. Is that correct?

MR. VITTO: You were breaking up a little

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bit, can you repeat that?

MS. RENNER: Yes, sure. Sorry about that.

I guess what I'm hearing now is that essentially the security analysis would have to be bounded by the safety analysis. I mean, in short.

MR. VITTO: No. So, it would not be, so the safety analysis that's currently done would be above and beyond that to incorporate a design basis threat attack.

So, you would have to pretty much take out all your necessary safety features, you would have no potential response. So, it would pretty much be letting a design basis threat loose at the facility and seeing what consequences could be the maximum consequences that could be produced.

So, it would be above and beyond your current safety analysis that's required.

MS. RENNER: Okay.

MR. VITTO: So, it is a --

MS. RENNER: I think I understand.

MR. VITTO: It is a very --

(Simultaneous speaking.)

MR. VITTO: Go ahead.

MS. RENNER: Sorry. For the bounding, I just meant for the dose criteria. Certainly, the

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progression of events would be quite different. But thanks for that, Steve, I think I understand.

MR. VITTO: Okay, great. Thank you.

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

MR. NICHOL: Yes, thanks. And thanks, Steve, for going through that, that explanation.

If we can go back to your Slide 13. It's sort of the pathways chart. I have a number of short of questions that work together because I'm really trying to understand how it works.

You provided some clarity here. By providing clarity and getting a better understanding actually results in more questions. So, bear with me, if you will.

And I'm going back to the NRCs current SMR security rulemaking so I can understand the interplay of all of this in thinking through where a design might fit and who they might fall through this, this sort of pachinko type of flowchart.

So, let me ask, let me state a couple of things that I'm thinking and then I'll go through the questions because that might help you understand why I'm asking the questions.

So, an applicant could come in, and under

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73.55 there are three criteria that are in the proposed rule. And those criteria, Criteria A is one that you've referenced here. And that is this hypothetical, unmitigated being below certain dose levels.

There is a Criteria B, which is, well, you have plant features to mitigate the event and therefore you are below those doses.

And then Criteria C would be, well, you have those, plus you have some additional things that you can respond to and everything would be okay.

So within that SMR security rulemaking, regardless of which of those require, which of those criteria you met, you still qualify for all of the same conditions. And so that would be that you can rely on local law enforcement for interdiction and neutralize, that your posture, I should say your response, is detect, assess, and communicate. Your onsite force doesn't have to do that interdict and neutralize.

So when I look at the language you've put forward here, you have taken Criteria A and said, if you meet Criteria A you actually don't need to meet 73.55 or this new 73.100, you then meet Part 37 instead.

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And when I looked at Part 37, I'm not an expert in all of this so a lot of this is rough and so you can tell me where I may be wrong. But Part 37 is essentially that detect, assess, notify paradigm.

So, what would be different than say the 73.55 proposed rule is that it wouldn't come along with a lot of, I'll say physical security requirements related to the physical security SSCs. So that would be one distinction.

So that would be the first question is that, this criterion that you have in 53.830, is it identical to criterion A in 73.55 or is it worded similar but it would be applied differently?

So for example, they're both, the DBT is both hypothetical and unmitigated, but say for the 73.55 path you actually take credit for some physical security SSCs that meet some 73.55 requirements, wherein 53.830, that leads up to Part 37, you don't have any physical security SSCs with special, I'll just call it special treatment, that you can rely on.

Or did you envision it to be identical, application of that criterion?

MR. VITTO: So, originally when we were developing it, it was used, developed from the limited scope rulemaking. Currently with this framework it

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really can't be identical by what you just stated.

So we're allowing you to not impose, or we're not imposing 73.55 if you can meet that criteria. So, you can't really credit anything associated with that. Which you were alluding to.

So yes, it would be slightly different. So that's why the guidance would come into play. We might need to evaluate the language in order to make that distinction clear, but at this point, with both rulemakings, we're in tune with both rulemakings and where they go from here.

So, we anticipate probably some iterations on the language. And the guidance is specifying that specifically.

MR. NICHOL: Yes. Okay. Great, that provides, that answers the question that it would be a slightly different application of that criteria and guidance will clarify how that's done.

I guess my next question in this is that, recognizing the limited scope rulemaking, 73.55, has Criterion B and C. But looking at 73.100, it doesn't appear that there is the Criteria A, B and C. Recognizing Criteria A will be treated differently in 53.830 versus 73.55.

And so, if we were to go down the 73.100

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path, then you don't have an opportunity to meet Criteria A, B and C, and to rely on the local law enforcement for interdict and neutralize. Was that unintentional or does the NRC intend that the only way to avoid interdict and neutralize is either this, I'll call it a prime criteria in 53.830 because it's a higher bar Criterion A, or they would have to go through 73.55 or would you envision the NRC being open to including the flexibility under 73.100 that the current, the ongoing rulemaking is doing for 73.55?

MR. VITTO: Yes, so great question. So, we envision that 73.100 would incorporate the alternative.

You could apply the same alternatives that are granted in 73.55, the limited scope rulemaking, within 73.100. So, 73.100 really is taking the place of that B and C criteria, essentially, where it's performance based.

We eliminated a lot of prescriptive requirements that actually in 73.55 the limited scope is giving you those alternatives for. So that's, if that's clear.

MR. NICHOL: That helped. Yes, that helps. I know we're going to be moving into 73.100 so we don't have to get to the details.

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I was hoping to understand your intent and, understanding your intent. We can get into the details when we get into 73.100. But I do appreciate that your intent is to allow the same flexibility in 100, 73.100, as you do in 73.55.

MR. VITTO: Correct. Yes. That's the intent.

MR. NICHOL: Okay, thank you. That's all my questions.

MR. VITTO: All right, thank you.

MR. BEALL: Thank you, Marcus. David Young, you have your hand up.

MR. YOUNG: Yes. Well, I think we probably, previous folks here probably just hit my comments. Let me just say them again to hear them one more time.

I had the, I noted the draft alternative physical security requirements for advance reactors rule contains provisions for alternative requirements, including eligibility criteria that an applicant may use to qualify for use of these provisions. And those are contained in the proposed 10 CFR 73.55(a)(7).

And I think as Marcus indicated, the comment would be that 10 CFR 73.100 should have similar provisions and eligibility criteria. And a

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particular interest is having an alternative to the requirement for site personnel to interdict and neutralize an adversary. I think that was the one that Marcus just said.

And then similar to what Alex and Dr. Lyman just pointed out a moment ago, I had a comment on, in a public meeting in April we discussed the staff's proposed intent for the hypothetical unmitigated analysis and what was the intent of that analysis, how did they see that.

And during that conversation we identified several potential issues with the staff's approach. And staff did acknowledge those issues and indicated they would go back and discuss our comments.

And so, just pointing out again that at this stage we're still unclear as to what hypothetical and unmitigated means. What does that analysis entail, what assumptions are there and so forth.

So, I'll offer those two comments at this stage.

MR. VITTO: Okay, great. Thank you for your comments. And yes, I agree that with the limited scope and this ruling making, in parallel, those issues are going to come up and we want to address them properly in both and be specific on what we mean.

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So, I appreciate the comment.

MR. BEALL: Okay.

MR. YOUNG: And did you want us to hold comments on 73.100 till we get in there? Are we going to have those comments separately?

MR. BEALL: Yes, David. We're going to be talking about 73.100 after --

MR. YOUNG: Okay.

MR. BEALL: -- Finish this section here, Subpart F and 53.

MR. YOUNG: Okay. Thank you.

MR. BEALL: Thank you, sir. Ed Lyman, you have your hand up.

MR. LYMAN: Yes. Sorry, someone in the audience thought I needed to clarify my previous comments because the confusion between Category I and Category 1.

I was talking about an advanced reactor that would use, let's say plutonium metal fuel, where they would probably require a Category 1 license to possess and use. So, in that case they would have to protect against the Category I design basis threat, and that's not clear from the flowchart. So just to make sure that I was understood. Thank you.

MR. VITTO: Great. Thank you for that

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clarification. I did understand what you were meaning. Thank you.

MR. BEALL: Okay, thanks, Ed. Cyril, you have your hand up.

MR. DRAFFIN: Yes. Steve, when you mentioned DBT and considering the worst case, you said it was a really high bar. Could you elaborate on that comment just a little bit?

Has it been used before and how would that be assessed?

MR. VITTO: So that comment really was just to, we don't anticipate a large, I mean, it could be proven wrong, but we don't anticipate a large number of applicants potentially meeting that criteria. We wanted to allow it.

It is a very high bar since we are allowing pretty much, not applying the design basis threat to that facility. And so that's what I was trying to get across.

That it would be a very detailed analysis, up to and including the design basis threat, in order to meet that criteria to only be protecting the material instead of applying 73.55 or 73.100, again, to the design basis for a radiological sabotage.

MR. DRAFFIN: Okay, thanks.

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MR. VITTO: You're welcome.

MR. BEALL: Pete Lee, you have your hand up from the staff. NRC staff.

MR. LEE: Yes. This is Pete Lee from NSIR. I just want to provide some, maybe additional information, regarding some of the comments that was presented.

First, the limited scope rule has the eligibility criteria that would permit you to apply select alternative as to how you protect against the DBT.

So, if that rule goes forward as is, it would be rolled into the 73.55 portion of the choice that you had between 73.55 and the new 73.100, as to how you protect against the design basis threat.

The 73.100, as you will see, and additional discussion that will come forward, is there is no prescriptive requirement such that the performance requirement is allowing the design of the applicant to choose how they protect the plant. That would include, such as, there is no minimum requirement of 10, there is no minimum of how you accomplish the protection assessment and interdiction and neutralization.

And it leaves it to the design of the

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applicant providing the flexibility as to how they choose to accomplish that. So, there would not be any alternative requirement using the eligibility criteria and so on.

And if you followed the 73.100 proposed rule that this is being, a framework that is being proposed.

In regards to the, we're using the unmitigated and looking at the consequence, we're looking at a consequence where you, based on source term of the particular design, applying the DBT, meaning that I don't have any credit for any of the physical protection against a, to protect the plants from DBT and looking at where the source term is, don't exceed or remain below the reference value of 25, 25 over a two hour REM. And then also, the 25 to EDE as a referenced value.

The reason why we only have one criteria, one basically high bar criteria using that is because, if you met that you are getting basically an exemption from the requirement from protecting the plant from the DBT. That means you are relieved from all the requirement that you have, currently have in 73.55. And you also don't have to address anything in 73.100.

So, that basically now default to the

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minimum security associated with the possession of material, the SNM. And also the CAT Number 1 and Number 2 material that you have as part of our license to operate the power plant.

So, hopefully that might give some clarity as to the new framework versus the current framework and the limited scope rulemaking that is in process.

MR. BEALL: Okay, thanks, Pete. Dave Young, you have your hand up?

MR. YOUNG: Yes. I just had one other comment on this section. I was looking at my notes here.

So, this 10 CFR 53.830, as proposed, requires compliance with Part 26 for FFD, fitness for duty, and 10 CFR 73.56 for access authorization. And when you go to those particular regulations, they include requirements related to protected areas and vital areas.

But I'm not seeing either here, or when we get into 10 CFR 73.100, the establishment of protected areas and vital areas addressed. So, I mean, that's not an argument for including those, rather I'm just trying to point out, is there an inconsistency there that needs to be looked at a littler further, and would there be other things like that, terminologies

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and requirements within Part 26 and 73.56 that should be more closely scrutinized since you're pointing to them for part of this rule?

MR. VITTO: We'll take a look at that. And thank you for the comment.

MR. BEALL: Okay. Ed Lyman.

MR. LYMAN: Yes. I know we're going to be discussing 73.100 next but Pete Lee just confused me so maybe we can just clarify it now before I forget it.

I mean, the limited scope rule still requires that there be a consequence assessment done before an applicant can use it, right, so why, so it sounded to me like part, like 73.100 would be voluntary and there would be no specific requirement to show that they could use these alternative methods to protect against the DBT. So, could someone clarify because that seems like a weakening of the current proposal for the limited scope.

MR. LEE: Yes. This is Pete. The limited scope rule is, you have the eligibility criteria, currently you have the eligibility criteria, it says, if you meet the eligibility criteria as presented in the proposed rule you are able to apply these predetermined, basically selective alternatives, in

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73.55(s).

And you basically apply that in the determination, design of protection program to protect the plant against a DBT. So, under that framework you're still protecting against a DBT, correct?

So, the 73.100 is a performance rule. Basically leaves out all these prescriptive requirements that says you have to have design your plant in this fashion, this way, this way. For example, a minimum of ten armed responders.

So, what the 73.100 that's been posed is looking at a greater, you're still required to protect against DBT, but it doesn't tell you specifically how you protect it. It just established a performance or requirement that you have detection assessment, the capability to rely, and also interdict and neutralize the adversary.

So, it's going to lead the designer or the applicant as to how they choose to accomplish that. And that would be, as long as they describe adequately how they achieve that.

So therefore you wouldn't have these alternatives that would be required. But you can still apply for alternative due to performance requirement, but that's going to be very interesting

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in the sense that we already gave you the performance requirements you must meet in order to protect against DBT.

But if you've met the criteria that I have a consequence that's below the reference value, that would be below without any security, and looking at design basis threat in the analysis for the consequence, you've basically demonstrated that I don't need physical security. So that's why you have a, basically an exemption from the requirement. Need to fall to the minimum rule requirements.

MR. LYMAN: Right. But I'm comparing the limited scope rule to 73.100. So, I hear now the difference is interdiction and neutralization.

Now that would still be retained in Part, in 73.100. But it's not --

MR. LEE: All right. Yes.

MR. LYMAN: -- currently going to be part of the limited scope, so that's the difference.

MR. LEE: Well, I believe it is still there under the limited (Audio interference.) You still have to meet the 73.55 requirement in 73.55(d), performance requirement that says they detect and sense, interdict and neutralize.

MR. LYMAN: Well, I thought NEI wrote it

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and said they didn't want that and the staff said okay?

MR. LEE: No, it's not. Because --

MS. VALLIERE: Excuse me, I'm going to interrupt --

MR. LEE: -- Current rule.

MS. VALLIERE: I'm going to interrupt this conversation. And I apologize for doing so, but I just want to bring to everyone's attention that we're here to discuss the Part 53 rule language, and so this is not a discussion about the limited scope rule.

And we definitely recognize the overlaps and the connections there, but I just want to caution everyone that let's keep the discussion focused on the language being presented here for the Part 53 rule because the limited scope rule is another ongoing rule making and we want to have those conversations in a forum where everyone who is interested in that rule can participate in those discussions. Thank you.

MR. LYMAN: All right. But I mean, this rule may be, you may have Part 53 before you have the limited, I mean, unless coordinate those two, this whole effort, it doesn't make a lot of sense to me. I'll stop there.

MS. VALLIERE: I agree completely, the two

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efforts need to be coordinated. And we are trying to do that. And appreciate efforts to point out where we may be falling short.

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

MR. NICHOL: Yes, thanks. Responding to a comment you made, Pete Lee, and I may have misheard it, but when I heard it, it didn't sound right to me so let me repeat what I thought I heard and then say why I think it didn't sound right to me.

So, the comment was, if you meet this unmitigated hypothetical accident criteria in 53.830 and you go down the path of meeting Part 37, then you no longer have to protect against the DBT. And that's what I thought I heard.

Why I think it's not correct is, in that chart it says you still have to meet the other applicable requirements under Part 73. And the DBT is defined in 73.100.

So, my understanding is that even if you meet that, you're still protecting against the DBT. And the DBT is going to inform that hypothetical unmitigated event that you have to analyze against.

It's just that you don't have specific structures and systems that are being relied upon or

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designed to for the specific purposes of. But otherwise, the set of actions that you're required to take under Part 37 would have been evaluated under Part 53 as it having been sufficient to protect against the DBT.

MR. MALTESE: Hey, can I take this one? This is Jim Maltese, Office of General Council.

So, I think like, yes, you're right, 73.100 defines the design basis threat, but not every licensee who has to provide physical security under Part 73 is subject to that DBT. If you have a standalone ISFSI you have to do 73.51, but you don't do the DBT.

If you have a CAT 2 or CAT 3 quantity of special nuclear material, then you're providing physical protection under 73.67 but you're not subject to the DBT.

So, I think the point is, if you meet the criterion, then you don't have to protect under 73.55 or 73.100. Each of which refer to the DBT.

Now, so you're looking at, what are the physical protection requirements that I have to do based on the material that I have. If I have a CAT 2 or CAT 3 quantity of special nuclear materials in my fuel, or otherwise, then I'm looking at 73.67.

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As Dr. Lyman pointed out, depending on the technology, maybe you would actually have a CAT 1 quantity of SNM or also, a.k.a., a formula quantity of strategic special nuclear material. And then you are looking at 73.45, 73.46, that do invoke the DBT.

So, does that sort of clear up your question?

MR. NICHOL: It does, yes. Yes. And I didn't figure, we can talk about details about how it all works later, but that does help clarify where I misunderstood.

MR. BEALL: Okay, Steve Kraft, you have your hand up.

MR. KRAFT: Yes. Thanks, Bob. Hope everyone is okay.

Going back to the question I think that David Young asked about the fitness for duty and access control. Just kind of paying attention to the ACRS's discussions last month, have you all thought through how those two questions would apply to those technologies, I guess principally microreactors, where the developers are thinking about remote operation, factory assembly, including fuel loading?

I'm not asking for an answer, I'm just kind asking whether that's been thought through

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because I think in terms of those developers being able to offer an appropriate application that would probably, may include manufacturing licenses. I need to kind of know that stuff. Thanks.

MR. VITTO: Okay, thank you for your comment.

MR. BEALL: Okay, Dave. Dave Young.

MR. YOUNG: Yes, thank you. So, I guess I had a follow-up question. I guess I have two follow-up questions for Pete based on what he said.

So, let me see if I can take what he said and ask this question a different way. So, Pete, could a licensee, or an applicant, choosing to use 73.100, could the applicant rely on LLEA to interdict and neutralize the adversary?

MR. LEE: That answer would be yes if they can demonstrate that that would be reliable and available to protect against the DBT.

MR. YOUNG: Thank you.

MR. LEE: Because the licensee is still responsible for assuring that the plant operates safely and securely. So, they're not relieved from the requirement to perform the function, such as the interdiction and neutralization that would be proposed that the local law enforcement would be performing

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that. Does that help you answer your --

MR. YOUNG: Well, yes. Well, essentially, so I'll just leave you with --

MR. LEE: So that's --

MR. YOUNG: -- Comment.

MR. LEE: Right.

MR. YOUNG: The way I'm reading the criteria right now (Audio interference.)

MR. LEE: So, if I can just jump in. The 73.100 does not tell you how you protect the plant --

MR. YOUNG: Yes.

MR. LEE: -- Performance requirement objective accomplished --

MR. YOUNG: Can you hear me now? Hello?

MR. BEALL: Yes, we can hear you. Yes, we can hear you.

MR. YOUNG: Okay. I'm sorry, the system muted me for some reason so I wasn't sure where I got cut off there.

I'll just leave you with the comment, Pete, that I'm reading, and I gather other folks are reading too from what I'm seeing here that it doesn't appear that 73.100, as currently worded, would permit that. So again, the idea here is that you're above the criteria, the filtering criteria you have there for

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the hypothetical and mitigated, and I wanted to use 73.100 but, boy, the wording sure implies that you cannot rely on LLEA, that you would have to have an onsite armed response force. So I'll leave you with that thought.

MR. LEE: Yes. And will look at that when you discuss the 73.100 language.

MR. YOUNG: Okay. And then the other thing then on the hypothetical and mitigated analysis. Following what you said a moment ago.

So, is it correct that the analysis cannot rely on any physical security program features? Is that correct?

MR. LEE: Yes, that would be correct because the analysis would, yes, as a result of the analysis you would be released on the requirement, you will successfully meet the criteria. You would not have any of those physical protection requirements that protect the plant.

So you want to look at --

MR. YOUNG: Okay.

MR. LEE: -- It can't be circular. You know, credit and physical protection system is going to get release on the, meet the criteria and then get release on those requirements.

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MR. YOUNG: Okay. And now what about safety features?

MR. LEE: Well, the safe feature is certainly going to be there because now you're looking at a DBT effect on the safety feature. Because you're still considering the effect, the DBT.

Because your safety analysis, the safety features show that the reactor is, can be operated safely. And it doesn't consider intentional act.

Right. So, the DBT is not part of the analysis. So now you're looking at a DBT effect on your safety analysis and looking at the consequence resulting from that.

And because you, basically if you don't have a consequence, and that analysis would not include any credit for physical security and so on because the result from that, if it's below the reference value, doesn't endanger the public health, then basically what this rule will provide is an exception, exemption from the requirement to protect, have all the security to protect against the DBT.

MR. YOUNG: Okay. Again, I'll just leave you with this comment. I mean, I'm just sort of contrasting that with this idea of, can an applicant just submit the design with some combination of safety

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and security features, show that the DBT can't exceed the reference values, and that provides relief from a number of other requirements, such as maintaining an onsite armed response force to interdict and neutralize. Which is, I think, a different approach than what you just described.

MR. LEE: Yes, it is. It's a new framework. Definitely a new framework that we do not have currently.

MR. YOUNG: Okay, thank you.

MR. MALTESE: And we haven't gotten there yet but I think the intention that law enforcement could be utilized as part of the protected strategy is reflected also in the proposed language on access authorization where we mention specifically that law enforcement responders used to implement the physical protection program are not subject to the access authorization program.

MR. YOUNG: Okay, thank you.

MR. BEALL: Okay. Christopher, you have your hand up.

MR. CHWASZ: Thanks, Bob. So I just wanted to echo some of the other commenters for the purposes of 53.830, that the staff review 73.55 for some of those parts of the approval that pertain to

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programs outside guns, gates, and guards, so looking at reporting, records, corrective action program, and things like that, that would still pertain to any security structures that are accredited for that analysis.

So specifically, I'm also looking at any SSCs outside the safety related or non-safety related with special treatment programs, associated with the safety analysis or if there are any passive barriers, or anything like that, that are credited in the analysis. They should be included in some sort of observation or maintenance program.

I'm also looking forward to looking at guidance from the staff on timeline for the events to meet those criterion. Thank you.

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

Ed Lyman?

MR. LYMAN: Yes. I guess I'm getting more and more troubled by this discussion. So, putting limited scope rulemaking aside, the level of security has to be you have to maintain at least the same level of security as for the operating fleet. And what I'm hearing now is that it would actually be weakening because the operating fleet has to interdict -- the licensee has to interdict to neutralize.

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The whole idea behind Part 53 is that advanced reactors have to show, they have to have some sort of showing that they have additional safety and security features relative to the operating fleet. And then they access to this relief.

In this case, you're just saying they can relieve themselves of the obligation to interdict and neutralize based on nothing, based on an assertion that they're an advanced reactor without having to show what, let's say, the limited scope rulemaking would show, that you have to demonstrate that there's a reduced -- that you can give credit to LLEA. Because there are, you know, the target sets are long enough. You know, they have a long enough time to core damage that that would actually be plausible.

And here you're not, you know, maybe you're folding all that into the analysis. But it seems to me like you're not maintaining the same level of security as for the operating fleet by this approach. So, I'm very concerned about it.

MR. BEALL: Okay. Thank you, Ed.

Are there any more questions or discussions on this topic?

Christopher, you have your hand up.

MR. CHWASZ: Thanks, Bob. Not to jump

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ahead, but I noticed under the access authorization program it has an exemption from the insider mitigation program if you might meet the criteria under 53.830.

I guess I was curious as to the reasoning that the staff had an exclusion for the insider mitigation program.

MR. VITTO: I think that would be better addressed during that portion of the discussion if we could wait until then

MR. CHWASZ: Oh, I understand that. But this relates directly to meeting the requirements under 53.830 rather than the, I'm sorry, under 73.120, if that makes any sense.

MR. VITTO: So, if you meet that criteria, the framework would be that the design basis cert would not be applicable. And the reason why you have insider mitigation aspects would be due to the design basis threat. So, the insider is part of that design basis threat. So that's why you would have it not be required for that, if that makes sense.

MR. CHWASZ: Well, okay. So, you have to apply the design basis threat in order to meet the criteria. But without an insider mitigation program, you should then be able to apply an active insider for

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the design basis threat? Would that not be correct?

MR. VITTO: For the analysis, in order to meet the criteria, you would have to apply the full design basis threat.

MR. CHWASZ: Okay. Which in that case, because there is no insider mitigation program, would include an active insider.

MR. VITTO: Correct.

MR. CHWASZ: Okay. Thank you.

MR. BEALL: Okay. Thank you very much. There was also somebody from DOE that had their hand raised, then it dropped off, and came back again, and dropped off. And if that person would like to, still has a comment or question, you can unmute your phone.

MS. IYENGAR: Yes, hi. This is Anagha Iyengar from DOE and NSA. I think I'm going to wait until the end to provide our comment. Thank you.

MR. BEALL: Okay, no problem. Thank you very much.

Is there anybody on the bridge line that would like to say anything? If you do, please hit Star 6 and unmute your phone, please.

Okay. Not hearing any, can we go to Slide 16, please? So, Steve, do you want to start with the Section 73.100?

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MR. VITTO: Yes, sure. Thanks, Bob. So, if we go to the next slide please. So starting off with going into our 73.100 Physical Security for Advanced Reactors, the high prescriptive physical security requirements found in 73.55 were developed in in the plan of the life of the current operating large light-water fleet. In some cases, security was retrofitted over the years based on changes in threat and specifically after 9/11.

So, the physical security regulations are based upon the main concept to meeting the performance objective of protecting the facility against design basis threat of radiological sabotage. The DBT is not dependent on the reactor technology, and therefore, the areas in which a graded approach could be implemented is a site-specific protective strategy based on the consequences resulting from a design basis threat initiated attack.

So, our approach creates the prescriptive nature of these requirements so, for example, no longer designed from one prescriptive protected strategy method, for example, only allowing onsite response, and provides flexibility to licensees to implement the site-specific physical protection program.

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So in alignment with the advanced reactor policy statement in Part 53, security should be incorporated as early as possible into the design which allows the designer and the licensee to potentially improve and effectively implement the physical security systems and strategies that may have less reliance on human actions.

The high level concepts required to protect the site against design basis threat remain the same detectors as ask communicators to respond to allow for flexibility to the licensee as to how to implement the concepts and thus allowing for a technology-neutral and graded approach to security.

So the proposed new section of 73.100 provides the regulatory framework based on performance requirements that minimize or eliminate prescriptive requirements to permit the licensee the flexibility to determine how it will design and implement the physical protection necessary to protect against design basis threat and security of the plant for possession and activities involving nuclear material.

So, the current physical security requirements use a combination of performance criteria and numerous prescriptor requirements developed to achieve the performance objective. In a performance-

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based approach, the physical security performance criteria and objectives are the primary basis for regulatory decision making, giving the licensee the flexibility to determine how to meet those performance criteria for an effective physical protection system and security programs.

So, the next slide, please. So, getting into 73.100(a) and (b), the introduction and general performance objectives and requirements, for (a), the security plans must then prescribe and account for safety-specific conditions.

Paragraph (b) outlines the general performance objective and design requirements of the licensee physical protection program. Licensees are required to provide protection against design basis threat of radiological sabotage.

To accomplish this, the physical protection program designed to protect against any deliberate act against the plant, or against the component of such a plant, including spent fuel sabotage which could directly or indirectly endanger the public health and safety by exposure to radiation.

The physical protection program is supported by the access to authorization, cyber security, insider mitigation programs to meet the

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performance objective of the section. The effectiveness of the physical protection program specific to licensee protective strategy is measured through implementation of the performance evaluation program.

The performance objective of protecting against design basis threat of radiological sabotage is achieved by design and implementation of the physical protection system, maintained at all times with the following performance requirements.

So, intrusion, detection, the physical security structure systems and components relying on full interior and exterior intrusion detection functions must be designed to detect attempted and actual unauthorized access. The initiation of plant security response begins and is based on the critical detection element of the physical protection system.

Intrusion assessment, designed to provide rapid, remote response for determining cause and initiating appropriate security responses, the implementation of required plant security response relies on the information provided by these systems for protecting the nuclear power reactor against malicious acts.

Security communication, these systems are

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relied on for coordinating the security response, the design basis threat, to request any outside assistance.

Security delay systems, these systems are relied on to delay an adversary which provides security responders opportunities to interject or neutralize a design basis threat adversary.

Response, engineered physical security structure, systems, and components performing neutralization functions, and engineered fighting positions relied on to protect security personnel performing neutralization functions, must be designed to provide overlapping fields of fire.

A control measure protecting against vehicle bomb assaults, engineered physical barriers, active and passive systems, are relied on to protect the reactor, spent fuel pool, and other systems, structures, and components.

Access control portals detect and deny unauthorized personnel and material into any protected areas. The design shall apply principles of redundancy, diversity, and appropriate layers for defense in depth to achieve the intended functions. These principles are necessary for the reliability and availability of systems and components.

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Each performance requirement is adequately implemented through detailed design, along with the adequate implementation of administrative controls and security programs to protect the nuclear plant against design basis threat of radiological sabotage.

These performance requirements do not limit designers or applicants from applying methods or approaches in designed engineering systems to perform intended security functions consistent with their commissioned policy statement on advanced reactors. These considerations should be considered early in the design process.

Next slide, please. So going on to the general performance objectives and requirements continuing on with (b)(2), to satisfy the general performance objectives, you must protect against design basis threat as stated in 73.1, ensure physical protection system capabilities are maintained at all times, and provide defense in depth in achieving performance requirements through the integration of measurement systems, administrative controls, and management measures to ensure effectiveness of the physical protection program to protect the plant against design basis threat of radiological sabotage.

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Next slide, please. The next requirements found in (b) (3) through (9) are as follows. Identify and analyze the safety specific conditions that may affect the physical protection program needed to implement the requirements.

(b) (4) is the performance evaluation program periodically tests and evaluates the effectiveness of the physical protection program designed to protect the design basis threat, including the security response, performing the functions of interdiction, neutralization, for implementing licensing protective strategy. Must implement an access authorization program in accordance with 73.56. Staff must maintain and implement the cyber security program in accordance with 73.110 and then the insider mitigation measures and program to protect against design basis threat, insider, active, passive, or both.

(b) (8) is the site Corrective Action Program to track, trend, correct, and prevent reoccurrence of failures and deficiencies in the implementation of the requirements. And (b) (9), form coordinated safety and security operations to ensure adequate management of the safety and security interface.

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Next slide, please. So, 72.100(c) is the security organization. This paragraph outlines the requirements for composition equipment and training of the security organization. The intent is that the security organization will focus on the effective implementation of the physical protection program.

Individuals assigned to perform physical protection or contingency response duties must be trained, equipped, and qualified to perform assigned duties and responsibilities whenever an individual is a member of --- whether an individual is a security organization or not.

Next slide, please. So, the search requirements, this paragraph established the performance requirements for search of personnel, vehicles, materials, for the protection against radiological sabotage. Searches will be used to detect and prevent the introduction of contraband to the site. And the program must accomplish this through search of individuals, vehicles, and materials consistent with the performance requirements.

Next slide, please. 73.100(e) is the security reviews. This paragraph ensures effective implementation of the physical protection program and systems through periodic reviews of the program.

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This proposed rule text was developed from 73.55(m) to review each element of the physical protection program by individuals independent of those personnel responsible for program management, and any individual who has direct responsibility for implementing the onsite physical protection program. And it ensures timely identification, documentation of vulnerabilities, improvements, and corrective actions.

Next slide, please. 73.100(f) is a performance evaluation, establishes methods appropriate and necessary to assess, test, and challenge the integration of the physical protection program's functions.

The licensee must establish appropriate necessary frequencies for performing evaluation verification and assessments, document processes and procedures, and maintain records, including results of findings and corrective actions, documentation of the performance values, and verification, and assessments.

Next slide, please. 73.100(g) is the Maintenance, Testing, Calibration, and Corrective Actions. So, this establishes performance requirements for maintaining the security structure, systems, and components relied on to perform security function to protect against a design basis threat and

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implementing security programs.

It includes corrective actions to be taken by the licensee in response to a failure or degradation of security equipment to perform its intended functions and implementation of security programs. The proposed rule requires that the licensee will maintain that SSCs described in its design and licensing basis to assure that they are reliable and available.

Next slide, please. 73.100(h) is the suspension of security measures. So, this paragraph establishes requirements for the suspension of security measures in response to emergency and extraordinary conditions.

The requirements of this paragraph are intended to provide flexibility to a licensee for taking reasonable actions that depart from an approved security plan in an emergency when such actions are immediately needed to protect public health and safety and no action consistent with licensee conditions, and training specifications that can provide adequate or equivalent protection is immediately apparent in accordance with applicable regulations that are identified.

So that's noted here. These references,

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the 50.54(x) and 50.54(y), are most likely placeholders and likely to change based on further development of Part 53 language as well. To there's a little reference there, applicable regulations within Part 53.

Next slide, please. 73.100(I) is the record section. Licensees must maintain all records to be kept by Commission until license termination, licensee termination of the license for which records were developed and superseded records for three years.

If a contractor of a security force is used for onsite protection, licensees must retain the written agreement for the duration of the contract. Records must be available for inspection for three years.

Next slide, please. Frankly, that's the end of the 73.100 section, so opening up for discussion.

MR. BEALL: Okay, Marcus.

MR. NICHOL: Yes. Thanks, again, Steve. I have a number of questions. Do you want me to ask them all now or just ask one, go to other people, and come back to me later?

MR. VITTO: Bob, that's up to you, Bob.

MR. BEALL: Why don't you do a couple of

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them, Marcus. Because you're getting a quite a line behind you.

MR. NICHOL: Okay. Let me ask some sort of fundamental ones, and I can come back to more detailed ones later.

So the first is in terms of intended scope, that comment on Slide 26 that, right now referenced Part 50, (x) and (y) are placeholders, you'll replace it with Part 53 answered one of the questions I was coming with.

But it does raise the question, is the intent of the NRC that 73.100 will only be allowed for Part 53 applicants? Or is there, do you have some notion that 73.100 could be used by Part 50 and 52 applicants?

MR. VITTO: So, I believe right now the intent is only to have Part 53 applicants being able to apply the 73.100. So that's the intent going in, unless we, you know, change what we're thinking. But that's the intent.

MR. NICHOL: Okay, thanks. Yes, I think that'll help frame the conversation, so we know that it's just limited to Part 53.

The second question, and then I'll let you go to other people and come back to me later, I

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noticed in 73.100 you have requirements, and specially access authorization and cyber security that says you have to meet those parts. But then I also see, in 53.830, you also have requirements for access authorization and cyber security to meet the same parts.

So, I'm wondering, do you think you have to duplicate requirements for access authorization and cyber security if there may have been other areas in 73.100? Or do you, you know, I might think that it's adequate to just include them in 53.830 and know that a Part 53 applicant has to meet those, and you don't have to duplicate them in 73.100? Was it a conscious decision or, you know, is that something you might think about going forward?

MR. VITTO: Yes, that's something we might think about going forward. Originally, the framework of 73.100 was to be similar to 73.55, how that's laid out. So yes, we understood the redundancy, potentially, in having those requirements there. We will evaluate the best place for it based on that. But thank you for your comment.

MR. NICHOL: Okay, thanks. I'll let you go to other people and come back to me later.

MR. BEALL: Okay. Thank you, Marcus.

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Dave Young.

MR. YOUNG: Yes, just a few things. First of all, the proposed 10 CFR 73.100(b)(1)(vii) requires access control portals. But it doesn't indicate to what area or boundary that those controls apply. So, I just wanted to give you that comment to think about.

The second comment I had was the proposed Bravo 8 requires a corrective action program. I think that that term is used by NRC. That implies a, you know, a pretty big beast.

And I'm just wondering if, instead, the requirement should be for some mechanism to document and maintain, available for inspection, corrective actions that are taken, as opposed to a corrective action program as it's currently used for the operating fleet.

Because that kind of model or paradigm may not be appropriate for some of these newer reactors. So maybe consider some performance-based elements you're looking for, for documenting corrective actions, as opposed to saying require a corrective action program.

Third one was on 73.100(d), similar comment to what I just made a moment ago on the access controls. So, this requires searches, but it doesn't

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indicate what to area or boundary that the search requirements apply. So, I wanted to give you that as food for thought.

And on the proposed 73.100(e), requiring security reviews, I'm just curious if NRC has any information concerning the potential value of this requirement. In other words, you know, have they looked recently at operating experience from the current fleet?

That requirement, as I think everybody knows, the security has been around forever. I think it may not be as valuable after a certain period of time after the program's been scrubbed so many times. It's value or utility may be, you know, becomes more limited over time.

So, I'm just suggesting maybe staff take a look at that and perhaps that requirement could be time bounded in some fashion, you know, maybe after a certain number of reviews are completed, then the requirement sunsets. So, wanted to offer those four comments for consideration.

MR. VITTO: Okay. Great, thank you for your comments. And we'll take those and note them as we evaluate further iterations of the language. Thank you.

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MR. YOUNG: Thank you.

MR. BEALL: Okay. Cyril?

MR. DRAFFIN: Hello, this is Cyril Draffin. I'm from the US Nuclear Industry Council. I have four comments. On 73.100(b)(1)(iv), it seems to be having a new prescriptive requirement for security delay systems that specifies they must be designed to provide for timely security responses.

Is it the intent of the staff that all advanced reactor facilities require security delay systems regardless of design? Or are security delay systems only required if a timely response from a security response's team is needed, and it's longer than the time that would be needed for a perceived hypothetical and mitigated attack to result in exceeding the dose criteria? So, could you elaborate on the security delay systems?

MR. VITTO: Pete, would you like to handle that?

MR. LEE: Yes, sure. Delay is always a part of the response, a response that will provide the interdiction neutralization function. Currently you have delay for the onsite, you know, for the onsite response in the form of the PA barrier, and the distance, and things like that that, you know, the

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adversary must defeat in order to, you know, penetrate the plant.

That delay is not specified, but it's part of how you design your physical protection to allow for the responder to be in the position where they could neutralize, depending on how the protective strategy is laid out, whether it be at the PA, whether it be at the site building boundary, or internal of the power block.

The reason why you have delay there, it's now, I'm looking for a different approach in how you accomplish your security response. Delay could also be such that you have an offsite response, sufficient such that you have a licensee offsite response that could interdict and neutralize the adversary. So that's a different method where you do not have an onsite response, but you have enough delay to enable the offsite response.

So that's an approach in flexibility, what we have provided by having these performance requirements rather than prescribing, as you have today, the response only from the onsite.

So does that help? Because basically it's part of the design of physical detection, detection, assess, communication, delay, and response. And a lot

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of times, **you know**, the response covers basically the delay and the interdiction, neutralization piece of the system.

MR. DRAFFIN: Okay. So, what it would need, it would depend. It'd be somewhat graded based the reactor being evaluated?

MR. LEE: Well, yes. It does depend on the reactor, and it's going to be depending on how you chose to achieve those performance requirements, you know.

MR. DRAFFIN: Okay.

MR. LEE: All right.

MR. DRAFFIN: The second question is on defense in depth, (b) (2) (ii). You've given some, in the guidance or the notes on the right-hand side, some helpful background. Do you have any thoughts in terms of examples of how that could be presented in addition to what you provided on the text?

In other words, you're thinking about what defense in depth is. And that analysis would be sufficient.

MR. LEE: Do you want to take that, Steve?

MR. VITTO: So, you're looking for specific examples? So, this defense in depth aspect is equivalent to 73.55. So, we'd be looking for the

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same sort of requirements that are currently part, or analysis that would be currently required to ensure that you have reliability and redundancy in order to achieve that.

MR. DRAFFIN: Okay. And nothing there would be the same as you've done before?

MR. VITTO: Correct, yes.

MR. DRAFFIN: You referred, in five, to training and qualification plan. Any elaboration on that? Do people do online training. What kind of level of training is required? Again, I know it's a graded approach, but how would that be addressed?

MR. VITTO: So that would be up to equivalent, so pretty much the framework would be that establishing a 73.55 program would also meet 73.100. So, it would be -- but it's still allowing for the graded approach. So, meeting the training qualification requirements required by Appendix B would also suffice for that requirement.

MR. DRAFFIN: And if they were to do online training or other things, they could propose that if needed?

MR. VITTO: Yes, they would be able to propose it. We'd have to evaluate it based on the individual protection strategy, and amount of

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responders, and things like that.

MR. LEE: The only thing I would add regarding to online training, I guess, you are looking at the tasks that you're training for. If you are training to actually be operating weapons and, you know, shoot accurately, and so on, the task is not going to be something that you can accomplish with online training.

So you have to look at the tasks that you want to make sure the responder will be performing and how you go about, you know, assuring that they can perform that task efficiently and proficiently.

So, yes, but that would be left to, you know, the applicant as to how to design the training and qualification program. The one that would be basically what you have today, which we accepted, is accomplished in training and qualifications, security responder, officers, and various (Audio interference.)

MR. DRAFFIN: Okay, thanks. And the last one is on security reviews. You mentioned there would be periodic reviews. Any sense of how frequently that would be required? This is in (e).

MR. VITTO: So that would be up to the licensee for frequency and we'd evaluate based on that.

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MR. DRAFFIN: Great, thank you. That's all my questions.

MR. BEALL: Okay, thanks, Cyril. Ed Lyman?

MR. LYMAN: Yes, hi. So, my questions refer to the NRC role in confirming the compliance with this rule. So, first of all, I don't see anything about force on force exercises, either licensee drills or NRC run inspections. Is that correct?

MR. VITTO: That would be incorporated in a performance evaluation program for the license update.

MR. LYMAN: That's the licensee performance evaluation?

MR. VITTO: Correct.

MR. LYMAN: There's no specific requirement that it be -- that force on force drills or exercises be part of that, right?

MR. LEE: Well, similar to what we have today, the requirement for the NRC to conduct the force on force goes on the NRC. And it's currently not in the regulation of 355. But it is something that we would have to meet.

MR. LYMAN: It's in Appendix B, I think?

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MR. LEE: No, that's for the licensee conducted --

MR. LYMAN: So, you do intend to conduct force on force inspections --

MR. LEE: Yes, to meet that requirement for the NRC to -- and -- the NRC, that exercise. I believe that's from the amended Atomic Energy Act.

MR. LYMAN: Right.

MR. MALTESE: To clarify, hey, this is Jim Maltese from OGC, that the Atomic Energy Act does provide the Commission the flexibility to determine which classes of licensees are subject to force to force inspections.

The Commission's current, the current policy that the NRC implements is the operating reactors and Category 1 Fuel Cycle Facilities are subject to the NRC force on force inspections.

There haven't been any decisions at this time whether, you know, advanced reactors licensed under 53 would be considered a different category. But the current approach is that operating reactors aren't tested on force of force.

MR. LYMAN: So, there's a possibility that you'll decide any licensee under Part 53 is exempt from the Energy Policy Act requirement? That's a

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possibility?

MR. MALTESE: That is not something that, I think it's premature to say that.

MR. LYMAN: It's premature to say it's a possibility? Okay.

MR. MALTESE: I think NRC inspection approach for these facilities is separate from the requirements that we're discussing in this rulemaking.

MR. LYMAN: Well, it is and it isn't. Now, I mean, it seems to me they're creating a much bigger burden for NRC inspectors in throwing all the prescriptive requirements out the window. And so how -- and you have this requirement for independent reviews.

So, it seems to me like the NRC is almost outsourcing its role in reviewing security plans to some unknown, you know, organization or organizations. Who do you envision are going to be doing these security reviews, the cottage industry of consulting companies?

MR. VITTO: So, I think when we refer to the independent reviews, that's equivalent language in 73.55(m). So, we would envision the same guidance, essentially, with those reviews that's currently being performed at the current operating fleet.

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MR. LYMAN: And how would NRC, would they review the security plans with the same level of diligence? Because again, it would put a much greater burden on NRC analysts and inspectors when you don't have any prescriptive requirements at all. Each plan is going to be custom, and it just seems that you're transferring a lot of burden to the Agency to be able to maintain the same level of protection as for the current fleet.

MR. VITTO: So, we appreciate the comment, and that's part of what we're evaluating now is, once the rule language and rule text gets developed, how it'll be implemented later on down the road to be an inspection. So, we appreciate that comment. And that's still to be determined, still to be developed.

MR. LYMAN: Okay. That's all I have. Thank you.

MR. BEALL: Okay. Thanks, Ed. Mike Keller?

MR. KELLER: Yes, this is Mike Keller with Hybrid Power Technology.

MR. BEALL: Hey, Mike. We can hear you now.

MR. KEELER: Okay, thank you. I get the impression, and I could be wrong, that what's being

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proposed is more along the lines of implementation, specific implementation guidance as opposed to broad, codified requirements.

You know, it strikes me that, depending on the particulars of the plant, it's not necessarily clear to me anyway that -- are you saying you need to do these items listed no matter what the type of plant?

I mean, you're in the context of security. Some would be more robust than others, most likely. But again, it's a general impression that it's being, you know, what's being proposed is a springboard for more requirements as opposed to putting the ball in the applicant's court to identify what he's going to do. And then the NRC's saying, okay, good or no good. Again, this is just my impression.

A specific question, are these elements already in these existing code of federal regulations?

MR. VITTO: So, when you refer to elements, you're referring to overall? Or can you just be a little more specific?

MR. KEELER: The ones you listed, the ones with the, the items where you've marched through in your presentations.

MR. VITTO: So, all of the requirements in

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73.100 were either developed from prescriptive requirements that were in 73.55, and the concepts are all the same. So we've envisioned that someone meeting 73.55 currently could, you know, it would be equivalent level projection if they were to implement 73.100, so the same objective, same design criteria. And then also performance objectives should be equivalent too.

And then we establish the graded approach by allowing a little bit of flexibility with how you apply those, you know, intended functions and things like that. Does that answer your question?

MR. KEELER: Well, what I'm trying to understand is, so the existing requirements are paralleled by the new 100?

MR. VITTO: So, I'm still struggling to understand, but I believe, so all the high-level requirements are equivalent to things that were developed in 10.355. So, there's no real new requirements in 73.100. It's really the performance-based aspect that is the new framework.

So it's allowing flexibility by not prescribing never responders, things like that, to allow flexibility for the applicant, knowing that so many different designs are coming down the road to

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eliminate license conditions and exemptions where we could, but still have the same level of security or same level of assurance that adequate security for the design-based threat of radiological sabotage would be established.

MR. KEELER: Hum, okay.

MR. VITTO: I don't know if that answers your question. Sorry about that.

MR. KEELER: No, I'm still a little uneasy about this, but thank you.

MR. VITTO: You're welcome.

MR. BEALL: Okay. Thanks, Mike. Marcus?

MR. NICHOL: Yes, thanks, coming back off mute. So one, I do think the NRC has made a step forward in making 73.100 more performance-based. I'm going to offer a number of requirements to sort of suggest or, at least in my mind, how it could be even more performance-based than it already is.

So please ask me questions or give me thoughts if you think any of these things are sort of difficult to do, or if you're otherwise, you know, see some issues with doing it.

The first place I want to point out is in 73.100(b), and (b)1 starts out at the general performance objective saying, you know, it's provide

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reasonable assurance, so it's not an unreasonable risk to the public. That's short-hand.

Then the question is, well, what does that look like? Because really, I think about it as eventually an applicant's going to have to come to the NRC and demonstrate how they meet this requirement. And if it's not clear, in the regulations, what level of acceptability is there, I'll just call it performance criteria, then there's going to be a lot of uncertainty.

Now, it could be clarified in guidance. And that could be an acceptable answer as well. But for something this high level, it's probably best to put it into the requirements if we can.

I would notice that, or I do note that if you skip over (i) through (vii), which are sort of the ones that imply that meeting these is meeting that performance criteria, if you skip over to (ii), it actually provides more of the performance criteria that I would expect to be related up front, which is protecting against the DBTs, radiological sabotage.

So I actually think moving (ii) up to the end of (i), skip over the subset of i's below it, I'll come back to that in a second, that would actually be a better connection to define what is this high level

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performance criteria that you need to meet.

The one thing it misses is, well, what does it mean, what is the acceptability of protecting against radiological sabotage? How do I know that I've achieved that goal?

And I think the answer is maintaining dose below 53.210(b), that's the 25 REM. I don't know if that's what the NRC sees or not. So if it is, it would be helpful to clarify, maybe move up to that initial entry of (b) and say that, you know, meeting this means protecting against the DBTs, radiological sabotage to ensure doses are below 53.210. That, I think, would be really solid in giving everybody clarity on what is an acceptable performance level of security.

But then it gets to, well, what do we do about (i) through (vii)? And I would argue that these are actually capability or functional requirements. They're not performance objectives in that, you know, what I just mentioned is really the ultimate performance objective. These are the functions or capabilities that a plant would need in order to, you know, provide some reasonable assurance that you're meeting that high-level criteria.

So primarily, it's detect, assess,

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communicate, you have in here delay. Later on there's some flavors of, well, there is response here. So that has interdict and neutralize. So those might be sort of (c), actually, which are, here are your capabilities that you need to have to be able to demonstrate reasonable assurance for that high-level performance objective.

Now within that, I'll bring back the earlier conversation about, well, what about this SMR rulemaking that has criterion (a), (b), and (c) that says if you do some of these things you can rely on local law enforcement. That may actually be where you want to incorporate this.

Because you may not need all of these capabilities depending on the particular, I'll just call it the safety or security profile of your plant. And so maybe this is where we introduce, you know, we need to be technology inclusive, we need to recognize there's going to be a broad spectrum of plants that need a lot in security and some plants that need a little in security.

And so for example, you might come out and say no matter that type of plant you are, if you've made it into 73.100, you have to detect, assess, and communicate. So you have to do those.

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But if you meet one of these criteria, let's say you meet Criteria (a), you don't need to delay. If you meet (b) or (c), or you don't even meet those, you have to do delay.

And then here, in terms of response for interdict and neutralize, well, if you meet (a), (b), and (c), you actually don't need to interdict and neutralize because you're relying on local law enforcement. And therefore, you don't need to do that.

And then, by the way, if you didn't meet (a), (b), or (c), you do have to have interdict and neutralize capabilities. So that might be one way of structuring them all together to give capabilities in terms of -- and make it more flexible for the designs you might see.

Now, I will note, when I read through these, they all just take (i), intrusion detection system, as the example. I didn't really find them to be performance-based. I found them to be slightly prescriptive.

And as I looked at it, I realized why. it's because these come across as design requirements. So, they're coming across as requirements for designing your SSCs rather than sort of capability or

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functional requirements. So, for example, the way it's currently worded says you have to have these SSCs, and they must be designed to detect an attempted or actual unauthorized access.

A way to reframe it and actually put more emphasis on the performance, because you don't want to just design a detection system, you want the detection system to actually work when it's needed. So perhaps changing the emphasis that, you know, that once you get into here you have to be able to provide detection capabilities of attempted and actual unauthorized access.

So, it's maybe a rephrasing, but the emphasis, I think, makes a difference, that it's more on how it's performed in the operations of the plant rather than sort of how it's designed up front.

Design up front is important; I'm not saying it's not. You might have a lower level requirement that talks about some design restrictions around that, but I think it's the entry of that requirement focusing on the performance of it would be more important.

I think it would also help in, if you framed it in terms of the performance, it would help because I think it would naturally, it needs to

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describe why you have to have that capability. And I think framing it as a performance, you know, providing this capability because, bla, bla, bla.

And I'll just take the communication system as the example here. So essentially you have to have a communication system that says the SSCs for that communication system has to be designed in a certain way.

But the question comes, well, how do I know what is satisfactory. I sort of understand the purpose of this communication system, but it would really help to be clear why you have to -- what function, or capability, or performance criteria that communication system is trying to achieve.

Otherwise, you get in and say, well, I don't know how many SSCs I need for communications. I don't really know when I've accomplished what this requirement is communicating. And then as an applicant comes in, it's really uncertain what is the staff going to expect. Is there some, you know, back and forth to figure out subjectively what it is.

Now, I do recognize that could be clarified in guidance, and that might be an acceptable answer. But I just wanted to point those features out in terms of how you might look at making it a little

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bit more performance-based.

But the last one I'll come to in this is on (vi), control measures for land and water-borne vehicle bomb assaults. It may be possible that a design, maybe based on its location, has no water-borne vector. And so do you really have to protect against the water-borne vehicle bomb if there's no vector there? I think that's probably easily taken care of.

But even with the land assault, it has in here very prescriptive, you must design the SSCs against that, to protect against those threats, must be designed to protect the reactor building, and structures. And you must have a minimum standoff safe distance to adequately protect all those SSCs' regard for safety security.

Well, what if the consequences of that land and water-borne threat were below 53.210, and everything is perfectly okay? I mean, do you really have to protect against those if the consequences are a no, never mind, if you've actually met that upper objective of does not constitute unreasonable risk?

So that might be one specifically to look at in terms of this. Is there a graded approach, are there entry criteria that force you into this

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requirement, or criteria that prevent you from, or eliminate the need for considering this?

So anyway, I don't know if you have any reactions, or questions, or thoughts. But those were some of my ideas in terms of how to make this even more performance-based.

MR. VITTO: Yes, and we appreciate the specific comments. Just generically, we're definitely going to take them back. And we'll look at it to see if the intended verbiage is clear and, you know, take your recommendations as comments and ensure that we're keeping those in mind as we go forward with iterations. That's just, you know, a generic comment, and nothing specific from me regarding what you were mentioning though.

MR. BEALL: Okay.

MR. NICHOL: Thanks, that's all I have.

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

Chris?

MR. CHWASZ: Thanks, Bob. So first I want to echo what Marc said about performance requirements. A tie back to 53.210 would be good. I know we all know under 73.55, we were looking to prevent a Part 100 release. We need a good tie here under 73.100 for the performance requirements.

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So, I want to echo what he said. I agree, 73.100 puts a lot of the onus on the applicants and the licensees to show that they meet this regulation. Because it is performance-based and so it's going to require a lot of work on security assessments to show that.

And I think we're looking forward to NRC producing guidance on the acceptability of performance, and system reliability, and personnel reliability when it comes to doing security assessments to demonstrate compliance with this new rule.

And in addition to that, 73.100 doesn't require any target identification. It just requires meeting, protecting against the DBT. So, you know, we all know 73.55 had vital equipment, vital area analysis and target set identification.

73.100 did not require any of that. And I think, in some ways, requiring the licensee to show that would put a little less work on NRC reviewers and inspectors. So those are my comments. Thank you.

MR. BEALL: Thank you, Chris. Do you have anything, Steve?

MR. VITTO: No. I was just going to say thank you for the comment, and we'll take those back

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and look at the language.

MR. BEALL: Okay, great. Ed Lyman?

MR. LYMAN: Yes, thank you. Yes, actually my comments were sort of along similar lines. I mean, if you're going to have a performance-based rule, then performance testing is more critical than ever. And so you shouldn't try to, you know, performance-base the performance testing requirements. They should be prescriptive.

Because you're putting much more of a burden on the outcome. So I think the section on performance evaluations does need to contain more specific requirements so that you don't have a completely relative -- you're not giving the applicant both the ability to design how they're going to, you know, show the requirements as well as how they're going to implement them.

You can't just remove all the burden everywhere. You have to have, if you're going to remove prescriptive requirements for the security plan, you're going to have to have more specific and detailed requirements in the rule for showing that they can actually comply. Because otherwise, there's just too much leeway for dispute.

You know this could be a recipe for

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stalemates, because you have to have some goal posts that are clear to everyone, including the public. And don't forget that the public is not going to have access to all the specific details of the security plans as well as the, you know, the details of the reviews and the inspections.

We're just going to have the same, you know, annual report with no details in it. And we need to have confidence that there are specific requirements and compliance that the NRC is maintaining.

So always keep in mind that there's also the public confidence aspect of this. And that may require more detail in the rule to ensure that there's not, that there is a firm and clear goal for compliance with this rule. Thank you.

MR. VITTO: Okay, this is Steve Vitto again. Thank you for the comment. I appreciate it.

MR. BEALL: Okay. Thank you, Steve. Jeffrey Merrifield, you have your hand up?

MR. MERRIFIELD: Yes, thank you very much. I just wanted to comment, and I have a disagreement with Ed Lyman on this, you know, Congress intended for the Agency to look at this as a risk-informed, performance-based rulemaking.

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And the notion that if we are aligning the requirements that the licensees have to meet relative to their risks, and if the licensees can demonstrate that to the satisfaction of the staff, that doesn't necessarily mean you have to commensurately increase prescriptive requirements to validate it.

I would note, you know, obviously we have a series of research and test reactors in the United States which have very simple requirements that are relatively straightforward security. The inspection regime utilized by the NRC is commensurate with the recognition of that risk, and there has been a general level of confidence by the Agency, Congress and, frankly, the general public, that those facilities are appropriately protected and tested by the Agency.

So, I do think it's, you know, I do think there's a ramp here that needs to be balanced, and it needs to be demonstrated by the applicants. But it doesn't necessarily need to be followed by a more prescriptive inspection regime to accomplish that goal. Thank you.

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

MR. LYMAN: Yes, and just to respond to that, the research and test reactor regulation is not

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an appropriate comparison because, as we all know, the Atomic Energy Act has different requirements for research and test reactors because of their particular role compared to power reactors. So, I would reject that comparison.

MR. BEALL: Okay. Thank you, Ed. Steve Kraft, you had your hand up earlier. Do you have any other questions?

MR. KRAFT: Thanks, Bob. No, I think that Marc's question got at it very well. Thank you.

MR. BEALL: Okay, no problem. Are there any other questions for this section? Anybody on the phone? If you would like to hit Star 6 to unmute your phone and ask your question now, please.

Okay. Not seeing anything else, this is very close to our lunch break which was, by the agenda, was 12:15. So it's around 12:07 right now, East Coast time. So, let's plan on taking our lunch break right now. And then we'll come back at 1:10 and then we'll start off with the next section on Part 73, which is Section 73.110, cyber security.

So, we will break now and recommence the Part 53 Public meeting at ten minutes after 1:00, East Coast time. Thank you very much.

(Whereupon, the above-entitled matter went

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off the record at 12:07 p.m. and resumed at 1:10 p.m.)

MR. BEALL: Good afternoon, everyone. This is Bob Beall, and we're getting ready to restart our Part 53 rulemaking public meeting.

This afternoon we'll be going over changes to Part 73, Section 73.110 on cyber security and Section 73.120, access authorization. We are also providing an overview of the fitness for duty requirements, and then towards the end we'll be talking about manufacturing licenses and other topics.

So, to start off the afternoon session, we'll have a discussion of Section 73.110, and Juris, can you please walk us through the slides?

MR. JAUNTIRANS: Sure, thanks, Bob.

Good afternoon, everybody, appreciate hearing all of the comments and discussion this morning and look forward to getting your input on 73.110, which is our proposed new rule for cyber security.

My name, as Bob said, is Juris Jauntirans, I'm a Cyber Security Specialist within the Office of Nuclear Security and Incident Response. Next slide, please.

This slide gives you a rough overview. It's not a perfect slide, so I expect there's going to

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be some questions about how some of these things are laid out here. But similar to the approach that was described this morning by Steve Vitto for advanced reactor physical security, the staff is proposing a development of a new Part 73 section called 73.110 specifying the cyber security requirements for the protection of digital computers, communication systems, and networks at advanced nuclear power plants.

In lieu of requiring advanced reactor licensees to protect against cyber-attacks up to and including the design basis threat as is currently required in 73.54, the proposed new section implements a graded approach to the cyber security programs and security and controls implementation.

This graded approach based on consequences is intended to count for the differing risk levels within advanced reactor technologies. Specifically, the proposed new section requires licensees to demonstrate reasonable assurance of cyber security protection against cyber-attacks only if such attacks would lead to a consequence, as described in the proposed rule.

The proposed new section leverages the operating experience from power reactors and fuel

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cycle facilities, as well as the 73.54 framework, as it contains some of the basic requirements needed for cyber security regardless of reactor type. It is also informed by the NRC's Office of Nuclear Security and Incident Response interagency efforts associated with cyber security. Next slide, please.

Differences between 10 CFR 73.54 and those discussed in the proposed new section are primarily based on the implementation of the graded approach used in part -- the Part 53 construct to accommodate the wide range of technologies to be assessed by the NRC.

The proposed new section currently includes two consequences which are related to the advanced reactor physical security requirements in Part 53. The first consequence deals with the topic of radiological sabotage, specifically that deals with the scenario where the cyber-attack leads to offsite radiation hazards that would endanger public health and safety. In other words, the resulting consequence exceeds specific dose value criterion that's specified in Part 53.

The second consequence deals with the topic of theft or diversion. Specifically, it deals with the scenario where cyber-attack adversely impacts

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the digital assets used by the licensee for implementing the physical security requirements for special nuclear material, source material, and by-product material, as specified in Part 53.

As a part of the Part 50's -- Part 53 rulemaking efforts, the staff is seeking formal feedback from all stakeholders whether any additional consequences should be included in the new section. Next slide, please.

The remainder of the rule text resembles 10 CFR 73.54 in many ways. While implementing -- somebody's coming off of mute there, if you'd please mute yourself. Thank you. The remainder of the rule resembles 10 CFR 73.54 in many ways while implementing a graded approach that we previously discussed.

Paragraph (b), seen here, is developed from 73.54, subparagraph (a)(1), and identifies the types of systems and functions they need to support. These have previously been called the SSEP functions or safety, security, and emergency preparedness functions, but the staff would like to note here that certain definitions are changing in Part 53. As such, this paragraph will be adjusted to align with the new definitions as needed. Next slide, please.

Paragraph (c) is developed from 73.54,

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subparagraph (a)(2), which addresses the impacts on the aforementioned systems. Succinctly, the confidentiality, integrity, and availability of these systems must be protected from cyber-attack. Next slide, please.

Paragraph (d) requires that licensees analyze and identify which specific digital assets are critical digital assets, and thus within the scope of the rule. Subsequently, the licensee shall establish, implement, and maintain a cyber security program for protecting those -- all right, we got somebody on -- off of mute again. Please make sure you're on mute.

So subsequently the licensee's going to establish, implement, and maintain a cyber security program for protecting those critical digital assets, utilizing risk insights, threat information, and that is commensurate with the potential consequences for cyber-attack. Next slide, please.

Paragraph (e) is developed from 73.54, subparagraph (e). The intent here is to address the need for licensees to develop a cyber security program implementing a defense-in-depth strategy. This is represented by collections of complementary and redundant security controls that establish multiple layers of protection to safeguard critical digital

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assets. Next slide, please.

Paragraph (f) is developed from 73.54, subparagraphs (d) through (h). This section is intended to address the implementation and maintenance of the licensee's cyber security program. The life cycle of the security program includes continuous monitoring and assessment, configuration management, ongoing assessment of security controls and program effectiveness, and cyber security event notifications.

There will be conforming changes that need to be made most likely to 73.77, which is the cyber security event notifications, because it is specifically delineated only for Part 50 and 52 licensees. So, there will be some conforming changes there, but we don't anticipate significant changes in cyber security event notifications. Next slide.

So, this concludes our overview of our proposed approach for the cyber security of advanced reactors, and we'll look forward to hearing your comments and questions.

MR. BEALL: Okay, Rich, you have your hand up.

MR. MOGAVERO: Good afternoon, Rich Mogavero from NEI, can you hear me?

MR. BEALL: Yes, we can, Rich, go ahead.

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MR. JAUNTIRANS: I can hear you, Rich.

MR. MOGAVERO: All right. Thanks, Juris, for the presentation. You may -- you kind of touched on this, but I do have a question after I was reading the table associated with 73.110, and the first, maybe the second box down on the left. It says it seems that the 73.110(a)(1) may discuss the entire DBT. And the box on the right, when it provides the clarifying information, more specific to cyber, which got a little bit confusing.

My question is, is the intent that the -- that a cyber-attack, is it the cyber-attack or the whole DBT that essentially would exceed the dose values based on the hypothetical unmitigated event in, you know, 73.1 -- or 53.830(a)(1)? That's my question, is it cyber-attack or the whole DBT that we're looking at impact in the requirements in 53.830(a)(1)?

MR. JAUNTIRANS: Thank you for that, and I apologize if it appears that there's some discrepancy there. We will go forward to take that into account and fix it.

We are attempting to account for two scenarios here, a cyber-attack that, you know, directly causes a consequence. And an initiating

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event separate from the attack -- excuse me, let me -- Ismael, are you available? He's been working on this particular piece here.

MR. GARCIA: Yeah, Juris, I'm available.

MR. JAUNTIRANS: Thank you.

MR. GARCIA: Yeah, this is Ismael Garcia from the NRC. Thank you, Rich, for that comment. I guess, like Juris was trying to explain that we're thinking about the potential scenarios where there were basically you may have a scenario with a cyber-attack by itself lead to another consequences or the limits specified in the quota section.

And another case where the, you have an initiating event, like a plant transient that's separate from the effects of the cyber-attack, that leads to the -- leads to consequences. So, at this point, we're thinking about all the potential risk scenarios, all related to the cyber-attack. But again, we need to explain that -- we need to explain that in guidance space.

Any clarification that's wanted in the rule, we will take in consideration as well.

MR. MOGAVERO: Thanks, Ismael. Yeah, my -- when reading it, it seems that, you know, I kind of read it as, you know, what digital asset, you know, at

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one of the advanced reactors would, you know, if the function of the digital asset is impacted that would lead to the proposed offsite dose value to be exceeded in it right?

MR. GARCIA: Yeah --

MR. MOGAVERO: And I would suspect that we'd have a very little or a small number of critical digital assets, if any, at some of these sites.

MR. GARCIA: Yeah, I agree 100%. But still, we need to think about all those kinds of scenarios since we're still early in the process of figuring out defense technologies and how they may employ digital assets. But you're right, maybe it would be a more likely a scenario where you have that the cyber-attacks it leads to disable one of your INC systems that support the safety functions. And then you have a plant transient that then leads to the consequences that we're worried about.

But again, we need to look at all the different scenarios at this point.

MR. MOGAVERO: All right, thank you, Ismael, thanks, Juris.

MR. JAUNTIRANS: Thanks, Ismael. He's a lot more eloquent when it comes to digital I&C than I am. I appreciate that.

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MR. BEALL: Okay, thank you very much.
All right, Ed, Ed Lyman.

MR. LYMAN: Yes, thank you. So, this is a comment that goes more to broader cyber security issues, including the rule for existing plants. But since we're contemplating something for the, you know, for eternity, I should bring it up now.

It seems that the scope of the cyber security rule in the NRC is more and more out of step with what's actually happening in the world. We have the FBI Director saying that the ransomware is equivalent to a 911-type attack, where, on that same magnitude.

And as you know, these are attacks against business systems which are not, you know, don't necessarily have a direct impact on SSEP functions but could have an indirect impact.

And so I would urge you, as you're looking forward and creating a new rule, that you examine that scope and increase the potential scope of CDAs that need to be protected, to look at these indirect impacts on business systems and how ransomware attacks or information theft could lead blackmail, potentially compromise employee -- plant employees and to co-opt them into participating to attack or any other way.

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That we need to have a broader view at this point, because you're looking -- this limited scope is looking just more and more out of line with what's happening in the world.

That's my comment, thank you.

MR. JAUNTIRANS: Thank you, Dr. Lyman. We'll definitely take this insight into account. And we're -- as we continue to revise the draft language and implement public comment into would go -- proceed with it from this point. Thank you.

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

MR. NICHOL: Yeah, thanks, I have couple of questions to help clarify. So, the first, and forgive me if you're already addressed some of these, but I just want to make sure I'm clear. So 53.830 for cyber security says that you have to meet 73.110. It -- is the intent that 73.110 is the only option, or would 73.54 be an option, you could pick one or -- one or the other, similar to 73.55 and 73.100?

MR. JAUNTIRANS: Thank you for that. The intent is that you address 73.110 and that gives you the, you know, the graded approach. We would have to do an analysis to see if you had a 73.54 compliant rule, if it's going to eventually match up with what a

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73-compliant program, if it would match up with what 73.110 says.

So, we'd have to do an analysis on that, but the intent at this point is that 73.110 would be what you'd have to follow for Part 53.

MR. NICHOL: Okay, that's helpful. We'll take that back and think about whether, you know, we desire that flexibility to, you know, as you to do that or not. But certainly, you all can think about it as well.

So, my next question, in 73.110, the same criteria Rich was talking about, (a), where it really seems like these are entry criteria. So exceeding, I'll just take (a)(1), exceeding the criteria of 53.830(a)(2)(i), do you really mean that criteria? Or do you really mean 53.210(b), which is the dose consequence?

The reason I ask is because it matters in terms of who this is applicable to. So you know, the small number of designs are going to meet this hypothetical unmitigated event below the consequences of 53.22 -- 210 that are then exempt from 73.55 and 73.10 -- and 100, sorry. They go to Part 37.

Is that really what you meant, or did you just mean that 73.110 is for those digital assets that

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if they fail or were a consequence of a cyber-attack would exceed the dose threshold of 25 rem?

MR. JAUNTIRANS: Thank you for that. I think that what we have is this is what he had meant. I definitely would take in any comments, you know, if you have anything that, you know, what you stated, we would take that into account going forth.

But the intent is ultimately that the security and safety analysis done and those dose rates at the boundary, that any kind of cyber-attack that can cause that kind of a release is what we're trying to prevent. As far as how we get there, we will continue to refine the language based on public comment.

MR. NICHOL: Okay, yeah, that would make - - that's interesting, because I don't know, I'm not an expert in this area, but just the way I'm thinking about it, it seems more appropriate to tie it to the 53.210 dose threshold that hey, any of these digital assets that we're relying on to maintain us below that dose threshold, hey those are -- those are sort of in our critical digital asset box or bucket.

You know, I, it's hard for me to understand why the 810 -- sorry, the 830 (2)(i) requirement would be applied because that's sort of a

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hypothetical design basis threat activity. So it's really you're saying well, this thing we're imagining for a physical security threat, that's the thing we're -- that the assets are protecting against.

Again, it could be me not understanding this area very well. But it -- I don't know, it seems like tying it to 53.210 might be a little bit more appropriate.

I'll just leave that as a comment, I'm not expecting a response unless you want to.

MR. JAUNTIRANS: Thank you. It's just, this definitely is an area we've been kind of looking at and looking at different possibilities, and we'll take your comments into account.

MR. NICHOL: Okay. And then on criteria 2 there, adversely impacting the functions performed by the digital assets, and then you tie it to 830(a)(1), and I go back to 830(a)(1), and it's really just hey, here's the Part 73 criteria, and it's not even considering 73.55 or 73.100. And that's fine if you intend it that way, if that's the right way.

But it sort of misses out on this whole safety aspect. So, these are sort of the requirements specifically against a physical -- a physical threat, rather than sort of the safety equipment, you know,

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that they had digital assets related to sort of safety. And it sort of eliminates well, what if you have to meet requirements under 73.55 and 73.100. It sort of excludes those digital assets from that.

So, I don't know if you -- if that's really what you meant, or if sort of there's you're tying it to something bigger. It just seemed off to me a little bit there.

MR. JAUNTIRANS: So this consequence specifically is referring to CDAs that are involved in security. That does not have a safety aspect to it. If the previous consequence doesn't capture, the first one doesn't capture what you believe needs to be captured, the second one is security-focused.

We welcome, as we stated, we're formally requesting, you know, any stakeholders can submit potential other consequences that they feel are applicable and we are well-prepared to incorporate these in future discussions.

MR. NICHOL: Okay. So that's helpful. So a clarifying question, so in that too, that would capture things, those digital assets that are required for detection, assessment, communication, is that correct?

MR. JAUNTIRANS: That's correct.

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MR. NICHOL: Okay, all right. Then if that's the intent, I understand it much better. That actually might be tied to (a)(2), because (a)(2) brings in 73.55 or 73.100, which we just looked at, which has those detect, assess, communicate. And then if you have to meet dose, you would meet Part 37.

So, I don't know, you might just consider that, whether there was a little bit of a hole there or not, so.

MR. MERRIFIELD: If I may, can I just point out Marcus, keep in mind that if you don't have to do 73.55 or 73.100, it wouldn't just be Part 37. You might also have other applicable Part 73 requirements based on the material.

So for example, you might be protecting your fuel under 73.67, which does contain similar, you know, detect, assess, and communicate requirements.

MR. NICHOL: Okay, that's helpful. I think generally we're thinking the same way in terms of everything that needs to be captured. So, I'll just leave it as a comment to go back and double check that the way it's phrased accomplishes that.

MR. JAUNTIRANS: Thank you, appreciate that.

MR. BEALL: Okay, Ed, you had some follow-

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up comments or questions?

MR. LYMAN: Yeah, I have a question. So if -- how hard would it be to actually do a consequence assessment of a particular compromise of a CDA? To try to propagate that all the way to a dose consequence offsite. It seems that that could be a very, very complicated business, especially since the interaction of digital I&C with PRA, my understanding is there's still a lot of difficulties in trying to do that. Does someone have a comment about that?

MR. JAUNTIRANS: Thanks, Dr. Lyman, I appreciate that. As far as the implementation and the difficulties of implementation, I think that's a little bit beyond the scope of where we are right now. We're still trying to frame out what is the best approach from a requirements standpoint.

I feel like staff can't really comment on how difficult this would be at this point, especially because we're talking about a very, very broad range of technologies and we have not seen a lot of solid information yet as far as designs on all the different things that could potentially fall under Part 53. It's difficult to -- difficult to say.

MR. BEALL: Okay, are there any additional questions or comments on this section? Marcus, go

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ahead.

MR. NICHOL: Yeah, sorry, I had one other question. It goes back to the point about there's going to be a potential scenario where you would assume a cyber-attack that happens at the same time you have a plant event, a plant safety event. So, let's just say you lose some piece of equipment and then you -- you want to look at the consequence there, if I understood what you were saying correctly.

And I don't know if we currently do that for the operating fleet. Again, the cyber security is not my area. But I would ask what are your thoughts in terms of how that's going to be context? Because in the security space, we almost always look at the threat as being a probability of one. It's always going to occur, and therefore, you know, in probabilistic space you don't look at that.

But in safety, we look at the probability.

So, there's a probability that this component might fail or lead to this safety event. And so if you sort of say, well, the cyber event happens at the same time as that plant event, you can't really assume that the probability is one because -- you can assume the probability of the cyber-attack is one, but the probability of that plant event is not one.

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So, I do think there has to be some consideration of the probability and likelihood of that. And so I don't know if that's currently considered or what you're thinking about in terms of trying to blend the -- a co-, I don't know if it's called coincident safety event and cyber event.

MR. JAUNTIRANS: We certainly do take the same approach as physical security on that. That we do not consider the, like that there's any probability calculation, that we do consider it to be a probability of one for vulnerability when we take into account how we protect things in cyber.

As far as the rest of the comment, that's something that I think we're going to have to evaluate and look for. Some of it will be addressed in guidance space for sure. But the rest of, as far as if there need to be changes to the rule language for that, we need to do some evaluation on that. Thank you.

MR. BEALL: Okay, Cyril, you have your hand up.

MR. DRAFFIN: Yeah, Cyril Draffin, US Nuclear Industry Council. Any thought on when guidance might be prepared? You referred to it a few times today, you know. How many months out? And I

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know it'll be an estimate.

MR. JAUNTIRANS: Guidance is starting to be drafted now, but I can't really speculate when it'll be official at this point. Unless Bob, is there enough -- anything that you can add to that?

MR. BEALL: No, other than that the staff is working on the key guidance as part of the draft proposed rule packaged that would go to the Commission next year. So we don't have a firm date for any of those draft guidance currently.

MR. DRAFFIN: Thank you.

MR. BEALL: Are there any other follow-up questions for this? And if anybody on the bridge lines, if you could do star-six if you have any questions.

Okay, I'm not hearing anything. Can we go to the next slide, please. So, our next topic will be Part 73, Section 73.120, access authorization.

Brad, can you walk us through this, please.

MR. BAXTER: Yes, thanks, Bob. As Bob mentioned, my name is Brad Baxter, I'm from the Office of Nuclear Security and Incident Response, Reactor Security Branch. I'm one of the Access Authorization Program Managers and Security Specialists with NSIR.

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Today I'm going to be here to discuss technology-inclusive personnel access authorization requirements under the proposed Part 53 and 73.120. I'll discuss our philosophy and key points of implementing an effective access authorization program, and at the end I'll be glad to entertain any questions you may have. Next slide, please.

Two key thoughts I'd like to provide the audience during this presentation. First, the staff believes that existing regulatory framework for access authorization for licensees to establish, maintain, and implement effective access authorization program in accordance with the requirements for power and non-power reactors in 10 CFR 73.55, 56, 57 is sufficient to establish the required basis that provides reasonable assurance that individuals subject to an access authorization program are trustworthy and reliable such that they do not constitute unreasonable risk to public health and safety, confidence, and security regardless of the reactor technology.

These regulations include requirements for inside mitigation program and criminal history check. Secondly, the access authorization program requirements proposed in Part 53 and 73.120 are scalable, commensurate with the demonstrated safety of

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the facility considering security. Staff proposal provides for the equivalent level of protection afforded by the existing requirements for the operating reactor fleet.

Applicants under the proposed 73.120 would develop, implement, and maintain access authorization program that would model a current license research and test reactor and/or mature licensees to include fuel cycle facilities' access requirements as appropriate, depending on reactor design.

The staff notes although research and test reactors do not have many specific requirements in NRC regulations other than those associated with fingerprint of individuals for criminal history checks under 73.57, there are alternate security measures that have been issued by the Commission to the respective facilities in establishing a trustworthy and reliability of personnel granted access to sensitive secured areas of the facility for access to greater accurate material.

Those licensees have adopted requirements as licensing conditions under their official security plan. The staff's philosophy, as proposed, is to codify the security measures under the proposed Part 73.120 requirements for an access authorization

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program. Next slide.

Access authorization consequence-based criteria. Consistent with what you may have from the fissile security and cyber discussions, applicants meeting the criteria of 53.830(a)(2)(i) shall establish, maintain, and implement access authorization program under this proposed section.

That is, advanced reactor designs makes a safety considering security that all site release would not exceed certain eligibility criteria will be required to implement the requirements under the proposed 73.120.

The staff notes that the eligibility criterion as discussed in one of the criteria being proposed as part of the limited scope advanced reactor security rulemaking, as that rulemaking evolves, so may this criteria for consistency.

Now, those applicants not meeting the criteria shall establish, maintain, and implement a full access authorization program with 73.56, to include the requirements to implement an insider mitigation program consistent with the current operating nuclear power fleet.

Advanced reactors under Part 53 may also elect to implement that fissile security requirements

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under 73.100(b)(5) and (b)(7) of their proposed technology and neutral requirements for fissile protection to meet those same performance objectives and requirements consistent with 73.56.

So in summary, applicants will either satisfy the safety eligibility criteria under 53.830(a)(2)(i) and elect to implement the proposed requirements of 73.120 in lieu of a full access program comparable to the operating fleet. Or they may opt for exemptions from certain requirements based upon their facilities analysis that would need to be fully evaluated by the staff. Next slide.

Okay, access authorization consequence-based criteria flow chart. Here is a visual for the audience to help better understand the local -- logical path of meeting the consequence-based criteria, as previously discussed.

If you look down the left side of the chart, applicants that do not meet the criteria, they'd be required to implement a full access and insider mitigation program with the operating reactor fleet. Applicants would also adhere to the requirements under Part 26, fitness for duty, 73.54 for cyber requirements, 73.56 for personnel access requirements and criminal history checks under 73.57.

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Now, if you look down the right column, applicants meeting the consequence-based criteria, you should notice an applicant would not need to protect against the DBT. Those facilities that may elect to implement the access authorization program as proposed or provide exemptions from certain requirements. This philosophy is based on the risks and consequences of the facility found under Section 53.460.

One last item to highlight on the slide. You'll see a reference to scalable performance requirements that'll be explained with additional detail in the following slides. Those areas are criminal history, behavioral observation program elements, integrating and maintaining and terminating unescorted access. Next slide.

73.120(b), applicability. This is a general applicability statement as to whom does a proposed access program apply to. This is consistent with personnel identified under 73.56(b) for the operating fleet. As previously mentioned, individuals noted in this section are required to be trustworthy and reliable, such that they do not constitute unreasonable risk to public healthy safety or common defense and security.

There are five classes of individuals

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subject to the program, and they include individuals with unescorted access to the protect area, vital area, material access area, or controlled access area where the material is used or stored.

This applicability statement considers individuals specified under 73.56(b) for power reactors and the orders and additional security measures that were issued for non-power reactors whom the licensee intends to grant unescorted access to the facility's most sensitive areas.

Then you have individuals with virtual or remote access. This is cyber-related. This applicability statement is to include those individuals who may be offsite or onsite. For example, remote operators or information technology staff that have virtual access to important plant operational and communication systems based upon assigned duties and responsibility to have such access.

These individuals will be re-investigated periodically in accordance with (c)(3) of this proposed section to maintain unescorted access. This requirement is consistent with the intent of the current requirements found under 73.56, which is ensure that everyone who has unescorted access to

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equipment that is important to the operational safety and security to plant operation must be trustworthy and reliable.

Then you have security personnel and those familiar with site-protective strategies. Offsite law enforcement shall not be subject to licensee's access authorization program. This requirement is consistent with 73.56(b)(1)(iii) and intends to ensure that security personnel responsible for protecting the nuclear power plant are included in licensee's access program.

These individuals shall be subject to an access authorization program because of their critical responsibility -- respect to plant security and therefore the need for added assurance that they are trustworthy and reliable. This proposed requirement includes a clarification statement that offsite law enforcement shall not be subject to the licensee's access program.

Then you have the reviewing officials. Licensees, applicants, or contracted vendors, if applicable, program reviewers. This is also consistent with 73.56(b)(1)(iv) to ensure individuals responsible for access authorization decisions are in fact trustworthy and reliable and should be vetted

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through an access authorization program. And this should show in a defense-in-depth.

And then finally you have other individuals at the discretion of an applicant. Again, this is consistent with the current language of 73.56(b)(2), which is self-explanatory. Next slide, please.

General performance in requirements under 73.120(c). From this side you can see that applicants meeting the consequence-based criteria under 53,830(a)(2)(i) may elect to implement the proposed voluntary access authorization program in lieu of full access authorization program, or offer exemptions from certain requirements, as was stated prior.

Applicants applying the performance objectives and requirements in the proposed 73.120 will design an access authorization program similar to that required for non-power or material licensees that are commensurate with the safety of the facility. The proposed performance objective and associated requirements would provide for the equivalent level of protection afforded by the existing requirements for the operating fleet. Next slide.

73.120(c)(1) through (4), scalable program performance objectives. Here's where an effective

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access program can be scalable commensurate with the risk of the plant. Design program objectives and requirements. As previously stated, the proposed language under 73.120 includes performance objectives and several requirements an applicant must meet when designating their access authorization program.

Some of these requirements are administrative in nature but equally as important. For example, protecting the individual's privacy. The proposed requirement includes those alternative security measures and licensing conditions for non-power reactors and material licensees. These requirements also consider important program elements of an access authorization program found under 73.56 for operating power reactors.

They include background investigations, criminal history checks, behavioral observation, and granting and terminating unescorted access. As I previously mentioned, there are also administrative requirements for protecting an individual's privacy and record retention.

Under the proposed Section 73.120, (c) (1), background investigation, this section will be consistent with the background investigation elements identified under the existing requirements of

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73.56(d)(1) through (7). Background investigations includes important elements to establish trustworthy and reliability of the individual to be granted unescorted access.

They include elements such as informed consent, where the individual consents to allow a background investigation to actually occur. Personal history disclosure. This document review captures your background history. Criminal history record review checks for any arrest or conviction.

Credit evaluation demonstrates the person's financial responsibility. Verification of true identity. The individual is in fact who they say they are. Character reputation, good character through a use of references, and employment verification. That includes education in lieu of employment and military service as employment. Next slide, please.

Paragraph (c)(2), behavioral observation. This paragraph outlines the roles and responsibilities of individuals subject to behavioral observation. The proposed requirement is a scaled version of the full behavioral observation program as required under 73.6(f) for power reactors.

The purpose of behavioral observation is

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to increase the likelihood that behaviors adverse to the safe operation and security of the facilities are identified. This is done by observing behaviors of other workers in the workplace and detecting and reporting to supervisor aberrant behavior or changes in behavior that might adversely impact the individual's trustworthiness and reliability.

This provision as proposed would not require the establishment of a full training program for behavioral observation. For example, initial and refresher training to include knowledge checks as required currently for power reactors under 73.56.

A scaled version of a behavioral observation program would provide licensees the greatest flexibility to consider behavioral observation options to implement the performance objectives of individuals granted unescorted access to an advanced reactor. For example, licensees may opt to use corporate behavioral awareness initiatives to report any aberrant behavior or changes in behavior of personnel granted unescorted access.

Licensees also have the flexibility to openly develop initiatives of reporting behavior to managers that could be very similar to the Department of Homeland Security's program "You See Something You

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Say Something.''

Additionally, behavioral observation shall include self-reporting of legal actions in accordance with 73.56(g) while requesting unescorted access and maintaining unescorted access. A legal action is defined as action taken by law enforcement authority of corps law where an individual is detained, taken into custody, charged, arrested, or convicted for a violation of any law, regulation, or ordinance.

The staff's philosophy is to reflect the importance of an awareness initiative that enhances the licensee's behavioral observation performance objective while maintaining an employee's integrity to be trustworthy and reliable. The staff believes the elements contained in this proposed performance objective would be less stringent for advanced reactors but equally as effective. Next slide, please.

73.120(c)(3), yeah, (3) through (4), performance objectives. The performance requirements for granting, maintaining, and terminating unescorted access go hand in hand. Paragraph (c)(3), unescorted access shall be granted only after the licensee has verified an individual is trustworthy and reliable.

And an applicant's access authorization

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program would include provisions for maintaining a list of persons currently approved for unescorted access to the protected area, vital area, material access area, or controlled access area must be maintained at all times.

Unescorted access terminations would be reviewed annually in accordance with 73.56(i)(1)(4), which is annual supervisor reviews.

And lastly, any criminal history updates would be completed within ten years of the last review. Now, this is a departure from the operating nuclear power plant or the reinvestigation periodicity for personnel is conducted on a three- or five-year check based upon job function. As a note, there will be no credit check reevaluation required for these individuals as is currently required for the operating fleet.

Now, for those in the audience who are very familiar with the access authorization program for the current fleet, one major program element that has been not carried forward in the proposed requirement is a need for psychological assessment and reassessment as required under 73.56(e) for granting unescorted access and 73.56(i)(5)(b) for individuals who perform one or more the job functions described in

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Section (b) of the proposed 73.120 applicability for maintaining unescorted access.

The staff's decision not to include this major program element was based on the less risk and consequences demonstrated for the advanced reactor facility.

Paragraph (c) (4), termination of unescorted access. Unescorted accesses are to be promptly terminated when a licensee determines this access is no longer required or a reviewing official determines an individual is no longer trustworthy or reliable in accordance with this section.

This requirement is consistent with the intent of the termination basis found under 73.56(h) (1) (i), where a reviewing official shall determine whether to grant, deny, unfavorably terminate, maintain, or administratively withdraw individual's unescorted access based on all evaluations of the information before them.

This proposed performance requirement provides licensees the flexibility to consider when a person no longer requires the need for unescorted access or no longer meeting the access authorization requirements found within this section. Licensees have the flexibility to terminate personnel access to

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specific areas when access is no longer necessary to perform their duties and responsibility and found under similar requirements of 73.56(j), vital areas. Next slide, please.

Okay, the next two slides reflect performance requirements that are administrative in nature but equally as important. These administrative requirements are consistent with the requirements found under the respective section of 73.56 for operating reactors. They include paragraph (c)(5), the termination basis of access.

The access authorization program -- yeah, program, should include provisions to ensure that any unescorted access determinations should be made by a reviewing official, who will determine whether to permit, deny, unfavorably terminate, or maintain or administrative withdraw an individual's unescorted access based on the evaluation of the all the information collected to meet the requirements of this section.

Paragraph (c)(6), review procedures. Programs should include provisions to ensure review procedures are established in accordance with 73.56(l) for operating actors, including requirements for notification to the reviewing official of any

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individual who are denied unescorted access or who are unfavorably terminated.

Paragraph (c)(7), protection of information. An access authorization program should include provisions to ensure that the systems of files and procedures are established and maintained in accordance with 73.56(m) for operating reactors and to assure personnel information is not disclosed to unauthorized persons. Next slide, please.

Thank you. Somebody put their mics on mute, please.

Okay. Paragraph (c)(8), audits and correct actions. Procedures for the use audits and correct actions shall be established in accordance with 73.56(n) of this part to ensure the continuing effectiveness of the access authorization program and to ensure that the access authorization program and program elements are in compliance with the requirements of this section.

And lastly, paragraph (c)(9), records. Records used or created to establish an individual's trustworthiness and reliability or to document access determination must be maintained in accordance with 73.56(o) of this part.

So in closing, the staff is requesting

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stakeholder feedback on the proposed preliminary rule language under Part 53 and 73.120, as it pertains to a scaled approach for an access authorization program commensurate with the risk and the consequence of an advanced reactor's facility.

To accompany this proposed rule language, you should know that the staff is contemplating whether to develop a new guidance document to coincide with staff's proposal for access authorization or revise existing guidance in regulatory guide 566.

Any guidance that's developed by staff will be in collaboration with industry and public stakeholders and will leverage current industry acceptable standards for access authorization as it pertains to advanced reactors.

This concludes the advanced -- yeah, this concludes the access authorization portion of the presentation. I would like to encourage you to provide any feedback, comments that you may have, and I'm here to address any questions you have at this time.

MR. BEALL: Cyril, go ahead, please.

MR. DRAFFIN: Cyril Draffin of US Nuclear Industry Council. Start with two questions. For the requirements for individuals responsible for

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implementing protective strategy and access control on reviewing officials, it's unclear where the line is drawn, at least to me, in terms of regulatory versus non-regulatory security.

For instance, you know, in places like TerraPower have a reactor facility and then they have a separate turbine and storage area. Or, and specifically could not all the plant security will necessarily fall under the jurisdiction of NRC regulations? Could you expound on the intent of how you would handle these -- this range of people that might be at a site?

MR. BAXTER: That would be a good -- like a thought. I mean, we really haven't discussed the, I guess the scope of what that would entail. It's basically anyone who had that access to that current site that would understand protective strategies. Like I did mention that offsite response was not included.

So, it's in a developmental stage where the staff would have to go back and I guess review that question in totality to see where that would actually fit in. And of course that'd be put into a guidance document to entertain.

MR. DRAFFIN: Okay, good, because there

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may be more that, you know, if you have like two facilities at the same site that have different regulations.

MR. BAXTER: Very true, a point well taken, I appreciate that comment.

MR. DRAFFIN: The second deals with behavioral observation, which is in 73.120. That it might be unnecessary and it doesn't seem to be particularly risk-informed, behavioral observation presents a significant overhead for implementation for, and maintenance of the program, especially if there isn't a reasonable risk from an insider threat or no credit is taken for that behavioral program during the security analysis. You know, if it's not counted on, why would you need it?

And I particularly point out that for small facilities, the issue of an extra program is kind of a big deal to them, it's a substantial cost that could be a huge burden for them. So could you explain for small facilities particularly how you'd -- why you decided at least for now to include the need for a behavioral analysis.

I know it's scaled down, but why include it at all if the eligibility criteria for the scaled-down version is -- results in a consequence being

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below the design basis and therefore is not likely to be -- impact on safety?

MR. BAXTER: Yeah, understand. Yeah, I mean, it's based on what the facility could provide in their analysis and how the staff is going to evaluate that. And if in fact your technology doesn't mitigate certain situations, what's the, I guess the premise of even having a program like that.

But that's what the staff's going to have to evaluate. And of course the applicant will have to submit that in their analysis to provide that justification so the staff can fully evaluate that and make a determination.

Of course, you know, each applicant has their own ability to submit exemptions to what is meant or should be required for the requirements in 73.120. So they have that freedom to provide exemptions and we will have to evaluate that. So completely understand the question.

It's, again, this is in the developmental stages and we'll go back and reconvene and discuss, you know, forward-thinking approach on what this could look at, you know, some of these small reactors based on the burden, as you mentioned.

MR. DRAFFIN: Right, I think it's helpful

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to consider the burden. And I think there is a desire on everybody's not to have too many exemptions, to try to avoid that.

MR. BAXTER: That is correct, that's correct.

MR. DRAFFIN: Okay, I'll let the other people comment next.

MR. BEALL: Okay, thanks, Cyril. Mike Keller.

MR. KELLER: Yeah, can you hear me?

MR. BEALL: Yes we can, Mike, go ahead please.

MR. KELLER: Okay. It strikes me that security is being equated to the same level as safety-related. I don't think that's warranted. It looks to me like there are overly onerous administrative requirements being imposed that may not reflect the actual level of risk. You know, some of these designs are passively fail-safe.

It strikes me there ought to be some sort of relief mechanism in the -- in the Code of Federal Regulations for these designs that are fundamentally not that risky.

MR. BAXTER: Okay, I appreciate the comment and we'll, like I said, reconvene and discuss

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that again. It's a moving process that we're evaluating and how each site will be applicable. So yes, we understand your comment with the relief, so appreciate that.

MR. KELLER: Simply put, you need some kind of off-ramp for those class reactors that aren't that much of a risk in terms of security.

MR. BAXTER: Point well taken.

MR. KELLER: Thank you.

MR. BAXTER: Thank you.

MR. BEALL: Tammy, you have a comment or question?

MS. MORIN: Yeah, I guess I want to echo what both Cyril and that last gentleman said is that there doesn't seem to be much relief in this new rule language for the access program. And I think we need -- I'm also, I think maybe Mark talked about this earlier, maybe not.

Pointing back to 10 CFR 53.830(a)(2)(i)(1), I guess, it's probably better to -- this all comes out of safety and dose. So no matter what the event is, we should go back to the dose, which I know is referred to in 53.830(a)(2)(1), but it's -- it takes you through a circuitous path.

It's -- and the other thing I'll offer you

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for a comment is that it seems like these three, 100, 110, and 120, were all written kind of in their own programs. And maybe you should look for some areas to be consistent with -- more consistent with the language.

One of them says does meet the criteria of 10 CFR 53.830, one says it doesn't meet the criteria. So it can get a little bit complicated if -- there should be more consistency I guess in how we get into these regulations and how we can apply them.

I think there's one other place where it seems like -- I'm having a hard time flipping through all of these documents on my computer. But one of, I think it's -- hold on, sorry for the delay. It's in 100 -- where's the one about say we can -- there we go, hold on. Well, it's hard to keep going back and forth, I should have made a better note to myself.

But it seemed that one of them was saying you could use 73.100, and then -- or 73.55, yeah. But then when you go from 830 to -- so that's in 53.830. It says the licensee must meet the provisions set forth in either 73.55 or 73.100, but then 73.100 only kind of says that's the only option. It doesn't go back to 73.55.

So just I guess I'm asking you make sure

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that there's some consistency there, and, because it seems like the three portions of 73 were written in different ways, and consistency would make it more helpful in the long run for the licensee and the NRC to enforce. Thanks.

MR. BAXTER: Appreciate the comment, Tammy. That's what we're trying to do as a staff, to get that cohesiveness and bring the best product forward. So yes, we -- I appreciate that very much, thank you.

MR. BEALL: Dr. Lyman, do you have a question or comment?

MR. LYMAN: Yes, thank you. I guess I'd just like to point out once again, you know, I feel like these proposals are out of step with what's happening in the real world. We've had the Attorney General testifying that domestic right-wing extremism is the greatest security threat today. We know that there are extremist groups like the Oath Keepers that deliberately target local law enforcement and infiltrate local law enforcement.

And to suggest that there should be a relaxation of access to authorization requirements (Audio interference.) is just again, whether it's for a fantasy reactor that I doubt will -- I doubt you're

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ever going to come up with a reactor that's going to meet this criteria anyway. But so I'm not too worried about this.

(Audio interference.) But even if (Audio interference.) were, there should not be (Audio interference.) increase access of domestic extremists, violent extremists to critical nuclear facilities. Thank you.

MR. BAXTER: Yes, thank you, Dr. Lyman. You broke up in some of the -- some of your comments. But the staff is in fact coordinating with other members of our organization, such as our intelligent groups and what have you, as well as local law -- I mean federal law enforcement. So from where I sit, we do in fact have continuity with those individuals and come -- and those I guess government agencies.

So I appreciate the comment, and we've definitely tried to evaluate that when we make our determinations. So just want to say thank you for that comment, Dr. Lyman.

MR. BEALL: Okay, thank you, Ed. Also I'd like to ask everyone if you're not speaking, if you could turn your cameras off. That way it would help us save some of the bandwidth so we can have clearer conversations.

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So Cyril, do you have another comment or question, please?

MR. DRAFFIN: I do. You referred on Slide 40 that you're modeling the current licensed research and test reactors into your licenses, including fuel cycle facilities, which makes sense.

And so I'd be interested in knowing for micro-reactors, some of which might be actually buried behind a fence, what additional, and this current language as drafted, what additional requirements are being added for micro-reactors that are above and beyond what is included for research and test reactors?

MR. BAXTER: Yes. Again, this is a moving I guess an ideology of what the staff is trying to develop. We're most certainly take that into effect. But a lot of the details will be handled in the guidance space, which we're trying to develop and get a unification of industry across the boards, especially from a Part 53 aspect to bring that, everyone's speaking from the same sheet of music.

And there's certain requirements that need to be done to establish trustworthy and reliability of people who will be granted access, regardless of what, yeah, the facility is. But that will be more, I guess

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explained greater in detail in the guidance space.

And again, that's something the staff is in fact discussing and trying to develop right now. So I mean, it's a little pre-decisional, but we do have that on our radars just to entertain that question.

MR. DRAFFIN: Good, yes, because we're not quite sure when the guidance will be released.

MR. BAXTER: True.

MR. DRAFFIN: But I think at least the language should consider there's a range of reactors, advanced reactors you're considering, some of which will be quite small, to, you know, medium-sized. And so, as we've talked about a graded approach in other areas, considering that for access may be appropriate as well. So we'll look forward to next rounds.

MR. BAXTER: Yeah, and I appreciate the comments. And like I said, feel free to submit those for our review. Thank you.

MR. BEALL: Are there any more questions or comments on access authorization? If you're on the bridgeline, you can hit *6 to unmute your phone. Okay. All right. Thank you very much, Brad. That was a good discussion, everyone. So I'd like to move on to our next topic which is an overview of the

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Fitness for Duty, Part 26. So Paul, can you please lead us through that?

MR. HARRIS: Yes, thank you, Bob. Hi, my name is Paul Harris. I'm the Senior Program Manager for 10 CFR Part 26, fitness for duty programs, drug and alcohol testing.

Like the other presenters, I work in the Office of Nuclear Security and Incident Response. I only have a few slides I will present to you that I believe to be an innovative reactor approach, reactor strategy for the application of drug and alcohol testing requirements to commercial power reactors implementing advanced reactor designs. However, you will find in my presentation, it's not as detailed as the previous presentations because we are continuing to work on two specific issues contained in our fitness for duty approach.

The first issue is associated with an FFD-related criterion we call Criterion Bravo that I will present shortly. And the second issue is that although the actual rule text is technically done, our internal peer reviews have not yet been completed. So today I'm going to take the bull by the horns and present to you our current thoughts on our approach.

We hope to learn of your thoughts,

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considerations, and initial gut reactions to my presentation. Therefore, feel free to interrupt me and ask a question if it's nagging you or save it for the end of my short presentation. And then later this summer, we are expecting to release the fitness for duty approach, including draft preliminary rule text as modified as necessary by your comments, and we will continue engaging internal and external stakeholders.

I found today's presentation interesting in that it leaves me with four parking lot items I'd like to inform you of before I begin. I note that there were comments earlier in the meeting about how fitness for duty will apply. And that was a comment related to the security program and how it applies as well. I hope I will address this issue and assure you that we are evaluating applicability of fitness for duty to a manufacturer of a reactor vessel unit outside the NRC licensed facility for operation.

Second item, fitness for duty programs are connected at the hip with the 10 CFR Part 55 requirements for NRC licensed operators and the 10 CFR 73.56 access authorization program requirements. So, there is a lot of internal coordination that is occurring. All the stakeholder comments regarding these criteria are completely applicable to fitness

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for duty, and I hope that you understand that we're assessing that.

The third parking lot item that I have is there was a comment on performance monitoring. The NRC's assessment of licensee implementation is based upon inspection. As others that I have mentioned and I will mention, however, there may be folks in this meeting that do not know that the NRC possesses quantified, site-specific, industry-wide, and federal drug testing program data on fitness for duty program performance, namely drug and alcohol testing results.

We maintain this in a sophisticated database by which we objectively assess FFD performance, both vertically and horizontally. And we share this information with licensees and the public outside of NRC inspection to help improve performance.

Lastly, there was a comment on access authorization applicability to individuals. Again, this question applies to the applicability of Part 26, fitness for duty program to individuals at the sites.

Currently, Part 26 is highly specific to categories of individuals based upon their specific assigned duties and responsibilities. And this is very -- and Part 26 is very comprehensive and prescriptive. However, as Brad mentioned, we

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understand that there may be types of advanced reactor facilities that will have different types of groups of individuals that we may need to consider. I hope you see this in my presentation.

Before we go to the first slide, I also want to mention the three takeaways. One, like other technical areas, we plan to use performance-based and objective requirements that are developed from existing requirements in Part 26, namely Subpart K, Fitness for Duty Program for Construction. And the developed framework is risk informed as applied to advanced reactors, commensurate with both risk consequences, i.e. radiological consequences, and Criterion B that I'm going to propose to the stakeholders, a human performed criterion based upon operation of these advanced reactors. Now this is also based -- it's regardless of reactor technology.

Number two, we plan to implement alternative drug testing methodologies to improve program effectiveness and efficiency. And number three, most importantly, we plan to develop an innovative and transformative FFD program that continues to protect the people and environments. I truly believe that if we can design, construct, operate, maintain, and protect a nuclear power plant

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facility with objective performance-based requirements in a risk informed manner that protects public health and safety and the environment, we can do the same for drug and alcohol testing.

I know that was a quite laborious introduction but let me move on to Slide No. 2. Slide No. 2 starts to present our five key messages. The first message states that the current Part 26 framework is sufficient to be applied to facilities licensed under Part 53. And yet as written, Part 26 would not apply because Part 26 is highly specific to licensees and other entities who have a license or facilities under Parts 50, 52, or 70 or the contractor vendors who perform Part 26-related activities at those licensees and other entities.

And if we were to apply these requirements as-is to a Part 53 advanced reactor licensee, I believe we would need to take a good, hard look to assess whether the burden of these prescriptive requirements exceeds the regulator safety, security, and public confidence benefits obtained. One must remember that the Part 26 fitness for duty rule is to provide reasonable assurance that individuals are trustworthy and reliable, that these individuals are not under the influence of any substance, legal or

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illegal, or mentally or physically impaired from any cause, that workplaces subject to the rule are free from the presence and effects of illegal drugs and alcohol, and that the effects of fatigue and degraded mental alertness does not affect an individual's ability to safely and competently perform assigned duties and responsibilities.

Lastly, the program needs to provide reasonable assurance that we can early detect individuals who are not fit for duty or not trustworthy and reliable to be afforded unescorted access to NRC licensed facilities sensitive information and sensitive protected areas. Note that the regulatory standard for these performance objectives is not ultimate assurance, not high assurance, and not perfect assurance. It is reasonable assurance.

The second key message states that we're looking at to leverage the existing Part 26 requirements in Subpart K, fitness for duty program for construction. These requirements are what I call objective-based. We talked a little bit about this on prior presentations.

And very similar to other NRC requirements and other parts, they state what the licensee must do,

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but they don't say how to do it. For example, the licensee shall conduct drug and alcohol testing, perform behavior observation, audit their program, and assess program performance. Our planned approach will leverage these requirements and will not attempt to use the highly prescriptive requirements in Subparts A through I, M, N, and O, with three notable exceptions.

One, the drugs and drug cutoffs to be included in the testing panel will be as prescribed in 10 CFR Part 26. Two, the required -- we will require the use in the Part 26 timed dependence alcohol limits. And number three, as an advanced reactor -- when an advanced reactor needs to integrate with the rest of the commercial nuclear industry, we will need to implement what are called the authorization requirements in 10 CFR Part 26, Subpart C. And you will see this in the flow diagram that I'll present shortly.

Secondly, the Part 26, Subpart K requirements have been successfully implemented at two NRC licensed facilities for years and has been applied to thousands of individuals. And as determined by NRC inspection and operating experience, this regulatory framework has been successful. The third key message continues our message on leveraging the Subpart K

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requirements.

It states our initiative to scale the requirements based upon risk insights which will be characterized on the aforementioned two risk informed criterial that I'll present two slides from now. This message also states that we're using performance-based approach. Why is this important?

This is important because the use of performance-based and objective-based requirements due to reactor operation in the FFD world is definitely innovative. As I said in my opening remarks, if we could design, operate, and maintain secure nuclear power reactor facility with these types of requirements, then these same requirements could be applied to drug and alcohol testing. We surely did not tell an NRC licensed operator how to approach criticality, how to ascend to the point of adding heat, or even parallel the generator to the grid. And we do not tell the licensee how to calibrate any safety-related instruments, conduct psychological exams, or respond to an intruder.

Why then in this day and age do we have to explicitly tell a licensee how to collect a urine specimen or exactly how an HHS-certified laboratory should test a urine specimen, especially when an

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established, well-vetted, expert developed, and fully free federally approved guidance documentation is readily available to inform a licensee's drug and alcohol testing program? After 32 years of Part 26 implementation using its prescriptive requirements, can I be so bold to state that can we be transformative to agree that licensees and other entities are quite capable, more than capable of implementing their own corporate-based drug and alcohol testing program, assure due process, protect employee medical and privacy information, and provide reasonable assurance that individuals can safely and competently perform their assigned duties and assure that NRC licensed activities will not inimicable to public health and safety? Next slide, please.

The fourth key message presents new requirements, a licensee developed and implemented performance monitoring program. This proposed requirement is important for three reasons. First, our approach includes this performance-based requirement because we are leveraging objective requirements.

The inherent flexibility afforded to licensees through the use of objective-based requirements can represent a challenge to long-term

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program effectiveness if degradations are observed in, for example, auditing, training, safety culture, and problem identification and resolution. Therefore, like an auditing program, this performance monitored program must ensure that performance is maintained. Routinely assessed, problems are identified and corrective action is implemented.

In this manner, the NRC's inspection program will also become more objective and performance-based. Secondly, performance monitoring is important because if the staff size subject to the Part 26 fitness for duty requirements and Part 73.56, access authorization requirements as previously mentioned becomes markedly small. A new paradigm is presented where the proportional contribution of single individuals may become more important from a safety and security perspective.

Think about the comparison to two Air Force officers in a ballistic missile silo or 135 sailors on a nuclear power attack submarine. This human-related consequence is not the same as 900 individuals at a light-water commercial power reactor who may not all have safety and security-related tasks but are within or inside the FFD program, inside our mitigation program, and the access authorization

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program. And although the FFD program is a direct contribution to safety and security, it alone will not protect the public health and safety. It has to be integrated with the other regulatory requirements in an integrated approach.

Finally, the fifth key message, the FFD program includes provisions that enable licensees to implement their own corporate-based drug and alcohol testing program as long as certain Part 26 requirements are met. For example, the approach is intended to enable the use of advanced drug testing methodologies using urine, oral fluid, and hair specimens and possibly point of collection testing devices which I can discuss and explain later. So now let's look at the risk informed performance criteria that I mentioned. Next slide, please.

Let's look at these carefully. Criterion A is previously mentioned criterion used for security, cyber protection, and access authorization requirements. Since this is the same criteria already discussed in previous security slides, I don't expect to spend any more time on this criterion because everything that we learned from security is going to bleed into drug and alcohol testing programs.

However, what is important is that if a

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licensee meets Criterion A, a drug and alcohol testing program will not be required, okay, will not be required. Yet the licensee will still be required to implement a behavior observation program similar to that required in the access authorization program requirements in 10 CFR 73.56. They will also be required to implement a performance monitoring program as I previously mentioned and implement administrative type requirements that I'll cover later.

And why can we do this? As previous presenters have presented, because the program to be applied is commensurate with the risk profile of the facility. Remember Criterion A is the bad actor doing bad things but bad consequences do not occur.

Criterion B is new, and this is important for two reasons. Criterion B, we expand the scope of applicability of the proposed reactor -- advanced reactor fitness for duty program. The other advanced reactors, namely those that do not meet Criterion A which might be difficult to meet.

This could be a reasonably large population of advanced reactors and inclusive of reactor technologies. This occurs because we are trying to credit plant technologies, engineering safety features, and controls to provide reasonable

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assurance that without operator action, the plant can achieve and maintain safe stable conditions and remove decay heat and that the radiological consequences resulting in design basis accidents and transient as described in the final safety analysis report do not result in conditions inimicable to public health and safety. Whereas Criterion A is attack through damage and bad things do not occur, Criterion B is the operator human performance scenario.

That is, if an operator walks away during a design basis accident of transients as described in the final safety analysis report, will the plant workforce, public, and environment still be protected and safe? Because Criterion B deals with people working at the facility as I previously mentioned, we need to ensure that Part 26 approach is consistent and integrated with other NRC approaches, for example, access authorization, NRC licensed operators, the applicability of fatigue management provisions to the facility and its individuals and individuals that are needed to ensure that the facility operates within its design licensed conditions and design parameters. For this reason, let's go to the next slide.

We desire -- and I really hope to obtain -- external stakeholder comment on Criterion B.

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Perhaps there is a better way to describe its intent or its function. Note that we are definitely in the early stages of trying to succinctly articulate something complex.

Or spoke in another way, it's very difficult to truncate the complexities of nuclear power plant operation and security into two criteria. But I think we should try. We also have not completed our assessment of how or whether to assess errors of omission or commission, insider mitigation threat, coping times, or other considerations.

Okay. So, let's take a look at the big picture and move on to the next slide. The next slide is what I call the flow diagram, the bubble charts. We will see in this bubble chart Criterion A and Criterion B all coming from the blue block labeled new Subpart M, fitness for duty program for advanced reactors. And again, it leverages existing Part 26 requirements.

We believe that Criterion A and Criterion B are an "or" statement. It is not an "and" statement, you neither meet A or you meet B, because we believe that if most licensees will not be able to meet A but they will meet B. So, if you meet A, what

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is needed?

Well, you got to describe the fitness for duty program in your final safety analysis report. You got to meet a bunch of administrative requirements that I'll cover in a second. We have to implement a program that meets the FFD performance objectives in 10 CFR Part 26, Section 23, and you have to implement a behavior observation program.

We will also enable the licensee's use, but not require it, a corporate-based drug and alcohol testing program. And this will be based upon their implementation of their performance monitoring program. If a licensee meets Criterion B, meaning that which is focused on human performance elements, you have to the elements of 1 through 4 above, describe the program, meet a bunch of administrative requirements, meet the performance objectives to implement behavior observation, and you have to do 2 and 3 which is you have to implement a corporate-based drug and alcohol testing program.

And prior to operation, the regulatory framework is going to need to ensure that the facility is integrated with the rest of the commercial nuclear industry regarding fitness for duty authorization requirements, fatigue management, record keeping, and

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reportability requirements. If a licensee does not meet A or B, then they have to implement the current FFD program as described in 10 CFR Part 26. Okay. Let's move on to the next slide, please.

I mentioned administrative requirements. These are the administrative requirements so that no one is surprised what I'm talking about. Clearly, you have to be -- the purpose has to apply. The scope of Part 26 has to apply. And it has to apply to certain categories of individuals of which I mentioned earlier.

In that, Part 26 is very prescriptive. We have to be very careful and highly critical on how we're going to apply 26.4 to advanced reactors. The definitions have to be consistent. Interpretations are what are called commission interpretations of the regulations, information collection, how to request an exemption, and how to communicate with the NRC.

Subpart O is how the NRC provides oversight of your facility. They're really not the licensee actions. They're really NRC enabling requirements that allows us to go to your facility. So let's go on to the next slide.

This is the new performance monitoring requirement that I previously mentioned. The fitness

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for duty program monitoring is going to require or proposed to require that the licensee determine its own performance objectives and associated metrics. Yes, we understand that the NRC will issue guidance on what kind of performance objectives or performance metrics the licensee may want to consider in their program.

And these measures and metrics need to be applied in a manner sufficient to provide reasonable assurance that individuals can safely and competently perform their assigned duties and responsibilities and are trustworthy and reliable. Let's look at one particular performance measure. I previously mentioned that the NRC already has in possession a sophisticated database of all fitness for duty drug and alcohol testing results from the entire fleet of NRC licensee subject to Part 26.

That database is based upon site-specific performance and an aggregated generic industry performance. Therefore, it's very easy for a licensee to take that database and compare their site-specific results to other licensees of similar size or similar quantities or qualities or whatever elements you might want to come with to have an apple-to-apple comparison on performance. It would be inappropriate for a small

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advanced reactor that has very few individuals onsite to attempt to compare itself to a large light water reactor facility that has thousands of individuals onsite and constructing the reactor complex.

Therefore, this data set can be used by an advanced reactor. The program has to be designed to identify adverse trends and include the number and rate of change of FFD policy violations. You might ask, how can you have an FFD policy violation if I don't require drug and alcohol testing?

Well, let's say the individual brings an alcoholic beverage onsite. In my mind, that would be an FFD policy violation because the workplace is not free from the presence and effects of impairing substances. Trending shall be timely updated, enable year-to-year comparisons which is important for any performance monitoring program, and implement an annual program review. Next slide, please. And that is the end of my presentation. I would be very hopeful to get some comments or questions or discuss any other specific elements of this approach with you.

MR. BEALL: Okay. Thank you, Paul.
Marcus?

MR. NICHOL: Yeah, thanks. Coming off of mute. Paul, thank you for that. That was very

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helpful to understand what you're thinking. And I would agree with you that I think we can be -- really move things forward in this area along the lines that you suggested.

I want to focus really just on the entry criteria because I'm not an expert in this area. But this is one where I feel like I can offer some thought. So it's on Slide 55 that you had them. And so for the first one, I think the benefit of the way you've described it here is that it has alignment with criteria that we discussed for 73.100, criteria for 73.110. So that's very good, and there's a lot of advantages to that.

I was wondering, though, is recognizing fitness for duty might be slightly different in terms of sort of the purpose and considerations, so just an alternative to think through. I don't know if this is better or worse than the criteria. But if the criteria were something like the operators on lack of an action from the personnel onsite that are required to take an action like an operator.

So lack of an action would not -- or the action is not required or relied upon for safety. So if they don't take that action because for whatever reason, it's not -- the consequences are fine.

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They're within this limit, or the other aspect of it, if somebody does an inadvertent action or a prohibited action and that action could not violate that safety.

So if those two conditions were true, then you might still come up with the acceptability here. So just a thought. I don't know if it works better than what you have here, but just an alternative that came to mind for your consideration.

MR. HARRIS: Yeah, that's a great comment. And the reason why that's a great comment is because we see the same thing. We do. How do we write this such that we include what you talked about? Okay? These people can walk away or be impaired or asleep on the job or implement a cognizant change that's not consistent with the procedure or tech/spec requirement, can we still be safe?

If that's the case, I mean, that's pretty safe. Okay? That's pretty safe. And I want to have that incorporated in this fitness for duty approach to give that type of relaxation or credits, you might say, to that type of facility and mode of operation.

MR. NICHOL: Yeah.

MR. HARRIS: Yeah.

(Simultaneous speaking.)

MR. NICHOL: Okay. Thanks, yeah. And I

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agree. I think we're seeing it the same way. So I think the difference between the two is that the advantage here is it has some connection to other things. And then the advantage of the other one is it might actually be applicable to more designs, depending on how it's applied. But just something to think through. I know I will say --

(Simultaneous speaking.)

MR. NICHOL: I will say I would agree with you on Criterion B. This one is a little bit more difficult to come up with because if you take it to one extreme which is your plant is designed according to Part 53 safety criteria, which is 53.220(b)(1) and (2), but you have some reliance on operators, that sort of feels like the current paradigm which I think was your other slide that has the flow chart 57. So it sort of feels like it leads you right back to where Part 26 is today.

So maybe that's a little bit too far. So what's sort of in the middle between Criterion A and where we are today? I don't have any specific thoughts. I just wanted to point out this sort of set up, the construct of thinking so that we can go about this.

But it's sort of looking at, how would an

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operator -- or human actions and inadvertent or impaired actions have different consequences. I think look at it from the consequence and risk perspective is really the right way. I don't have a ready idea on what that might be, but just wanted to offer those thoughts.

MR. HARRIS: No, that's -- we're aligned with you or you're aligned with me or us. We're there. There's got to be a good way to account for these advanced reactor designs that really don't have the necessity to have those types of human performance characteristics that are needed for light water reactors of traditional designs.

MR. NICHOL: Actually, just a thought. We have the -- we do have EPZ criteria. So it would sort of -- if you had a design that could achieve a site boundary EPZ, is that sort of the one that meets this criteria? I don't know. I'm just thinking --

(Simultaneous speaking.)

MR. HARRIS: Yeah, yeah, yeah. On the previous slide, long time ago in, like, rev 0, we had what we thought was a good thing. But we thought, it'll be better coordinated with external stakeholders and NRR before we present anything. So we hear you.

MR. NICHOL: Okay. Those are all my

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thoughts. Thanks.

MR. HARRIS: Yeah.

MR. BEALL: Okay. Thanks, Marc. Cyril, you have your hand up.

MR. DRAFFIN: Yes, Cyril Draffin. I agree with the comment that Marc and Paul were having a discussion, that it's consequence-based. And being -- recognizing there's a spectrum of reactors from little microreactors to intermediate ones and they're going to have different characteristics and some of which are going to have lots of people onsite and some of may have nobody onsite.

MR. HARRIS: That's right.

MR. DRAFFIN: And so being flexible to that I think is important. And it may be a gradation and not -- so that's the first point. And the second is I agree with Paul's comment that you don't want to hang onto legacy requirements really aren't important to -- or not as important to other things that are being done. So thinking about how do we package it I think is timely. I do have -- I feel obligated to make -- since I made the comment on behavioral observation under access authorization, make it again here that I think the same logic applies for is it necessary for fitness for duty.

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MR. HARRIS: Yeah, and again, I don't -- and the purpose here is not to argue but present differing views. And the view is clearly the comparison to the number of people onsite. How do you ensure that people are doing the right thing?

You can't assure that by drug and alcohol testing. You got to ensure that by management oversight, supervisory oversight, observation of individuals at the controls or in the field doing safety or security-related activities. And so the NRC coins that as behavior observation. And that's how we're approaching this. That is the Holy Grail that's connected to the insider mitigation program and the access authorization program.

MR. DRAFFIN: Yeah, it's a question not whether it's a good thing to do and whether management should be aware of their employees, of course they should, and how regimented a program it becomes or is.

MR. HARRIS: Right, right.

MR. DRAFFIN: You talked about current research and test reactors. They don't have to implement the full scope of Part 26 now, I don't believe. And so you've took some lessons learned from how that's being -- how research and test reactors are being considered and how that could apply here and

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have woven that in. But could you elaborate a little bit on how you incorporated that?

MR. HARRIS: Yeah. I, just to clarify, did not -- I did not mention non-power utilization facilities on purpose. On purpose, I did not. And the reason is because non-power utilization facilities are not subject to Part 26.

They don't do drug and alcohol testing. They do them through behavior observation under Part 26. However, those facilities are allowed to implement a drug and alcohol testing program under their own accord. And they may implement the Part 26 requirements if they want.

In addition, those NRC licensed operators at those facilities are subject to 10 CFR Part 55, Section 54(j) which requires those NRC licensed operators to abstain from drugs and alcohol and not be impaired. So there is a connection there. Now did we look at the FFD programs at research and test reactors or non-power utilization facilities.

The answer is no, I specifically did not. However, I know from NRR inspections that were conducted and talking to security experts in that area that these programs are implemented. The inspectors have not identified any significant inspection

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findings that would lend us and the operating experience that the current regulatory framework is inadequate or does not assure public health and safety.

In that respect, for example, a non-power utilization facility that does not result in an offsite dose consequence in my layman's mind is Criterion A in that the bad does something bad. But offsite dose consequences do not result. So we are aligned with a fitness for duty program at that facility. However, we don't require drug and alcohol testing, but we do require behavior observation.

MR. DRAFFIN: Great. And something else to consider, what if some of these advanced reactors installed at an industrial plant where they're using high temperature steam and processing and where you draw the line in a factory which may have a relatively small reactor? But something to consider as you go forward, there may be not just power applications.

MR. HARRIS: Yeah, that's a consideration that I know folks are looking at regarding other types of hazards presented in the workforce and to the public. Currently, Part 26 is focused on those, you might say, radiological NRC licensed areas. So that's what I'm focused on right now.

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

MR. LANDINE: Yes, this is Guy Landine, Pacific Northwest National Laboratory. Excellent presentation, Paul. I was wondering given the requirement for this review and more specifically behavioral observation, how do you feel --

MR. BEALL: Excuse me, Guy. Can you speak up a little bit? You're kind of faint.

MR. LANDINE: Okay. I'm sorry. Is this a little better?

MR. BEALL: Much better. Thank you.

MR. HARRIS: Much better.

MR. LANDINE: Okay.

MR. HARRIS: Thank you.

MR. LANDINE: Given the requirement under 10 CFR Part 26 for behavioral observation, how do you think this plays into scenarios such as remote operations or maintenance of these advanced reactors, because I feel it would be extremely difficult, if not impossible, to manage the behavioral requirements.

MR. HARRIS: Yeah, that's a great point. And that's a current issue -- or not an issue, but a current item that the current light water reactor fleet is addressing because the emergency operation

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facilities and even the technical support center may not be at the NRC licensed facility for advanced reactor. These people all might be at home.

And currently, that's sort of the same way with how cyber protection technicians are operating within the commercial nuclear reactor field. How do we apply fitness for duty requirements to those individuals who are offsite? Well, clearly, if they have a role and a responsibility in which they have to direct or conduct activities from a safety or security perspective within the licensed arena, those individuals have to be trustworthy and reliable and they have to be fit for duty.

Now the current role addresses emergency planning personnel and it's focused on those individuals who are onsite at those emergency response facilities. However, we have already written rule text that's draft and, like I said, it's undergoing peer review that will apply certain requirements to those individuals who are offsite doing those remote activities that you're talking about because we are concerned about that. You don't want someone directing reactivity manipulations to another licensed operator or even taking control of a facility remotely or doing something and they're not physically able to

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do that. So we are addressing that issue.

MR. LANDINE: But I guess I'm trying to comport how things such as behavioral observation would ever be accomplished in that type of scenario. Yes, we can drug test the individuals making sure they're of high quality and do background checks and things of that nature. But when I'm coming in remotely into a system with hands on keyboard, there is no way to truly determine that it might be Guy Landine doing it or it's somebody else and that person hasn't been coopted or coerced into gaining or allowing the access to the system.

MR. HARRIS: Yeah, and that's the current issue we have in the current reactor fleet as well. How do they do that? Currently, licensees have administratively required individuals to come onsite for periodic supervisory assessment of behavior -- of the individuals' performance. That is something we have to look at.

MR. LANDINE: It's definitely a hard problem to deal with --

MR. HARRIS: It is a hard problem --

(Simultaneous speaking.)

MR. LANDINE: -- especially in light of this new technology.

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MR. HARRIS: It is.

MR. LANDINE: Thank you very much.

MR. HARRIS: Yeah.

MR. BEALL: Are there any other questions or comments on this topic? If you're on the bridgeline, you can hit *6 to unmute your phone.

(No audible response.)

MR. BEALL: Okay. I'm not seeing or hearing anything. Thank you very much, Paul. And so right now to take a break -- a 15-minute break. So we'll pause the meeting here and we'll come back at ten minutes after 2:00 East Coast time.

(Whereupon, the above-entitled matter went off the record at 2:54 p.m. and resumed at 3:11 p.m.)

MR. BEALL: Okay. Can we go to Slide 61, please? Next topic for the Part 53 rulemaking public meeting today will be Manufacturing Licenses. Marc Nichol from NEI will make a presentation now. Marc?

MR. NICHOL: Yeah, thanks. Coming off mute. You have my slides loaded, or do I need to share them?

MR. BEALL: No, we have them, Marc.

MR. NICHOL: Great. All right. Great. Thank you. Appreciate it. So, we want to talk about industry's thoughts in the area of manufacturing

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licenses. The discussion in a previous meeting, and I don't recall which one it was, the NRC had presented preliminary language on construction and manufacturing which included manufacturing licenses.

And around that was some discussion about -- I'll just call it new business models, the fact that some of these advanced reactors will look different than the 1,000 Megawatt plants we have in operation today and that we may be able to do things a little bit different in, I'll say, business space, business operation space. And the NRC doesn't know what the -- didn't have a really good idea about what the industry is thinking and that having a better idea of what the industry is thinking will really contribute a lot to developing those requirements to make sure that they can be done safely and to the extent possible that they can be done safely to enable those activities.

So that's the purpose of this presentation. We'll present what we're thinking in terms of business models, and then we drill down into business activities. We'll talk about some of the things we've thought about in terms of how those should be considered within the Part 53 rulemaking on manufacturing licenses.

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And I really would encourage the NRC to ask questions. So if there are things that don't make sense or things that we may not have thought about that you see as maybe being problematic or an area that needs more consideration, please raise those because we're developing a paper based on a lot of this information and we plan to send that paper to the NRC. So to the extent that this meeting draws out more questions and more need for details, we would be able to include those into the paper we put together. So thank you. Move on to the next slide.

First, we thought, well, what is the role of the manufacturing license. We need to have a clear vision on why we even need a manufacturing license in the first place. We recognize there's -- Part 53 is going to bring in the Part 50 construction permit operating license paradigm, Part 52, a COL paradigm. But you could also have a design certification. There's an SDA.

So, what is being created new under a manufacturing license that you can't do elsewhere? And so we started with that question first. And this is really a framework for considering it as we look at the different business models and business activities.

We started first with a historic look.

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Well, why do we have manufacturing license to begin with? And it was first introduced back in 1973. I apologize for those that know this, but there may be many that don't.

And back then, it was established to regulate offshore power systems. The idea is that the design would be approved. It would be manufactured at, say, a shipping -- a shipyard, and then it would be barged over to its location of final use. And that local of final use would have a construction permit associated with it.

It was used to license floating reactors. They were never built, so it was never put into practice. But licenses were issued. From there, it made its way into Part 52. Fast forward to 2007, the revision actually sort of changed the nature of the manufacturing license.

It's now approving the final design rather than the preliminary design, more equivalent to the state of design and a design certification or COL. And it also expanded to address requirements relating to actually shipping it to the site. So it took on a different flavor a little bit in the 2007 from the original intent.

So, when we look at Part 53 and these

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considerations of what's the role of the manufacturing license, these were sort of questions or areas to think through that we think we should through as we consider it. So first starting with let's get a clarify on one of these activities that are in the following slides. Can we actually perform with a Design Certification or an SDA without a combined operating license, if there are any?

Clarify which of the activities can be performed with a construction permit or a COL but you would have to have those to perform them. But having those issued would you allow you to perform them. Clarify what activities can only be performed by establishing a manufacturing license provision.

So if there's an activity that you couldn't perform with anything else, then the manufacturing license might be the right place to include it. And then clarify what activities draw requirements from other parts. And Part 30 and 70 are referenced here.

We get into more as we go forward. But it's recognizing that Part 53 may not be all inclusive with the requirements. There may be other parts that have requirements applicable to certain of these activities that we'll walk through.

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And then based on all that, determine are there any requirements in other parts that you're bringing in or referencing or they would apply outside of your strict Part 53 set of requirements that needs some revision in order to enable these activities? Part 71 is referenced here. We can get into that later as an example, but it may or may not be. There may be others.

But this sort of thought process in determining the role of the manufacturing license. So we're really focusing on the manufacturing license as being something unique and different that you can't do with something else. Next slide, please.

So the new business models, really the new business model is enabled by smaller sizes. It's not exclusive to smaller sizes. But it's certainly more enabled the smaller you get and by three main areas.

One is the higher degree of factory construction which is enabled by smaller sizes. You can even get down to perhaps manufacturing the whole reactor at one factory if you get it down small enough. But otherwise, you may have some factories and then assembly at the final stage of manufacturing. That's one aspect.

The second aspect is in the market and

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customer interest, so especially with smaller sizes. The customers, the ones that would be purchasing or would using the advanced reactors may not be interesting in reselling the power that they're making. So they may not be utilities.

They may purely be energy customers. Let's think of a mining operation where they're not interested in generating electricity and selling it. They just want the heat and power for their uses.

In that situation, there may be a PPA. The developer of the design may actually own the reactor and be selling power to that user. So the business relationship and the ownership of the plant does make a difference in these areas in terms of the business models.

And then the last one is the lower costs of a smaller reactor is conducive to building a number of these reactors and having them ready to go when somebody wants to make an order, sort of an off the shelf so that somebody comes in and says, I want a mobile -- or I want a microreactor. And you say, we've got one ready in the back of the factory. Get your site license from the NRC and we'll load it up on the truck for you, that sort of notion.

So within all of that, we looked at, well,

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what specific activities would be different for these new business models that we don't currently do today because that's really what's important here. We can talk about business models, but it really comes down to, what are the activities that want to be performed and how does the NRC regulate those activities? And then does -- a manufacturing license, is it necessary or does it make sense for those activities?

So here's a list of eight. I'm not going to read through all of these because I'm going to go into detail on what each of these mean. I will just note that number 8, we don't describe in detail. This is a longer-term consideration, alternative siting pathways.

This might be something that enables mobile operations where within a matter of a few days, you can ship the reactor to a site that does not have a specific site license. Operate it there, turn it off, and move it somewhere else. We're not going into detail here. Maybe longer-term, we might go into detail on that. But I will go into detail on the previous seven. Next slide, please.

So there are two activities that may actually be permitted for design certification. I should've included an SDA here. Or if not for them,

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it could be permitted by -- for a construction permit or a COL.

And this really -- these two are really focused on the manufacturing of the reactor hardware and without any fuel. So this slide right here, consider there's no fuel at the factory. No fuel touches these reactors within these specific activities.

So, the first one is speculative manufacturing of reactor modules without a customer order. I referred to this a little bit earlier. This is the ready to go reactors in terms of ready to go.

Once a customer steps forward, you've got -- with a -- I should say with a site license by the NRC. Once they step forward with that, they can just remove it from the factory. It's already been assembled.

So what is this -- what are the fundamental characteristics of this? Well, at the time the reactor is manufactured, you don't have a specific customer identified. So you're not manufacturing it for a customer down the road that has -- is going through an NRC license review or has gotten an NRC license review before you start putting the -- bending metal. You do that before you know who

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you're going to sell it to.

Why would you want to do it? Well, it reduces deployment time by having off the shelf reactors. So if somebody comes along and says, I want to get this reactor and I've gotten an NRC licensing pathway that I have to go through to get my site license.

But I want to be able to sort of ship that reactor to my site the day after I get the license from the NRC and that reactor is ready to go in that manner that it'll ship to site and basically you turn it on within a couple of days or maybe a month of after getting that license. So it would really reduce that deployment time. And obviously, the customer would come along with a CPRC well. And there's where you'd make the contractual arrangement to provide it for them.

The next activity is fully assembling an operable reactor at the factory. It would certainly be related to that speculative manufacturer but it doesn't have to be solely related to that. The idea here is that you would assemble all of the structure systems and components of a reactor so that it could - - so that it would be operable.

It could be brought to power if you loaded

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fuel in it. This activity does not load fuel in it. There's no fuel at this factory. But it's all of the components that you're needing to go into there.

By definition, this type of activity would not rely on a significant amount of onsite construction work. You may have some earthwork to prepare and level the site. You may have some -- I'll say menial or minimal work onsite.

It's not to say there's absolutely zero onsite work. But really, there's essentially not much. Everything that you need to do to put together a functional and operable reactor would be completed at the manufacturing site.

I want to specify again there's no fuel loaded into the reactor, no fuel at all at the factory. And this may occur at more than one facility. So this is important because I think as we consider the current manufacturing license provisions, they identify it maybe as only one facility or only facilities owned by the manufacturing license.

This could be you could have subcontracts to people to provide this piece of component of the reactor. And so it's coming from another facility. But certainly, you would have one facility that would assemble everything together, and that would be the

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final stage of manufacturing. So that would be the other consideration. Next slide, please.

The three activities on this slide are all related to -- would all necessitate fuel be at the factory. And so let me walk through those. The first one would be testing a fully assembled reactor.

I should probably say that all of these would involve a fully assembled reactor as well. So you might notice that there's sort of a progression along this line of sort of completeness of the reactor. So in alignment with the previous step, you fully assemble that reactor.

It could be operated if fuel was put into it. And here now with this factory, you actually do have fuel and you actually are putting fuel inside of it. Now the purpose of putting fuel inside of it is to perform testing, fuel testing criticality, maybe some power ascension. This is basically to demonstrate that the reactor is -- with the fuel in it is going to operate according to what you designed.

The reason you might do this is because it could be more efficient, so especially for higher volume. If you have factory conditions to do these fuel testing and then you ship it off to the final site where it's going to be used, well, you don't have

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to repeat those fuel testing conditions. You're more closer to being able to just flip the switch and bring it to full power.

In this logistically, the fuel would be removed after the testing. It would not stay in the reactor. It would not be in the reactor when it's transported.

When you get to the operating site, then you would put fuel back in it. Could be the fuel that you use to test it, or that fuel you use to test it could be the fuel you use to test lots and lots of reactors. And the fuel for the actual operations could be a different set of assemblies identical in nature but serial numbers would be different. So that would be some optionality there.

The next activity is to actually fuel the fully assembled reactor at the factory. So like the former one, the one just before this, you actually put fuel in a fully assembled reactor at the factor. Now the difference is the fuel in this would remain in the reactor and it would be transported along with that fuel all the way to the operating site.

The benefit of this is that it eliminates the infrastructure you need to actually load fuel at the operating site, where the first one you would

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still have to have that infrastructure for loading fuel. Now this is actually performed currently by at least one licensee. So there is precedence for this. So, it's not completely out of the box thinking.

I would say there is a distinct -- we did make a conscious distinction between testing, that criticality and power ascension testing at the factory, and just loading fuel for shipping from the factory and that's because it brings in some different requirements. Some people may want to do both. They may want to put the fuel in, perform the criticality and power ascension testing, keep the fuel in there, and ship it off.

Some may want to only do the testing. Some may only want to ship it with fuel in it. So that's why we split these up into two different activities as to allow for that flexibility and recognizing different considerations.

The last one is really related to what happens to a reactor that was fueled at the factory and shipped with fuel in it at the end of its lifetime. Certainly, you could at the operating site remove the used fuel from the reactor and then ship the used fuel and reactor separately. That would be pretty straightforward. We didn't line those out

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because we think we know how to do that or the requirements are set up specifically for those type of activities.

And somebody may want to do that. It would somewhat eliminate the benefit of not needing a fuel loading infrastructure at the operating site. But it would delay the need for that up to 10, 20 years, however long the fuel cycle is. Or you might bring it in to both unload fuel and load fuel. And so there may be reasons people want to do that.

But others may want to say, I shipped it with fuel loaded in. I don't have this infrastructure onsite to take fuel in and out of my reactor. It's actually not something I even want to do.

So I'm going to ship it back to a central location -- here, I'm calling it a refurbishment center -- back to some factory location. It could be the original factory. It could be a different location with that used fuel still in the reactor as its shipped back.

And so this is considering, well, this facility that's receiving the reactor with the used fuel in it, you would want to remove the used fuel and load new fuel in it. You may actually do some refurbishment of the reactor itself, some periodic

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maintenance. That's why it's called a refurbishment center.

And that factory itself may also provide long-term used fuel storage for -- you may -- if you take it out there, you may just want to store it there and not ship it somewhere else. And ultimately, these reactors over 60 years or more might reach the end of their life. And so maybe that factory also becomes a decommissioning center for that reactor. Next slide, please.

These are the last two activities we'll talk through. I should've numbered these just so they correlate with the original list. But these activities relate specifically to transportation and the sites themselves.

So the first one is transporting a fueled reactor from the factor. This would be tied to the last two activities. So if you're going to fuel the reactor and it's going to stay fueled all the way to the operating site, obviously, you're transporting it with fuel. This activity is absolutely something you would also have to do. And similarly, shipping it back with used fuel in it would be this activity.

The reason you would want to do this is to minimize -- well, the reason you would do this is

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because of the others. But in doing this, one of the things you would want to try to do is minimize the testing and inspection that is needed at the operating site. So that's sort of a goal.

It's obvious that testing and inspection is going to be required for their stated purposes. But to the extent possible to try and limit what that is would be an advantage. And then the shipment of used fuel after use at the operating site may have additional considerations. I think we touch on those a little bit later, so I won't mention them here.

The last one is multiple operating locations. This is not mobile operations. We had this discussion at the last meeting where we were talking about multiple operating locations. And it could sound a lot like mobile operations, but the considerations are very different.

So within this one, what we're looking for is flexibility for reactors, especially reactors with very little site infrastructure, that they may be located and more than one site over their entire lifetime of operation. This might apply if you have a mining facility and you send a reactor there and that mine only lasts for 20 years. You don't want to abandon -- you want to abandon a reactor, but you

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wouldn't want to have to no longer use a reactor that has 40 years or more left of its life because it can only operate at one site.

So the idea would be after those 20 years, it would move to another site. Now that length of period that it stays on one site may be 20 years. It could be 5 years. It's in the years category, though. It's not in the days and weeks category.

And so part of that is a recognition that -- or part of this activity is a recognition that the next site would have to have an NRC issued COL or operating license before receiving that reactor. So you would have to have NRC issue a site license before you would be able to bring that reactor to Site No. 2 or Site No. 3 if there were three sites over the lifetime of that reactor. Next slide, please.

So given all those activities, we then started to think through, and so all those activities plus all those questions we had in the beginning on what's the role of manufacturing license. We thought through those, and this is our conceptual approach to a manufacturing license in Part 53. And certainly a lot of discussion opened here. This was our initial thought.

The first is that the manufacturing

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license should be focused on the safety of the reactor. The safety of the reactor comes in its design in sort of ensuring the as-fabricated condition of that reactor is in alignment with the design. There's a process piece of that which is quality assurance, codes and standards, Part 21.

These are all the process requirements that give confidence that the manufacturing is proceeding -- is going to result in a design or as an as-fabricated condition that is according to the design and license approved by the NRC and then the operations. So obviously, the design is important. But ultimately, an operating reactor is what we need to make sure is safe, fuel operated reactor, so to be able to have a picture of safety around the operating conditions and the site conditions that would be appropriate or authorized for that design and a manufacturing license. So those would be the three things to focus on.

We don't think that the manufacturing license should specify detailed requirements related to manufacturing. This many sound counterintuitive. It's called a manufacturing license. Why aren't you putting requirements related to manufacturing?

Well, it's really to ensure consistency

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with requirements of the CP/OL or the design certification, SDA, and the COL, those focus on what I just mentioned which is the safety of the reactor. They don't focus on specific requirements in terms of how you have to manufacture in. They rely on the process steps, quality assurance especially by Codes and Standards Part 21, all of those.

They rely on the process requirements to ensure that the as-fabricated reactor complies with the design and the license that was approved by the NRC. So we think that that's also appropriate for a manufacturing license and one thing that we should look at again with the NRC's proposed requirements to make sure that it's consistent with that. Next point is that the reactor can be manufactured at any facility within the control of the manufacturing license holder and also the contractors, so including allowing for movement of the reactor before it's fully assembled between any of those facilities.

I believe in the current requirements for a manufacturing license, it would require any of those facilities to actually be owned by the holder of the manufacturing license. So it would somewhat preclude the use of subcontractors. And it may even preclude the use of more than one facility. So that would be

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something specific to Part 53 we would want to look at.

For factory activities that involve the use of fuel, we believe they would also be subject to Parts 30, 40, 73, 74, and 75. This is related to radioactive material. We don't see that there -- well, we would see them applying to a manufacturing license the way they apply anywhere else with fuel. So we don't see a lot of need to modify those or try to incorporate them into Part 53.

Needs to determine the approach toward Part 70, my next slide will go into this in more detail. So Part 70 requirements come into play when there's fuel at the factory. And so there's a question about how do you tie that into Part 53. So save that for a second.

And then Part 51 environmental consideration in terms of the factory only come in when fuel is located. We recognize Part 51 comes in related to the design. It even does for a design certification specifically related to severe accident management. It's a very narrow consideration of environmental considerations.

But in terms of environmental considerations for the factory, if you're just

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manufacturing a reactor and there's never going to be fuel or radioactive material at that factory or facility, then Part 51 would not apply. So it's just when fuel is (Audio interference.)

For transportation activities, if Part 71 is not incorporated into Part 53, then it may need some revision. There's a presumption that if it's incorporated into Part 53 that there would be some revision to those requirements as necessary to help them fit within Part 53. And then storage activities, Part 72 license would be needed if it's not incorporated into Part 53. That may be -- given that that's a narrow set of activities, that may be a more streamlined way to do it just so Part 53 isn't the be all and end all of all of the NRC's requirements. Next slide, please.

So here are three options for how Part 53 manufacturing license requirements might be scoped out and especially related to fueled activities. So first, under all of these options, the Part 53 scope should always include the requirements related to the design, the process, the operations, the decommissioning. These are all the requirements the NRC is already developing for Part -- under Part 53 for design certifications, construction permits, COLs,

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operating license.

And largely, they -- well, I think they would be identical. The design requirements would be identical, whether you're seeking a design certification or a manufacturing license. The process requirements would be identical between a manufacturing license and design certification.

For the fuel at the factory, as I mentioned, these material requirements in Part 30, 40, 73, 74, 75 are largely good the way they are. And so it would just be a matter of making sure that people know they do apply to that activity with fuel at the factory. Then we get into the three options, and this is really in terms of how Part 70 is incorporated into Part 53.

So there's Option 1 which is Part 53 only. Everything is brought into Part 53. And it's a one stop shop for any of those activities you might want to do under a manufacturing license. So the fuel-related scope, this would be the testing, the fueling, the transportation, refueling, or I should say removing used fuel, the storage of used fuel. And it would essentially say every requirement under Part 70, 71, 72 that's related to these manufacturing license activities we're going to duplicate and modify them as

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appropriate and put them into Part 53.

The second option would be Part 53 centric, and this would be to say, well, transportation and storage, they're pretty big. And that's a lot of requirements to copy over. And they've not really going to be that much different anyway. And if they do need to be different, maybe they need to be different in Part 71 and 72 anyways.

So let's not bring them in. Let's leave Part 71, 72 the way they are. And so the Part 53 fueled-related scope would just be testing and fueling. And so this would really be incorporating the aspects of Part 70 into Part 53.

And then there's the third option which is a Part 53 limited option. This is looking at Part 53 and saying, well, let's let it be as streamlined as possible and point to other requirements as much as possible. And so there really wouldn't be any fuel-related scope in Part 53. So any of those activities that require fuel at the factory like testing or just putting the fuel inside before shipping it, those would all be done under a Part 70 license.

And so you would have a -- for those activities, your facility would have a -- you would have a Part 53 manufacturing license for your design.

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And then you'd have a Part 70 license to actually do the activities to fuel -- related to fuel at the factory. So that's the concept of that option. Next slide, please. Okay. That was the last slide. So I'll stop there and see if there's any questions or thoughts or reactions.

MR. BEALL: Okay. Thank you, Marcus. So are there any questions from the staff?

MR. RECKLEY: Yeah, Marc. This is Bill Reckley. Did you think of the relationship to Part 55, the people in the factory doing testing for the fueled option?

(Simultaneous speaking.)

MR. NICHOL: Go ahead.

MR. RECKLEY: Go ahead.

MR. NICHOL: Finish your question.

MR. RECKLEY: No, that was it. Go ahead.

MR. NICHOL: Okay, yeah. So I will say I'll also call a friend. So there are more -- there are other experts that put a lot of effort into this. So if they have an answer that I'm not able to articulate, I'll encourage them to step forward as well.

To tell you the truth, I did not specifically think about Part 55. I don't know if

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that would be called in by Part 70 requirements, if -- to naturally drawn that way. Or if not, it may have just meant something we didn't consider but we're not necessarily opposed to.

MR. RECKLEY: And I didn't mean necessarily to put us right into Part 55. Let me broaden the question just to say requirements for the personnel at the manufacturing site.

MR. NICHOL: Yeah. We didn't consider it, but I can understand that there may be requirements related to personnel that's dealing with fuel. So if they're not brought in specifically by, say, Part 70, then it could've just been something we -- an oversight in our analysis.

MR. RECKLEY: And then I guess while I'm talking, a separate question would be I think we have come to similar findings in regard to the options. Would the feeling be that you would want us to develop Part 53 and most likely the related changes to other parts to address any of those options? Or are you narrowing it down for us?

MR. NICHOL: We didn't put in a recommendation. I suppose based on our conversation today, we could come to a recommendation. In my mind, a couple of factors that would help to inform where

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somebody would have a preference is sort of what is simplest in the rulemaking phase.

I recognize if we put Part 70, 71, 72 in Part 53, that's really making Part 53 big. And I know we all are committed to the schedule of 2024. And that sure would generate a challenge.

Now if that's actually the most streamlined because there's so many changes to those requirements that this would actually be overall more efficient, that may be an argument for it. I don't think that's the condition. So it could be a fact, well, given the schedule, maybe we want to move more toward Option 3. It doesn't -- it also doesn't preclude that further on down the road that we could make some of these adjustments and pull them into Part 53, but --

MR. RECKLEY: And that's -- our current thinking probably leans more towards your Option 2. But as you just mentioned, a sub-option within that is we could develop Part 53 to support the traditional approach which doesn't include the loading of fuel and then come back for that in a future activity. So if you start to look at the Part 53 framework being broader than just Part 53, but the overall framework as being done in more than one step which is probably

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more realistic.

MR. NICHOL: Yeah, yeah. And I would tend to agree with that. I would tend to also say that I think we're closer to Option 2. So specifically and personally, I don't think there's much value in bringing Part 72 into it because I don't think there's a lot of change that would need to be made there.

And then for Part 71, any changes that may be necessary there would also be necessary for somebody who wants to ship a microreactor with fuel inside it under -- that has a 50 or 52 license associated with it. So you'd have to make those changes in 71 anyway. So to just make those changes in 71 would be fine.

So I think we probably are talking about variations of Option 2. Options 2A, B, C maybe is really looking at, well, which parts of Part 70 -- which requirements from Part 70 do we want to bring in and really, I think, focusing on those activities. So where's the biggest benefit in terms of licensing and oversight efficiency?

Could you bring in this subset of requirements from Part 70 and then you get 80 percent of these activities that we're interested in are all inclusive under Part 53 and those other requirements

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that were more difficult to bring into Part 53 that's only -- that are going to be very rarely used? Then those would require a Part 70 license in tandem with it. Yeah, it probably needs more analysis, but I would say that we're probably leaning toward where you are.

MR. RECKLEY: Okay. That's all I had, if there's other staff, Bob.

MR. BEALL: Okay. Amy --

MS. CUBBAGE: Yeah, this is Amy --

MR. BEALL: -- You had your hand up.

MS. CUBBAGE: Yeah, Amy Cubbage. Just wanted to follow on, on that conversation, all good thoughts. I think some of it depends on how likely some of the scenarios are. The complexities of incorporating them become different.

So for example, if someone wants to actually start up the reactor at the factory, that brings in a different set of challenges rather than just loading fresh fuel and shipping which has its own complications. But once you start operating it, then you get into a whole other set of issues. You need an operating -- it's more of a, like, incorporating and operating license into the manufacturing license.

MR. NICHOL: Yeah, yeah. You're right.

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And I think what it may get down to -- these are just some of the things we've discussed, and I'm not an expert on this topic. So I could get it wrong.

But I think it could come to what type of license. Do you just need a possession license? You just need to be able to possess the fuel? And that's what you would've just alluded to, Amy, which is --

MS. CUBBAGE: Yeah.

MR. NICHOL: -- you can put the fuel in there and that's all you do. And then you ship it out. Or you need a production or maybe it's a utilization facility license which means, yeah, you're actually operating the reactor and generating neutrons. That requires a whole different type of license.

(Simultaneous speaking.)

MR. NICHOL: And so it could cut along those lines.

MS. CUBBAGE: And then if you're bringing back the used fuel, then you're looking into, is this some form of an ISFSI, because you're going to take it out of the reactor. Then you're going to have to put it into something. And then you're going to have to store it safely as spent nuclear material.

So all of these scenarios bring their

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complications. And clearly if there's going to be fuel involved, the one where you're just either manufacturing fuel at that facility in which case you already have -- you would already need a license to possess and manufacture fuel. So that takes care a lot of that.

But if it's separate from the facility where the fuel is fabricated, then you're in your normal mode of transporting fuel from the fuel fabrication facility to Location No. 1. So location number 1 would have to have possession, security, transportation issues there. And then you're going to then transport out again to a facility that actually will have the operating license. But once you start that I'm going to turn on this reactor in the factory, now you're adding in the additional complication of an operating license being melded in. I'm just repeating myself, but you get the idea.

MR. NICHOL: Absolutely.

MS. CUBBAGE: But just to kind of sum up, I think honing in on how far we want to take this is very important, sooner rather than later because with the Part 53 schedule, we've got to be moving.

MR. NICHOL: Yeah, yeah. And I would say just my initial reaction, and I'll invite others that

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may have a thought on this as well, that it seems to me there's more interest in loading fuel and shipping it out of the factory than there is in actually testing the criticality and power ascension fuel testing at the factory. So that sort of gives an indication of where more of the interest is.

And I would also say based on this discussion and our thoughts, that's probably the easier one to incorporate into Part 53. And so if we take those two together, it's off more interest and it's easier to do. Maybe that's where we focus at a minimum, let's do that. And we evaluate, do we have time to do more than that or does it even make sense given --

(Simultaneous speaking.)

MS. CUBBAGE: I'm sorry. Go ahead.

MR. NICHOL: Yeah, yeah. Go ahead. No, go ahead.

MS. CUBBAGE: Oh, no. And I was going to say thinking creatively, if someone were to want to take that next step of actually starting the reactor, then maybe there's a scenario where you have additional licenses. On top of the manufacturing license, now you have to add an operating license rather than trying to combine everything into one.

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We're getting ahead of ourselves. We got to scope out the problem before we solve it.

MR. NICHOL: Right, right. Yeah, and I think that would be the key point is just to -- we should assure ourselves. But I think the conclusion would be even if you don't bring in all of the requirements into Part 53 that allow testing -- fuel testing, then I think you can still do it, as you pointed out, by piecing together another license.

So you just have to seek two licenses at the same time. And it can be done. So it's not a fact that we wouldn't have a viable option to be able to do those activities.

MS. CUBBAGE: It looks like John's got his hand up.

MR. MCKIRGAN: Hey, Amy. Thanks. Yes, this is John McKirgan. I'm chief of the storage and transportation licensing branch, and thanks for that.

I wanted to kind of probe a little bit further on your comments about needing revisions to Part 71. Is there any further granularity, or how far along are you in your thinking there?

MR. NICHOL: Yeah, I'll also invite others to speak up where they see it. There was an IAEA report that had identified a couple of things. I'm

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trying to recall off the top of my head.

Some of it may be more related to shipping HALEU and the security around shipping HALEU. I'm drawing a blank on another requirement. I know there's been talk about shipping a reactor with used fuel in it and sort of the hypothetical transport tests might pose a challenge. And obviously, they're not the realistic tests. So does it make sense to have a pathway for more realistic testing, that sort of thing? So --

MR. MCKIRGAN: Okay. And so I'll go look for that IAEA report. I think I've heard some of those thoughts before. But it sounds like there's some further thinking that we could all do on that. Our initial thoughts had been Part 71 was in reasonably good shape and you could design a package that would meet the requirements. But clearly, we can think and have some more discussion in the future.

MR. NICHOL: Yeah, yeah. And I think the NRC allows flexibility through the use of exemptions. They're not ideal. There's something that can be done. So it's not that we wouldn't be able to do it all. It's just making an effort to see, can we make it more efficient?

MR. MCKIRGAN: That was my thought as

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well. I thought the requirements were achievable. But if there were some efficiencies that we --

MR. NICHOL: Yeah.

MR. MCKIRGAN: -- Could bring, that's something we should consider.

MR. NICHOL: Yeah, here, I found my list. So yeah, the first one was the transport of HALEU fuel. And that's really fiscal protection. And that's not specific or unique to what we're talking about. That's transport of all HALEU fuel. So there's that.

The one that may be most unique here is the transport of used fuel. So 71.4 requires used fuel to be removed from the reactor and decayed for at least one year to be transported. But at the end of the cycle, if we think of these as batteries, some of them may be similar to batteries where you want to bring in a new reactor and take away your old reactor with used fuel in it.

You don't want to leave it there for a year before you transport it. You don't want to -- you do want to transport it with the used fuel inside of the reactor. So that provision, 71.4, may be a barrier to that activity.

MR. MCKIRGAN: That is an item we've

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discussed before. I think we have a good path forward. And I think 71 has got some flexibility in terms of how you define the contents that would enable us to work through that. And there's actually some precedent that we could talk about.

MR. NICHOL: Okay. That's good. Yeah, those three areas were really the only ones I'm aware of. So we're talking more surgical sort of modifications to Part 71. We're not talking about whole cloth revisions.

MR. MCKIRGAN: Great, great. Thanks. And then I think 72 is probably along similar lines. Just did you see anything major or substantive that --

MR. NICHOL: We didn't look into it recently. I used to do used fuel, so I'm familiar with Part 72. I think an ISFSI license is pretty straightforward and to be able to apply. So I don't foresee any challenges with Part 72. But we will dig into it just to confirm.

MR. MCKIRGAN: Great. Thank you.

MS. CUBBAGE: Okay, Stu. You want to go ahead?

MR. BEALL: I think --

(Simultaneous speaking.)

MR. MAGRUDER: No, John McKirgan asked the

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questions I was going to ask. So I'm good. Thank you, and good job, John.

MR. BEALL: I think, Steve, you got your hand up.

MR. SCHILTHELM: Yeah, hi, this is Steve Schilthelm. Can you hear me okay?

MR. BEALL: Yes, I can, Steve. Go ahead.

MR. SCHILTHELM: Okay, great. So, Marc invited phone a friend on a couple of these, and so just say a couple of words. I think Bill and Amy described the Part 55 piece when it comes to critical testing and whatnot. That does revert into a different type of licensed activity for a utilization facility or a critical experiment type facility where licensed operators are required.

So, I think the actual critical testing of a reactor at a factory, it's certainly not something that's done today. And it's certainly something that brings in some more thought process. So I think Bill and Amy kind of describe that well. And that's probably one of the challenges is if you're going to do a critical test at the factory, how do you, in effect, license that?

The other point I wanted to make is it might be worth -- and I know you've got some MMS

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people on the team. But if you go look at what is currently authorized, the existing Part 70 licensees and BWXT does some specific things, it might be worth just for looking at what is currently authorized. Part 70 does a good job of making sure that the fuel fabrication all the way up to fully assembling a reactor is done safely.

So you wouldn't -- in our view, BWXT's view anyway, you wouldn't want to try to alter or repeat that somewhere. Part 70 does a very adequate job of doing that. And lastly, we talk about a Part 50 license and a Part 70 license, and we look at those things sometimes in silos.

But there are -- all Part 50 or Part 52 license just by their nature are also a possession license. And there are provisions for combining the licenses. So maybe if -- maybe Option 3 actually does what's necessary to be done by focusing Part 53 on the safety of the reactor and looking at the provision for combining of licenses for other kinds of activities.

There's ample -- if somebody did not have a Part 70 license, maybe they would want a both Part 50 -- a combined Part 53 and Part 70 license. Or somebody already had a Part 70 license, then maybe they don't need that. So those are just some thoughts

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on some of the conversation that's come up. No hard opinions or recommendations, they're just some thoughts.

MS. CUBBAGE: Those are great thoughts, Steve. This is Amy Cabbage again and the idea of combining licenses and/or the interplay between licenses. One question that I had for you, Marc, is how much has NEI thought about issues like the ITAAC and how things would get parsed between what ITAAC could be established as part of the manufacturing license resolved and verified as part of the manufacturing license verse onsite an that interplay between the two licenses and the ITAAC?

MR. NICHOL: It's a good question. We did talk about it a little bit. We weren't thinking to propose the need for ITAAC and manufacturing license.

I think it would be an interesting question. Maybe you all have thoughts.

Does it make a difference if the site it's going to is an operating license? And operating licenses, Part 50 style, doesn't have ITAC or a COL that's referencing a manufacturing license that a COL does sometimes have ITAAC, especially referencing the design certification. But could you create a manufacturing license COL combination similar to a

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manufacturing license OL combination that avoids the need for ITAAC? That might be an interesting question.

MS. CUBBAGE: Yeah. No, all of the above are interesting questions.

MR. NICHOL: Yeah, yeah. I think -- we'll go back and think about it. I think just generally and we recognize ITAAC have had some benefit. But if we could design a manufacturing license plus COL that avoids the need for ITAAC, I think that simplifies and streamlines things, so if it's possible.

MR. BEALL: Steve, you have your hand up. I think you want to add something.

MR. SCHILTHELM: Yeah, just real briefly. I think in the presentation that USNIC made, that Cyril made in the first meeting, we did identify a -- we didn't call it ITAAC. We may have called it, like, ITAAC-like inspections that would occur in the factory that are focused on the ultimate safety in a reactor operation. I'm not sure whether they called it ITAAC, per se. But there are in-factory inspections that would necessarily need to be accomplished because you're not going to open the thing back up at the site, so --

MS. CUBBAGE: Right, right. So kind of to

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key off of that, we assume for the moment that the reactor would be licensed under Part 52 in accordance with the act, there is a requirement that there are going to be ITAAC to verify it's been constructed in accordance with the licensee act, et cetera. So, the question would be, would the manufacturing license try to take on some of those ITAAC? Or would the combine license holder be relying on some tests that were done in factory to close ITAAC? And so just some of the things --

MR. NICHOL: Yeah, yeah.

MS. CUBBAGE: -- that we'll think about down the road.

MR. NICHOL: Yeah, it's a good question. And you're right. You might be able to have ITAAC and a manufacturing license so that you don't have ITAAC and the COL. And so that might be a way to verify them at the factory.

Another thought in terms of maybe even a different paradigm, so if I think about microreactors and you've got a manufacturing license for them, and I can essentially complete all of that at the factory and it's ready to go to any site. And then I'm thinking now I'm switching gears and I'm the person that's going to own it at the site. And I'm thinking,

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well, should I go CP/OL or construction permit operating license, or should I go combined operating license?

And I look at it and I think, well, if I've got to go combined operating license, I've got to get all these ITAAC and go through an ITAAC process. And in terms of delivery of the reactor, it can be there the same day. The design is all finished. It's even -- maybe even already finished and at the factory waiting before I submit my license.

So could I submit just an operating license and just go straight to the end of Part 50? Or do I submit a joint CP/OL? I mean, if you've got a manufacturing license and already finished, that may be a faster path from a purchaser standpoint.

MS. CUBBAGE: I'm not a Part 50 expert, but I believe it would have to be a combination CP/OL. But that could be one preceding, I think. I'm probably speaking out of turn here. But you don't have to get one and then the other. They don't need to be in series because you have to do the environmental work.

MR. NICHOL: Okay, yeah. That's good to know. But I think --

MS. CUBBAGE: But again, we'd have to take

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that back and think about it.

MR. NICHOL: Yeah, but --

(Simultaneous speaking.)

MR. NICHOL: -- I think it would be a consideration from a purchaser standpoint is if a combined CP/OL is actually more streamlined than a COL that brings along ITAAC with it, then that might be a consideration as we look at the COL pathway. Is there a way that we can minimize or is there some provision that would avoid the need for ITAAC just so it's a viable pathway?

MS. CUBBAGE: Yeah, more to think and more to follow. But just keep in mind that the OL comes with construction inspection and it comes with a hearing at the end as well. So, it's just a matter of what you call it and what process you're in and when you're in that process.

And then the thinking with the ITAAC, for example, a microreactor that's almost fully factory fabricated with the manufacturing license which is required currently to have ITAAC. If that were to resolve many of the design ITAAC in factory, then the ITAAC at the site could be limited to verification that you haven't damaged something in transit, that you've appropriately installed it at the site, things

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of that nature. But much more to follow there.

MR. RECKLEY: And this is Bill. I mean, as people think through this, it largely becomes what party is taking responsibility. And so we can build in to the manufacturing license much of what would normally be included in ITAAC.

That then becomes part of the manufacturing license. And the burden is borne by the owner of the manufacturing license. Then as Amy said, the ITAAC on the receiving end might be relatively straightforward.

But in the end, technically, most of the stuff has -- most of the same stuff has to get addressed. And so in large part as people are looking at it, just try to decide where it would be the owner of the manufacturing license and where it would be whether it be a CP/OL or a COL holder, where those responsibilities go. The same thing as we were trying to write the rule here, it comes into play on the transport and other aspects.

At what point are you handing it from one party to another? I'm just asking to give that some thought because it goes to how you write the rule and who is the party that it's applied to. When is it the manufacturer? When is it the CP/OL or the COL holder?

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I'll give you one example that as we were just trying to think through, it might sound like not a major part. But we had broken it down into manufactured transport operation. And somebody pointed out there might be something between transport and operation once it's delivered.

But before it's installed, who has it? And what's the control on it while it sits in the parking lot? So again, just try to think out the whole life cycle and think out who are the parties involved and so forth as we try to iron this out.

Some of it might sound down in the weeds.

But when you're trying to write the rule text, it's kind of important. Who is the party that you're regulating?

MS. CUBBAGE: Another thought that just came to mine is that if you go the CP/OL route that we can't grant an OL until it's onsite and ready to go and been verified. So you have to have completed the facility and before we could grant the OL. So then you're kind of backloading the licensing process in the hearing whereas a COL, you could have the license done and waiting then for the module to arrive.

MR. NICHOL: Yeah.

MS. CUBBAGE: So --

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MR. NICHOL: Good points.

MS. CUBBAGE: Yeah.

MR. BEALL: Okay. Cyril, you have your hand up.

MR. DRAFFIN: Yes, circling back to the discussion we had back in April of last year, we probably also want to distinguish that the manufacturing could be done by a vendor who's doing it on build to print. Or it could be done by a developer designer who's manufacturing themselves. So, you could have two different types of manufacturing.

And I think you made the comment, you could only manufacture if you have a manufacturing license. And so does that mean that someone who's building to print would have to have that as well? So that's one kind of nuance in terms of how it might be operated strictly for microreactors.

MS. CUBBAGE: I want to make sure I understand the question. A manufacturing license isn't required to manufacture a reactor. It's an option, and that's what we're discussing here. Currently, if someone were to fabricate a reactor and ship to the site, a manufacturing license is not required.

MR. DRAFFIN: Because I think there will

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be some vendors that will be in that situation. So clarity on that, I think, is helpful. And obviously, you're going to be thinking about Part 53 that's going to result in design and delivery finality in terms of FSAR and as we've talked about today. So I think that's useful to consider.

So I don't have -- this will probably be my key point. I think you've covered the tradeoffs pretty well so far in terms of how it could be done. And I think there is a possibility even harking back to an industrial site where a microreactor could be delivered to an industrial facility and when would that -- and might sit there for a while before it got installed. So that's going back to the point that Bill Reckley made. There may be something between transport and operation.

MS. CUBBAGE: As long as this doesn't have fuel in it, then we get into different situations. But I think if that facility that's going to be the ultimate OL or COL, once -- for example, if we grant a combined licensed, there isn't an expiration date on that until you start operating it. But you wouldn't be able to start doing site prep or start assembling it unless you have a combined license already granted.

So again, I'm not quite sure what the

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question was there. It doesn't matter that it's an industrial facility or what type of site it is. It matters what is the nuclear activity that's being conducted and what licenses are required to do so.

MR. NICHOL: I agree. It wasn't meant to be a question.

MS. CUBBAGE: Okay.

MR. BEALL: Okay. Are there any more questions from the staff or external stakeholders on this topic? Marilyn, you have a question?

MS. DIAZ MALDONADO: Hi, yes, this is Marilyn Diaz from NMSS DFM. My question is aligned to what John McKirgan and I think Steve from BWXT were talking about, about some of the statements that I made on the presentation about Part 70, Parts 71 and 72, and how to include this in the different scenarios that NEI is evaluating at this point, I guess, for Part 53. And I'm wondering -- I mean, I followed the discussion and it seems like maybe this is not the right meeting to go into the details of that, but maybe have a follow up.

Or even you mentioned, Marc, that you are writing an NEI paper. That has specifics on what is meant by fuel and criticality requirements within Part 70 or revisions made to Part 71 and challenges for

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Part 72. I wonder if that will provide a little bit more information on that.

MR. NICHOL: It doesn't currently. But if that's something really useful and helpful or important to the NRC, then we can look at trying to add it. It'll require more time to finish the paper, but we're happy to do that work.

MS. DIAZ MALDONADO: Okay. Thanks. I mean, it will be helpful. I'm not requesting that you guys do that. Just I think as part of NMSS and DFM, as we're preparing for the activities that are coming in house and how do we tackle this, the challenges within the advanced reactor community, we just want to make sure that we're engaged in the conversations and seek out stakeholder input on those. Thanks. That's --

MR. NICHOL: Okay. Thanks.

MR. BEALL: Okay. Are there any other questions from the staff or stakeholders or the public?

(No audible response.)

MR. BEALL: Okay. Not seeing any. Can we go to the next slide, please? Bill will talk to us now about some rulemaking stakeholder engagement changes. Bill?

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MR. RECKLEY: Thanks, Bob. So as we are making progress and writing the rule language, we're also, I think, understandably to everyone getting pressed for time. And in addition to the rule language which we still have a fair amount to work on, we're also facing the need to write the statement of considerations and a whole bunch of other material in the package that would ultimately be due under our current schedule in the spring of next year to the Commission.

And so just looking at how we've been conducting these monthly meetings and having other interactions with the ACRS and internally, we're just going to tweak the approach a bit. And as the first bullet say, we think it would be useful to shift where meetings are on more specific issues. And so very likely at today's meeting, there may be a need to have additional discussions on security.

There will definitely be in the coming weeks and months a need to have some discussions on staffing because within the NRC and by experience also in the industry, those groups include subject matter experts -- an expanding number of subject matter experts. It just seems to us that it would be better to have more targeted meetings. And so when we're

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talking about a topic, both from the point of view of the staff and from the point of view of the industry, we can get the right subject matter experts talking at these meetings.

So we haven't really thought this through. I can't tell you whether there'll be less meetings or more meetings. My guess would be there would be the same or maybe more meetings. They might be shorter, and maybe the audience would be a little smaller because we're talking about specific issues.

But that's the first bullet. And so we're looking to make that shift from these first Thursday monthly meetings into more targeted meetings which we would work out with stakeholders and schedule and notice all under our existing processes. We will continue to prepare and release preliminary rule language.

Right now, we are working internally on Subparts H and I. Those are the licensing-related subparts. We think they'll most likely be released sometime in July, maybe early August.

We need to develop the staffing part of Subpart F, the operations subpart. I think in that particular case, we might want to have a few meetings and then release some preliminary rule text. As Paul

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mentioned during the discussion earlier, we also feel a need to integrate that with things like fitness for duty. So really no change in regards to preparing and releasing the preliminary rule language.

We are continuing to assess all the comments from various stakeholders. If you haven't seen it, we got a letter from the ACRS, an interim letter with some recommendations. So that would be worth maybe stakeholders looking at. And the last bullet, I guess, we would continue to accept any comments or suggestions or questions on regulations.gov under the existing docket number. So that's really -- Bob, did you have anything else, or -

MR. BEALL: No, just to reinforce what you said, Bill, was that we still highly encourage stakeholders to please provide us written comments to regulations.gov. Send us emails. The process is laid out in the Federal Register notice we released back in November of last year.

All the preliminary rulings are released - we've already released. We're still accepting comments on all of those. And as we move forward, we will continue to release new and revised preliminary proposed rule language based on the comments that we

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received. And we highly encourage everybody to provide comments on those as we keep moving forward.

As Bill said, the meetings that we will be having in the future will be more focused, as an example like we have a half day meeting on fitness for duty instead of having these all day meetings in which we cover a number of topics. And so we figure that -- we were hoping that these more focused meetings will provide time for both stakeholders and the staff to review the information that we provide in the proposed preliminary rule language and provide us with detailed comments such that we can provide a better package that reflects the requirements that we need to have for Part 53 when it goes up to the Commission by, as Bill said, early next year. Are there any comments or questions about the process going forward? Yes, Marcus.

MR. NICHOL: Yeah. Thank you for updating us on the process going forward. I think it makes sense the rulemaking is sort of transitioning. We're getting past the early forming stages of things and we're getting into more details. So to sort of take a different structural approach to meetings and things I think would make sense. I don't think there was anything concerning with all of that.

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I did want to say that I appreciate the NRC is planning to release the preliminary proposed ruling language for the remaining subparts. I think that will be very helpful. I think we're at a place where there's a couple more sections left, especially in the licensing areas.

But I think seeing the completeness of the rule and how everything interacts I think is going to provide a lot more advantages right now. One of the things that we should all be mindful of, I'm sure the NRC is mindful of. But just to bring it up because it's a really important point is the interplay of requirements and how requirements flow throughout Part 53, especially the nature of how it's being structured which is good at the high-level safety criteria.

And you've got flow down requirements. You've got operations. And just being able to think through this is my design and I'm going through the licensing. And there could be unintended consequences.

So, to get all that language out now and be able to start thinking through all those unintended consequences is going to be really, really helpful. We may even want to consider sort of dry running or table topping conceptual designs just to see how it

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would actually run through Part 53, that it's actually functioning the way that we all think it would be or intend it to be. So anyway, just those thoughts.

MR. RECKLEY: Thank you. And we would interested in that because it's very hard from the rule language to actually see and sometimes what the benefits could be because we're trying to make it broad enough to encompass a wide variety of potential designs and sizes and technologies. And sometimes you don't -- it's very hard to see how it would work until you run through it. So if there are people who would be willing to do that, that would be great. I know on both the licensing modernization and more recently on the technology-inclusive content of application projects, doing those tabletops has been very insightful.

MR. NICHOL: Yeah, absolutely, seeing the benefits and also the flip side, sort of seeing where things could be further improved or where there were unintended consequences. So, for example, we've sort of noticed that there are a couple of requirements related to configuration control that as we look at it seem to be overlapping. And can we do that more efficiently or even with QA it's spread out?

Is it actually more streamlined to put

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them all back together again? You really get to get through those types of questions. And you really start to polish the rule.

MR. RECKLEY: And it's -- yeah, so keeping on the theme of it's a good idea, it's also when you get to the language. And we all know how critical a few words here or there can be, how people are interpreting it and making sure that it's coming across clearly what we intended. So anyway, as we move forward, maybe we can think about that in the time frame of I would say maybe October of having such exercises. That would be great.

MR. BEALL: Right. That's a good idea. Adam, you have your hand up.

MR. STEIN: Hi, this is Adam Stein from The Breakthrough Institute. I appreciate the opportunity to comment quickly on the change in format to a more focused approach in meetings. While this can have more meaningful impact with stakeholders and get more work done more quickly, it does have the potential pitfall of precluding broad participation from outside groups or in third-party groups or the public if scheduling isn't considered carefully so these meetings don't overlap. That's the basis of my comment. Thank you.

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MR. BEALL: Thank you, Adam. That's a good point. We do interact with the other rulemakings related to advanced reactors. For example, we don't - - we try not to schedule the meetings at the same time that the periodic NRC/NEI stakeholder for advanced reactor meeting happens.

So we do take that -- try to take that into account to schedule these meetings. But that's a very good point. Thank you very much. Cyril, your hand is up.

MR. DRAFFIN: Cyril Draffin from the U.S. Nuclear Industry Council. The idea of switching to half day focus meetings on a topic I think has benefits. There's also the idea of thinking through when the language is getting complete to see some of the concerns that existed in industry in B and C and what they'd seen in earlier parts of F.

There's some discussion, so there's going to be benefits coming. And so I think it's appropriate as maybe in the October time frame to look back and see, did the benefits materialize? And if not, what could be done about it and are there unintended consequences?

And I think that would be a helpful thing to do because there's a number of developers that are

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skeptical about what they've seen at the early language. And a couple of them are holding off in terms of comments until they've kind of seen what the package is going to be in terms of all the various components. So I think that over the next couple months as you complete your sections that it's probably worth kind of listing all the other pieces that are coming in, so people for completeness would know.

You've indicated a few of them already. If there's anything else that's beyond the licensing and some of the staffing and people issues and the fitness for duty, you might just list them so everybody knows what's coming and when. But I think thinking through, as Marc was suggesting, the whole process and seeing whether the benefits are strong that they really are a step improvement over Part 50 or not. And so I think there's benefits in the approach you've laid out and maybe augmenting it with some beginning to end kind of analysis.

MR. BEALL: Okay. Thank you, Cyril. Are there any other comments?

(No audible response.)

MR. BEALL: Okay. Next slide, please. Are there any other questions or comments from the

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public on the activities we've done today? Yes.

MS. IYENGAR: Hi, my name is Anagha Iyengar from the U.S. Department of Energy, National Nuclear Security Administration. I have a comment. So, while the NRC regulations already include references to security by design, DOE NNSA recommends that when articulating these by design recommendations or requirements that the NRC take a holistic approach and include references or reference to safeguards by design or SBD in Part 53.

So such recommendations should include references in Part 53 that encourage vendors to integrate SBD features into advanced reactor facility designs that would allow for the International Atomic Energy Agency or the IAEA to more easily verify facility designs and operations, both of which contribute to the strengthening of the global non-proliferation regime. So the benefits of SBD include and are not limited to increasing public confidence that the IAEA will be able to verify the exclusively peaceful uses of such facilities, especially those deployed overseas in non-nuclear weapon states. That's it. Thank you.

MR. BEALL: Okay. Thank you. Are there any other comments, final discussions that anybody

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would like to have?

MR. DRAFFIN: Yes, this is Cyril. I wanted to cover one point on graded PRA. This is probably the time to do so. Back at the 27th of May, the stakeholder's discussion on graded PRA, there's a couple points that didn't come up during the meeting. I just want to raise them now in a public meeting, and that is when the PRA has to meet the consensus standard.

And would a graded approach that the NRC is taking, which is useful, would that consider permit -- and permit a PRA that does not meet the elements of a consensus standard for licensing? And a second one would be is there's a difference between the Part 50, 52, and the proposed 53 seems to be when the standard must be satisfied. So for the Part 52, COL holders, my understanding is that the acceptability of the PRA when compared to the consensus standard occurs one year before the fuel load.

And if a design certification is never constructed, then the Part 52 structure would not require a PRA to such quality the consensus standard is met. It's only after construction is complete that a PRA provision is required. So I just want to see if that was correct in terms of PRA and consensus

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standards and timing, whether that year in -- whether there's a difference between when the standard must be applied between 50 and proposed 53.

MR. RECKLEY: This is Bill, Cyril. It's a good question, and we're looking at how that would -- how it would work out. And as you know, as we currently have constructed Part 53 with the PRA playing what Marc characterized as the leading role which it's a fair representation, we would look, for example, to the non-lightwater reactor PRA standard and its discussion of the flexibility of the PRA, the stage of the PRA in relation to the stage of the design.

So it already has built into it a recognition that the PRA changes as you go through the various stages of the design construction up to operation. So we're looking at that as part of the overall looking at graded PRA. So I would ask that you guys do the same and see if that flexibility within the standard addresses some of those questions.

In regards to the broader question of PRA not in conformance with a consensus code and standard, right now, it's written that it should comply. And we would take credit for that. There's always an option. I know people want to avoid exemptions. But if that

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were to stay in the rule and somebody thought that doing a PRA to either the existing standards in the U.S. was too onerous, they could ask for an exemption and then rationalize why they thought that was excessive.

But the thinking currently is that as it's required in 52, as it's being incorporated into 50, and as we currently have it written in 53 that the PRAs would comply with a consensus code and standard. Now we did try to build in the flexibility. That language is the same language that we used for every other reference to consensus codes and standards, if there are ones other than the ANS, ASME standards that people may want to have us look at.

MR. DRAFFIN: And also the -- so thanks, I think that's useful. And at least my timing is important and under the Part 53 is that the standard must be met at the time of application for a CP or an OL or COL. And that's the difference in the application of the PRA's purpose which kind of leading supporting which we've already talked about.

And the timing difference should not be underestimated for its effort. I mean, it takes a lot of -- a less graded approach would permit the staff to include the requirements that PRA are met without

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meeting the requirements of the consensus standards. And that could be tricky and could lead to a substantial number of RAIs and litigation.

So I do think it does require thinking through what is possible and what would be allowed. And if there was a variance, how difficult would that be to achieve? Because it gets down to the practical application of individual developers are concerned about how it's going to actually be implemented.

MR. RECKLEY: Okay. Thank you. Again, this is -- it's just part of the ongoing discussion. So thank you. We're actively looking at that. And then again, I would ask that the stakeholders look through the non-lightwater reactor PRA standard and assess the flexibility that's included in that standard to reflect the design stages and give us feedback if they see some issue because we're currently reviewing that. And so this would be the opportunity to get feedback. Okay. Anybody else, Bob?

MR. BEALL: Nobody has their hand raised. So if there's anybody else, there's any final questions or comments?

(No audible response.)

MR. BEALL: Okay. Next slide, please.

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MS. FIELDS: I have some comments.

MR. BEALL: Oh, please. Yes.

MS. FIELDS: My name is Sarah Fields, and I represent an organization in southeast Utah called Uranium Watch. I'd like to go back to the definition of advanced nuclear reactor. And in your proposed rule, you have the definition and you reference the definition in the Nuclear Energy Innovation and Modernization Act. I guess that's pronounced NEIMA.

But you don't spell it out. So I think you might spell that out and then give some additional consideration. I think the NEIMA definition is extremely vague and highly questionable. I personally think it's stupid.

Here are some -- the definition of advanced reactors includes eight so-called improvements compared to existing reactors, their additional inherent safety features, significantly lower localized cost of electricity, lower waste yields, greater fuel utilization, enhanced reliability, increased proliferation resistance, increased thermal efficiency, and the ability to integrate into electric and non-electric applications. The definition doesn't say how many of these improvements must be included in new reactor design to be considered advanced. I mean,

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what if the design meets one or more criteria but does not meet or significantly does not meet other criteria?

For example, the NuScale small modular reactor design has a higher waste yield per megawatt-hour than conventional lightwater reactors. There's no operational history. So, its reliability is unknown.

If a reactor design has the ability to integrate into electric and non-electric applications, does it matter if it has additional safety features, greater fuel utilization, thermal efficiency, or reliability? How are these so-called improvements going to be assessed? What are the baseline elements that a new reactor design will be compared to?

For example, the improvement of the significantly lower localized cost of electricity does not provide a baseline cost of electricity for comparison. Localized cost of electricity is the average cost of energy over the life of the reactor. How exactly is that going to be determined?

I mean, right now for NuScale and a proposed COL application, it's just a figure used by NuScale to convince an applicant that this is a good idea, that this is a good project. But who knows what

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the basis for these figures are. There's no operational history of these new reactors, so how's the reliability going to be determined?

How does the NRC determine whether the inherent safety features are not balanced by new safety considerations that are not present in current reactor design? Regarding proliferation, there already are proliferation concerns about these new technologies. If the energy is going to rely on the NEIMA definition of an advanced reactor, it must provide a meaningful basis and a process to determine how a new design meets or does not meet any of these so-called improvement criteria. Thank you.

MR. BEALL: Okay. Thank you, Sarah. Are there any last -- other comments from the public?

(No audible response.)

MR. BEALL: Okay. Oh, Mike Keller, go ahead, please.

MR. KELLER: Yeah, this is Mike Keller. I think she may have a point actually, the last speaker. Wouldn't it be perhaps more effective to insert something like advanced reactors are significantly safer than the convention design, just something along those lines, to try and put a more distinct boundary around the advanced reactors. Anybody there?

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(Simultaneous speaking.)

MR. BEALL: Yeah, we're here.

MR. RECKLEY: We'll take both of those comments. And it is a question that we've been asking ourselves as well. And so both of those points, we will take into consideration.

MR. KELLER: I think it's actually a pretty easy fix, honestly, guys. I mean, these things are safer. So why not just wrap it around our shoulders and say, yeah, we got this?

MR. RECKLEY: Keep in mind the Congress wrote the law. And so they gave the criteria, one of which was safety. But we are looking at that, and we need to -- we need as a government agency to implement the law, so --

MR. KELLER: Yeah, but you have the ability to sharpen that definition because you are the regulator. And they're just -- not just, but they're Congress. They deal in big picture stuff. You guys don't.

MS. FIELDS: This is Ms. Fields again. I've been following the NuScale design certification process and attended numerous meetings and the ACRS-related meetings. And I'm not convinced yet that this is an inherently safer design than a conventional

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nuclear reactor.

I think with no operational history, I think the industry has a long ways to go before any of these designs can be considered inherently safer. Right now, there's just a lot of speculation. Thank you.

MR. BEALL: Okay. Any additional comments or questions?

(No audible response.)

MR. BEALL: Okay. Can we have the next slide, please? This slide provides an overview of the current Part 53 rulemaking schedule. As you can see on this slide, we are still in the first milestone where the staff is performing public outreach, meeting with ACRS, and working on the draft proposed rule package.

The staff has ten months to complete these activities before the draft proposed Part 53 rulemaking package is submitted to the Commission on May in 2022. The staff is still projecting that the Part 53 proposed rule will be published for public comment in October of 2022. Next slide, please.

The staff is still planning to host additional public meetings on the Part 53 rulemaking. The public meetings will include new and revised

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preliminary proposed rule language to continue the discussion on the various Part 53 regulatory topics. The staff will continue to post all preliminary proposed rule language and any comments that is received on the preliminary rule language on regulations.gov under our docket ID NRC-2019-0062 prior to the public meeting.

The NRC staff will also continue to meet with the ACRS Future Plant Subcommittee to receive feedback on the Part 53 rulemaking. The next meeting with the ACRS Subcommittee will be on July 21st, 2021. Slide 75, please.

If you have additional input or suggestions for future topics related to the Part 53 rulemaking, please send an email to Bill and I at the email addresses on this slide. Your interest and comments will improve our rulemaking effort. I also encourage you to monitor the Part 53 rulemaking docket ID. Again, it's 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 and click on

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recently held meeting button and look for this meeting. The meeting feedback form will be at the bottom of the meeting announcements.

I'd like to thank everyone for participating at today's meetings, and I hope everyone has a good evening. And this meeting is now closed. Thank you for your participation.

(Whereupon, the above-entitled matter went off the record at 4:55 p.m.)

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