



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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PUBLIC MEETING ON THE DEVELOPMENT OF RISK-INFORMED  
LICENSE RENEWAL

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THURSDAY,

AUGUST 4, 2022

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The meeting convened via Video  
Teleconference, at 1:00 p.m. EDT, Christopher Tyree,  
NRR, presiding.

PRESENT:

CHRISTOPHER TYREE, Division of New and Renewed  
Licenses

WENDY BROST, South Texas Project

LAUREN GIBSON, Division of New and Renewed Licenses

ALLEN HISER, Division of New and Renewed Licenses

EDWIN LYMAN, Union of Concerned Scientists

BRETT TITUS, Nuclear Energy Institute

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

1:00 p.m.

MR. TYREE: Good afternoon. This is the public meeting on risk-informing subsequent license renewal. Today's meeting is a comment-gathering public meeting where we are looking for feedback and comments on areas where we can risk-inform various aspects of the license renewal process.

My name is Chris Tyree, I am project manager in the License Renewal Branch in the Division of New and Renewed Licenses here at the NRC.

The agenda for today's meeting includes four presentations, and/or remarks, that will be provided by Dr. Allen Hiser and Lauren Gibson from the NRC in the division of new and renewed licenses. Dr. Lyman will be joining us shortly from the Union of Concerned Scientists to give some remarks. Brett Titus from the Nuclear Energy Institute. And Wendy Brost from the South Texas Project.

So, let me provide a quick agenda for everyone to see.

So we will be having a pretty large chunk of time to go and provide, you know, for open discussion and comments at the end. So we want to get everyone's feedback.

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In the room with me we have Brian Harris and Lauren Gibson. And we have a few housekeeping type items. So we are having a court reporter transcribe this meeting. So please, whenever you speak, state your name first. And if you are with an organization, that's up to you.

And just speak clearly and loudly. Don't speak over one another. Use the hand raise function in Teams chat. And also, if you're not speaking, please have your line muted.

And with that, we will get started with opening remarks from Lauren.

MS. GIBSON: Good afternoon. We're having this meeting as a follow-up to the RIC session that happened earlier this year. We're really interested in hearing from a broader range of stakeholders about how they would like us to move forward with risk-informing license renewal.

We do have the risk-informed AMPs that NEI sent in. But is there something else? Where else should we be looking?

So we're really looking forward to the discussion. Thank you for participating today.

MR. TYREE: Thank you, Lauren. With that, we will begin with the first presentation.

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DR. HISER: Okay. Thank you, Chris. This is Allen Hiser with the NRC Staff, Division of New and Renewed Licenses. And the presentation that I will provide is very similar to what Lauren Gibson provided at the RIC session in March, that she mentioned, but there is a lot more detail so that we can maybe have a little more in-depth discussion overall.

Next slide, Chris. So why are we here today? NRC is working to become a modern risk-informed regulator.

As has been mentioned, we're currently evaluating industry proposed risk-informed aging management programs. At this point this is the only thing that we really have on the table related to license renewal. So we are looking at the potential for risk-informing other aspects of the license renewal process.

So what we want to come out of this meeting today, is to understand industry perspectives on areas that they think may be right for risk-informing. Gain understanding of public perspectives. We do have Dr. Lyman of UCS so we're looking forward to his comments.

And in combination with this, we will develop a path forward that we would then look to implement.

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Next slide. Now to layout what I will talk about. The main thing I want to do is to try to achieve a common understanding of how risk is treated in the regulatory framework overall.

Assessment of how risk is currently used in license renewal. Looking at the rule and the current process. How they deal with risk. Looking at some of the discussion, the statements of consideration from the rulemakings that have led to Part 54.

Look at some possibilities within the current rule. Then speak a little bit about use of risk and program implementation. And then some overall approaches that could be used to risk-inform license renewal.

Next slide, Chris. Now, in terms of defining risk, risk from a regulatory perspective is a combined answer to three questions.

This represents what we at NRC call the risk triplet. First of all, what can go wrong, second of all, how likely is it, and thirdly, what would be the consequences if things went wrong.

So these three questions allow the NRC to understand likely outcomes, sensitivities, areas of importance, system interactions and areas of

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uncertainty. Which can be used to identify risk-significant scenarios.

Next slide. Then in terms of some related concepts that mention risk. And this really came off the NRC web page, pretty much word-for-word.

The items that I've highlighted in green are things that we endorse as being a risk-informed regulatory. So risk-informed decision making uses insights from probabilistic risk assessment, which are considered with other engineering insights to make decisions.

Risk-based decision making is a little bit different in that that would only consider the results of a PRA. And NRC does not ascribe to risk-based decision making. We are a risk-informed regulatory.

Risk-informed regulation incorporates assessment of safety significance or relative risks.

Ensures that the regulatory burden is appropriate to its importance in protecting health and safety of the public and the environment.

Performance-based regulation is somewhat related. This focuses on desired outcomes rather than prescriptive processes, procedures, et cetera. So its performance-based regulation is looking at the results, not necessarily providing a detailed list of

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things to do. We're concerned more with the outcomes.

In all of these cases that we deal with, the risk-informed decision making regulation and performance-based regulation. The objective is to maintain adequate levels of plant safety. The intent is not to reduce plant safety.

Next slide, Chris. Now, in terms of the outline, the next thing I'll discuss is rule and current process on using risk assessment in license renewal.

Next slide. So how does risk relate to license? I mean, there are potential uses of risk in license renewal.

For example, Part 54 license renewal rule, which governs the issuance of renewed operating licenses. Two aspects could relate to submittal of the application and contents of the application. And secondly, the NRC review of the application. Those are potential areas.

In terms of plant implementation of license renewal activities, this could be, from the perspective of aging management programs, of how they would be implemented at plants. Could also relate to implementing changes to aging management programs.

So the focus of the next section that I will discuss is on how risk information can be used

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consistent with the current license renewal rule.

Next slide, Chris. So how does license renewal rule address risk?

First of all, Part 54 does not directly mention risk. If you do a word search, it's not there.

So what I will do is provide a description of the Part 54 license renewal process as it's implemented today and summarize some of the part 54 rulemaking statements of consideration to see how the Commission envisioned, 30 years ago, how risk could be used within license renewal.

Next slide. Now, in terms of license renewal process, the thing that I'll focus on is the integrated plant assessment. And this includes identification of system, structures and components that are in the scope of Part 54. And I'll talk about that on the next slide, what the scope is.

And for the in-scope SSCs, the next step in the process would be to identify the structures and components that require aging management review. And then for each structure and component that's been identified in the second bullet there, the applicant is required to demonstrate that the effects of aging will be adequately managed so that the intended functions of the structure or component will be

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maintained.

Next slide. Now in terms of the scoping, it's laid out in Paragraph 54.4(a). The scope includes system structures and components that are safety related, things that are non-safety related whose failure could prevent accomplishment of safety related functions.

Those that are relied on for compliance with certain NRC regulations. A few that I have listed there. Fire protection and station blackout. There are three others as well.

Now, in terms of safety-related SSCs, those would have functions that would achieve one of the following three purposes. Either to maintain integrity of the reactor coolant pressure boundary, to shut down the reactor and maintain it in a safe shutdown, or to prevent or mitigate the consequences of accidents which could result in potential offsite exposures.

The one commonality, really in the way that SSCs, if you will, system, structures and components, are scoped in for license renewal, is an emphasis on the intended function of the SSC. And in Part 54 its described that the intended functions are those functions that are the bases for including the SSC

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within the scope of a license renewal.

So as you'll see we go through the next few slides, intended function is really what's preserved by the license renewal rule. And that's what brings things into the scope of license renewal.

Next slide. Now for in-scope SSCs, they have to meet one of those criteria on the previous page.

The applicant is required to identify those structures and components that require aging management review.

And these SCs are those that are described as colloquially as passive and long-lived. And passive is actually provided in a few more words in the license renewal rule. It says those, the SCs that are passive are those that perform their intended function without moving parts or without a change in configuration or properties.

I guess just of sort to restate, passive is not in the rule. But the context of this performing intended function without moving parts or changing configuration we have sort of summarized as the one using the term passive.

Similarly, the rule says that SCs that are not subject to replacement based on a qualified life or specified time period would become subject to an aging management review. And again, our phrase for

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that is long-lived. So that long-lived is not within the rule but that refers to SCs that are not subject to replacement.

Next slide, Chris. Now, the purpose of the aging management review is to demonstrate that the effects of aging will be adequately managed so that the intended functions will be maintained consistent with the CLB for the period of extended operation.

So again, you see the word intended functions there. That's what the purpose is of what we do within license renewal.

Now, generally this is achieved in two steps. The first is described, for those structures and components that are subject to aging management review, you identify the aging effects that could prevent intended functions from being performed.

So these aging effects could be cracking, loss of fractured toughness, loss of material, things like that. There are many more intended functions that are described in the standard review plan for license renewal and for subsequent license renewal.

Once you've identified the aging effects they could prevent intended functions. And you identify aging management programs that will be used to manage the effects of aging so that the intended

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functions can be preserved for the structure or component.

Next slide. Now, in terms of approving a renewed license, 54.29(a) has the following statements. First, the Staff has to be able to demonstrate that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the CLB.

One of the things that must be addressed is that the applicant will be able to manage the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review. So again, we come back to functionality being one of the main standards that we have to be able to demonstrate in our review.

Next slide. Now to summarize Part 54 as it's written, and as it has been implemented at this point, scoping is deterministic. All SSCs that meet the scoping criteria are included. And that's based on the SSC intended functions.

The screening term, which is identifying the passive, long-live components that are subject to aging management review, the rule says, all SCs that are in effect passive and long-lived are subject to

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screening.

Aging management review is deterministic.

The rule states, for each SC you have to demonstrate that the effects of aging will be adequately managed so that the intended functions will be maintained.

So all three aspects of this, clearly as written, are deterministic. All SSCs, all SCs and for each SC. So there is no ability to exclude structures and components or systems based on any other criteria.

Next slide, Chris. Now jumping down to discussion and rulemaking statements of considerations.

Next slide. The license renewal rule has had two rulemakings associated with it. One was in 1991 and the other is 1995.

Looking at some of the language from 1991, I tried to highlight the important piece. Tried to paraphrase, you know, extract their statements in total so that you can understand the context.

But the first piece there, the Commission acknowledges that PRA techniques could be used as a supplemental tool, and the renewal applicants integrated plant assessment. And further the Commission states that PRA can be effective, an effective tool to provide added assurance that all SSCs

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important to license renewal have been evaluated.

One reading of this would indicate that the focus is on ensuring that you've included all important SSCs so that the risk information could be used to bolster the list of SSCs that have to be considered for aging management review.

The next bullet there says that the screening methods, as well as aging management approaches, may also include use of PRA techniques as a supplement to the primary, primarily deterministic methods. No real additional discussion on that, but I think there was a recognition that there could be a role for PRA, but at least in 1991, 31 years ago, the Commission was not able to provide any additional light on that.

Next slide, Chris. So again, looking further in that statement of consideration for 1991, the Commission, another statement was the Commission considers that at the present time, 1991, appropriate aging data and models had not been developed for many SSCs for inclusion in the PRAs and uniformed criteria did not exist for evaluating the PRA results.

As we talk a little bit later I think the models and data for aging have been significantly improved over the last 31 years. But how well those

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have been integrated in the PRAs is, I think, not clear to us. And so, how well the PRA results can be used at face value is something that I think we would have a lot of questions on and want to have discussion on.

The Commission goes on. Nevertheless at the present time, probabilistic assessments can be helpful to help draw attention to specific vulnerabilities and help guard against significant oversights in the screening process.

Again, to me this indicates that the Commission was, had intended at least that PRA would be used to ensure that there weren't additional vulnerabilities that could be missed otherwise. And so that could be used to potentially enlarge the scope, if you will, of license renewal. And the list of structures and components that are subject to aging management review.

The Commission continues. Probabilistic assessment alone is not an acceptable basis for the exclusion of SSCs to be evaluated as part of an IPA.

I think this is probably the most definitive statement that the Commission makes about PRA.

And to go on. It may be useful to identify additional SSCs to be evaluated as a part of the independent plant assessment. Or integrated plant

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assessment.

Next slide, Chris. Now, in 1995 the Commission had put out the rule, revised rule, for public comment. And had received comments, obviously from the public.

And there were some statements that, or some comments that the Commission received that the Commission should require that plants implement PRAs to supplement what's in the license renewal rule. And the Commission declined to do that.

But they did say that, again, this is 1995, within the construct of the final rule, PRA techniques are a very limited use for license renewal scoping.

A little bit further into the SOC, the statements made that PRA may be useful on a plant specific basis by helping to draw attention to specific vulnerabilities.

So again, the Commission's emphasis seemed to be on ensuring the adequacy of the scoping that's used for license renewal.

Probabilistic arguments may assist in developing an approach for aging management adequacy.

However, probabilistic arguments alone will not be an acceptable basis for concluded that the effects of aging will be adequately managed in the period of extended operation.

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So PRA alone was considered in 1995 not to be adequate by the Commission.

Next slide, Chris. And my summary of what's in the statements of considerations for the two rule versions, or the two final rule designations, PRA can be an effective tool to provided added assurance.

All SSCs important to license renewal and then evaluated, and may be useful to identify additional SSCs that should be evaluated as a part of a IPA. PRA techniques could be used as a supplemental tool in the applicants IPA. And as a supplement to the primarily deterministic methods for the screening methods and aging management approaches that are in the rule.

Again, dating from 1991, appropriate aging data and models had not been developed for many SSCs for inclusion in the PRAs. And I would say, at this point, talking with our PRA experts, it's not clear how well or even if these models had been incorporated into PRAs.

And finally, PRA techniques are not an acceptable basis for the exclusion of SSCs to be evaluated as part of an IPA. And are a very limited use for license renewal scoping.

Next slide, Chris. Now from our standard

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review plan for subsequent license renewal. And I hope this is, comes across large enough.

There's a couple of statements on use of risk. And one of them, at the top here, is that the reviewer should focus on IPE, individual plant examination information, pertaining to plant changes or modifications that are initiated by the licensee in accordance with 50.59 or 10 CFR 50.90. Again, I think this is mainly looking at whether any structure or component that is important from a risk perspective should be included in the scope.

Many of the AMPs include statements similar to that second bullet where potential augmented requirements for aging management could include, it's highlighted in green, additional locations that are based on risk-insights based on susceptibility to aging effect and consequences failure.

So this is seen by many of the answers a way to, if you will, focus the inspections on certain locations based on their risk profile. Including both the susceptibility and the consequences.

And in the third bullet there, use of probabilistic arguments alone is not an acceptable basis for concluding that for those SSCs subject to an aging management review, the effects of aging will

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be adequately managed in the subsequent period of extended operation.

And finally, risk significance may not be used to conclude that no AMP is necessary for SOR for any structure or component that is subject to aging management review.

Next slide, Chris. Then we'll jump to maybe certain possibilities that could be implemented within the current rule to incorporate risk information.

Next slide. So several opportunities for use that I think would be consistent with the current rule.

One is a development of risk-informed aging management programs that could be included in the GALL-SLR. As I believe Lauren mentioned earlier, we did receive a letter from the Nuclear Energy Institute about almost seven months ago, the proposed two risk-informed AMPs.

I expect from Brett Titus later we'll hear more about these AMPs and industry's plans to maybe expand the list of AMPs that are risk-informed.

There's a potential that the NRC level of review of aging management review line items could be risk-informed. And also our review of enhancements

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or exceptions within the aging management programs.

Next slide, Chris. And on terms of the aging management review line items, regarding using information from 10 CFR 50.69, or similar risk categorizations, questions that we would have would be, how could this information be used to adjust the NRC review effort. And are the PRAs sufficiently detailed to be useful for the relevant SSCs that are within the scope and subject to aging management review.

We don't have clear ideas on how to do this.

And hopefully we could stimulate some discussion today if some of the other presenters, or any of the other folks on the line have ideas on how to do that.

I guess really the bottom line for us is, exactly how applicable is PRA to the subsequent period of extended operation with the potential for degraded components, how is that considered? And in the end, is aging appropriately modeled in the PRA that would be used to impact the aging management review line items?

Next slide, Chris. In terms of aging management programs. You know, how can risk information, specifically risk categorization or PRA results, be used to support enhancements or exceptions?

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And how could the risk information be used to modify the way that an aging effect is managed, e.g., more or fewer inspections? Which would that go, would you need to do more or fewer inspections?

Now, this piece on aging management programs, we do have an ongoing activity looking at the NEI proposed AMPs. So, I'm not expecting that we would have a lot of discussion at this point because we have had separate public meetings, and I will expect that we will have more public meetings on risk-informing AMPs.

So hopefully we'll have more discussion though on the aging management review. And maybe scoping and screening were other areas where maybe we can risk inform the rule.

Next slide. And now looking at use or risk and really aging program implementation.

Next slide, Chris. And this is directly from Lauren's presentation at the RIC. What if the renewed license has already been issued?

Well, 50.59 governs the approach to changing aging management program commitments. If a plant is unable to justify the criteria in 50.59, then there would be a potential for license amendment in accordance with 50.90.

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The possibilities for risk-informing AMPs is potential, and particular on a plant-specific basis is much broader than we can possibly discuss in any presentation. But I expect that maybe we'll have some more discussion later in this meeting or in the future, on a plant-specific basis.

Next slide. And looking finally at overall approaches, if you go to the next slide, Chris, there are things to implement risk-informed license renewal. There are things that we believe can be done right now, consistent with Part 54.

And this could include risk-informed AMPs that could be added to the GALL-SLR report. Could be plant-specific AMP implementation.

I think we'll hear a little bit later from a representative of South Texas project on their, what their thoughts are on risk-informing AMP implementation.

To do other things within license renewal likely would involve rulemaking to change Part 54. At this point we have no plans or ongoing activities to do that. Clearly that is something the Commission could take on as an action if there was sufficient interests for that.

And in terms of application specific

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exemptions, in going back, Part 54 has regulations, has requirements. The things they talk about, all SSCs, all SCs, et cetera. Plants on an application specific basis could request exemptions from that to use risk-informed techniques.

We have had no requests for exemptions like that, but that would be an individual applicant decision. But that would be another way that an applicant could risk-inform license renewal.

Next page please, Chris. In terms of our next steps, we will evaluate information that we gather from the presentations today and from the Q&A and comment periods. And based on that, we'll develop a path forward.

And I think, Chris, the last slide is just some of the initialisms that were used in my presentation. And with that, I am finished, Chris.

MR. TYREE: Okay, thank you, Allen. Dr. Lyman, are you online now?

MS. GIBSON: I think there was a question in the chat.

MR. TYREE: Oh, sure. Oh, there was a question.

MS. GIBSON: Yes.

MR. TYREE: Okay. Let's see. Okay.

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MS. GIBSON: Allen, could you take a look at the question?

MR. TYREE: Yes.

DR. HISER: Yes. Do you want me to read it?

MR. TYREE: I can read the question.

DR. HISER: Okay. Why don't you do that while I think.

(Laughter.)

MR. TYREE: The IPEs and the IPEEEs are about 30 years old. These models were not built to industry PRA standards as they did not exist at the time. All of these models have been supplanted by modern more advance PRA models that are maintained consistently and based on industry ASME/ANS standards.

These new models are maintained by the licensees with comparisons to the independent SBA SPAR models used by the NRC, consistent with the stated policy of being modern, why aren't these current models being used?

DR. HISER: They could be. The NRC doesn't, I don't think that we feel the need to dictate or require that people use these models. But clearly an applicant could propose to use the results from these PRA analyses. And again, I think we'll hear from South

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Texas on their thoughts on doing that.

As Jim Medoff wrote a response in the chat.

There are some AMPs that are risk-informed. One of those being the PRA vessel internals AMP called SLRA AMP XI.M16A, which does use the risk-informed methodology for sampling, that has been approved by the Staff.

MR. TYREE: Sorry, I forgot to mention that that question was from Jeff Mitman. And he also had another question that was up above.

In other regulatory areas the industry and the NRC define the scope of risk, i.e. PRA, somewhat different than what is presented in this presentation.

Included are non-safety related equipment that reduce risk. An example would be non-safety related condensate and feedwater systems. Are these not included in license renewal? If not, why not?

DR. HISER: Well, the screening, or the scoping for license renewal is real clear. I mean, it's deterministic. If it's non-safety component or structure whose failure could affect safety functions, that it's included in the scope. So I think the non-safety equipment is already including within the scoping. I hope that answered your questions, Jeff?

MR. TYREE: I guess we'll go to Jeff, since

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you raised your hand. We'll get to the rest of you in a second. Jeff, if you would like to unmute.

MR. MITMAN: So I have unmuted. Can you hear me?

MR. TYREE: Yes, sir.

MR. MITMAN: So, the scope that you laid out was non-safety equipment that's included, it's failure could effect safety related. So I'll just give you an example.

A non-safety related wall falls on the ECCS component. That would be included. The wall would be included.

The PRA models have a much broader scope. As the illustration I had was condensate and feedwater, in most plants are non-safety related. And so they're, but they could have very significant impact on risk. Usually lower, as there is another mitigation system that could be clarified to go over the systems.

So by your definition that those systems would be excluded from license renewal. And it seems short-sided for it not to. If they supply a positive benefit by lowering the risk, they should be analyzed and see what kind of aging effects there are.

And likewise in the unlikely event that they would raise the risk with the failure then they

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should be included. I understand it's deterministic rules in those where the rules that you given by Commission direction. But nonetheless, it's not covering non-safety related equipment that can impact risk to the public.

DR. HISER: Okay.

MR. MITMAN: It's not a question there, maybe it's more of a comment.

DR. HISER: Yes, thanks for the comment, Jeff. I don't know if one of our PRA folks online, maybe Michelle or maybe Angie? Or maybe scoping and screening folks could add some information to that.

Okay. I think, Jeff, we have that recorded in the transcript and we will consider that as one of the comments coming out of this meeting.

MS. BUFORD: Yes, I was going to, sorry, Allen, I was -- this is Angie Buford, the branch chief of the vessels and internals branch. I said yes, we can take that back. I'm not sure if there is a lot more that we can talk to at this point.

DR. HISER: Thank you, Angie.

MR. MEDOFF: This is Jim Medoff, Staff.

I had my hand up on this. But it really depends on how the plant-specific scoping analysis for the license renewal application, or SLRA application, plays out

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on that.

For example, if you're talking about a boiler where you don't have any steam generators to, you know, that are used for the generating of steam, they're going to be reactor coolant pressure boundary portions and probably non-safety, non-Class 1 portions of those feedwater and condensate systems. So you're in different parts of the system.

Some parts may be scoped in because they serve a reactor coolant pressure bounding safety related intended function. And others, they would have to see whether, you know, if it's not safety related portions of those systems, they would have to see whether their potential failure could impact a component that's serving one of the safety related intended functions in the Part 54.4 portion of the rule.

So it really depends on the plant specific scoping analysis that you want to play out for those systems. I think in the PWRs it's a little bit different because they're not linked to the reactor coolant pressure boundary.

DR. HISER: Yes. I've had some feedback from a Staff Member who says that there is two systems that you mentioned, Jeff. The condensate and feedwater would be scoped in as either A2 or A3. So

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they may be in there already, but we'll go back and take a look at those two systems in particular.

MR. TYREE: Okay, thank you. So we have one more question, hand raised, from Mr. Grantom.

MR. GRANTOM: Yes, thank you. This is Rick Grantom. I am the current co-chair of the ASME and ANS Joint Committee on Nuclear Risk Management, which is responsible for the development of the PRA standards that are endorsed by the NRC in Regulatory Guide 1.200.

First of all, let me say that nothing that I am saying right now is meant to reflect the opinion of ASME, this is strictly my own personal opinion.

With regard to current day PRAs, as I just mentioned, there are standards that have greatly improved the quality and scope of the PRAs. There is an independent peer review process that all domestic PRAs have gone through. So all PRAs out there for existing nuclear plants meet Reg Guide 1.200 and therefore are much more improved than 31 years ago.

So, the question about, are PRAs adequate now to evaluate this, I think that that's definitely the case. The discussions that you're having on non-safety related components is basically resolved by PRA that goes and vets all of that stuff and

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determines which non-safety related components are risk significant or included in the model. And again, that's endorsed by the NRC and Reg Guide 1.200.

So I think the discussions about PRAs and IPE and IPEEEs basically go off into the past because that does not reflect today's PRAs. And does not reflect the PRA processes.

All the PRAs go through an independent peer review process. There is a set of facts and observations, or findings and observations, that are developed and have to be resolved. There is a closure process for this.

I'm certain most people in the PRA branch are aware of this as well. So I just want to make that one point about the current status of PRAs being significantly much improved over the period of time.

As far as aging being modeled in PRAs, PRAs are living models that are updated periodically, so they reflect the ongoing time dependent failures that may occur in components and equipment. This is handled by PRA configuration and control. It's a requirement to be able to update PRAs as well.

So there is, a lot of this has already been addressed. It's not so far been acknowledged in this discussion so I just wanted to bring that point up about

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PRA standards, Reg Guide 1.200 peer review process, closure process for issues and the use of these PRAs in many new risk-informed applications. Thanks.

DR. HISER: Thanks. I guess just a little bit of feedback I've gotten from our risk folks. One is that the, I think it's maybe not the quality of the PRAs but it's really the detail of the PRAs. And whether there is sufficient detail down to the structure component level.

It would be a question, I mean, and it's not, it's just a question.

MR. GRANTOM: Well --

DR. HISER: Okay. Go ahead.

MR. GRANTOM: I was going to say, well, PRAs currently go down to the failure mode level. And in processes like 50.69, you even pair it down to the characteristics of the component.

So the level of detail I think is more than sufficient to be able to handle these items. You're getting down to not only components, but as we know, many components have multiple failure modes that are included in PRA as well.

So, there is a level of granularity that is produced in PRAs that exceeds anything else that has been done in deterministic mechanisms. So not

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withstanding the value of the deterministic and the design basis processes here, but PRA, and PRA does go down to component level. And human action levels as well.

DR. HISER: Yes. And I think this would be the kind of discussion that we would want to have as PRAs became incorporated more in the license renewal.

And I guess the only other thing I would say, in terms of the aging, using experience, aging experiences is one thing, but if you're projecting 20 years into the future, it's very, I'm not sure that the modeling is there to not so much go based on what happened the last 20 years, 40 years, but what would be the condition, say at year 80, and how that would ripple through the PRA.

MR. GRANTOM: Well the good thing though, the good thing about the PRA is it's going to identify the important equipment. The ones that you have to watch, the ones that you have to look at.

So in that regard the PRA, and it's not just used in the PRA. We don't espouse in any of the areas that we don't use a risk-informed process. 50.69 is a risk-informed process, risk-informed completion time. They're all risk-informed processes.

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So in regard to that, the PRA is going to identify the equipment that is the most important to prevent core damaging events and predict large release events, which is protection of public health and safety. So in that regard it does. And it also identifies, as I said earlier, the non-safety related components that would be important to that as well.

So based on previous regulatory approvals for programs like risk-informed completion time programs and others, 50.69 included, PRAs are robust enough to be able to identify the important equipment that does need to be protected to protect public health and safety.

DR. HISER: Chris, could we go to Michelle Kichline for some additional discussion?

MR. TYREE: Sure.

MS. KICHLINE: Hi. This is Michelle Kichline. I just wanted to comment on what Rick was saying.

And I completely agree that between the IPEs and the PRAs that we have available now, there has been significant changes. And I do think that the PRAs that we have now are, we do have the tools that we need to identify risk-significant components down to a detailed level.

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But I do think that there are still some concerns that we would probably need to flesh out for license renewal. Such as the fact that a lot of the stuff that's going to be scoped in for license renewal, like piping or tanks or passive equipment, in general is the stuff that's in a PRA and is very low risk. Because it has low failure probabilities.

You know, a tank is going to have a much lower failure probability than a pump. And so, that's part of the reason that this stuff that's within the scope of license renewal is within the scope of license renewal because it's the stuff that's not active.

And we don't want to lose the fact that the, you know, that we have a rule that specifically says that we need to look at the passive components and then try to use just risk. Then we would be risk-based.

So I definitely see where we can use risk to help us identify aging management programs. What we should be looking at, stuff like that. But there is still some concerns that I would have regarding too much use of risk.

MR. GRANTOM: If I could address a little bit of that real quick?

In the 50.69 process there is a passive

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categorization process which goes to exactly what you said. Those are very good comments that you just made on that.

So in the passive categorization, part of that process is assuming a pipe break up to, you know, a double-ended guillotine break of the pipe. So there isn't a sense, another risk-informed pass, that goes through 50.69 that looks strictly at passive equipment.

Tanks, pipe, piping supports. You have to assume a break. You look at conditional core damage probabilities as a result of that.

So I just wanted to bring up the fact that passive categorization is in fact included and considered in the NRC's approved 50.69 process. And so, it's not that the passive components have been forgotten, there definitely is an approved process for looking at those types of components for exactly the reasons that you just talked about.

MS. KICHLINE: And that's a great point as well, that one of the things that we'll have to flesh out here is, what's going to be, how are we going to, if we're using risk information, how are we going to ensure the PRA acceptability? What's going to be the process by which that risk information, when it's used, what pedigree of PRAs are we using for them as well?

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So that's something that has to get fleshed out.

MR. GRANTOM: Yes, exactly. Now again, that's why I pointed to the PRA standard in Reg Guide 1.200. The independent PRA peer reviews that are performed and the F&O closure process.

Which is the method right now for determining acceptability of the PRA. That's the current NRC method right now. Or NRC endorsement that we use to do that type of thing.

MR. MITMAN: This is Jeff Mitman again. And I hate to bog down this meeting on this, but I can't exactly agree with Rick more or with Michelle more.

The modern models are worlds beyond the IPE and the IPEEE. They are so much better in every way. Okay?

But the citations in this presentation, we're back to the IPE and the IPEEE in talking about using those models. And in one subsequent license renewal that I have been involved in, the licensee did use the IPE and the IPEEE results from three decades ago. And that's my point.

Not that the modern models aren't better, they are better and they should be used. But in the industry, in my opinion, should not be relying upon

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30 year models to make these very important decisions.

And so, I think the process should be modernized and the current model should be utilized to get the best insights. That's my point.

MR. GRANTOM: Yes. I would agree with that, Mr. Mitman.

MR. TYREE: I appreciate the great dialogue and discussion here. I'd like to try keep moving forward with the agenda, and then obviously we'll have more time to talk about it a little bit more later on.

So next on the agenda is Dr. Lyman. Dr. Lyman, are you on line now?

DR. LYMAN: I am. Can you hear me?

MR. TYREE: Yes, sir.

DR. LYMAN: Yes. So thanks. I missed the beginning a little, but the previous discussion I think pretty much covered all the issues that I wanted to highlight.

I don't have a presentation today, but the only point I really wanted to make is that we do share the concerns about the use of PRA in this application without an appropriate understanding of how to incorporate the age in those models.

And the fact that we don't think the use

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of PRAs is conservative enough today because it doesn't systematically incorporate anything into those models, despite what a previous speaker said. I'm not aware of how that's systematically being done and if there is enough known as what's pointed out about the evolution of failure rates that could actually inform updating those models.

I understand there are ways of dynamic PRA methods that are being developed, but it just seems that the gain, the PRA gain has to be up to some extent to address those aging concerns. Because the categorization that you do based on today's PRA would not be the same. You know, some component or SSCs may change their categorization based on aging phenomenal, who knows.

So it seems to base those decisions essentially a lot on symptoms still today based on today's PRA would not be appropriate. So unless they align also a facility management program that would require that updating a PRA is not, the evaluation of categorization of the components, I don't see how this would work.

Just stepping back, what is actually being proposed here is essentially reducing the frequency of inspections of these passive components without

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really knowing what the impact of those routine inspections are on the increased failure rates. So, it seems that the quantitative basis may not have the data to do this in a meaningful way.

So that's -- and I would point in 50.69, to the requirements, PRA should support keeping a sufficient quality to support to categorization. And I think that's the standard that you would focus on to allow this type of thing to go forward. So that's my comment. Thank you.

MR. TYREE: Thank you so much. We will keep moving on. So we'll move on to the next presentation by Brett Titus from the Nuclear Energy Institute.

MR. TITUS: Yes, thank you very much, Chris. If you can share the slides that I provided in advance, I think it will help us walk through this particular conversation. I've heard a lot of good elements and things that are very consistent with what I'm about to present on.

Once again, my name is Brett Titus and I am the licensing director at NEI. And I happen to sit on our license renewal taskforce.

So, if you can move on to the first slide. What you'll hear today, we really appreciate the

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opportunity to continue this dialogue that we started back at the RIC session.

And even before that you've heard mention of our submittal with the two risk-informed, or the two AMPs that leverage risk insights. That's kind of the terminology that we're using. Because we feel like, as alluded to in Allen's presentation, we don't want this to be labeled a risk-based proposal or a risk-based approach.

But as I mentioned at the RIC in particular, I think we need to take a step back and figure out, what is the purpose of leveraging these risk insights in aging management. Why are we doing this? Why are we looking for these opportunities for efficiency?

And really it is to continue on providing reasonable assurance of adequate protection. The licensees, and in particular, the NEI membership that supports the license renewal taskforce is focused on safety.

But we have a finite amount of resources and we want to keep the operating plants at their peak performance of both safety and efficiency as we look to the next generation. Which is actually what this slide is about.

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So, the light water reactor sustainability program from the DOE has actually got this statement that I'm just going to read briefly because I think it really captures why we're looking at this as another opportunity to more efficiently operate the existing fleet.

It says, nuclear power has reliable and economically contributed approximately 20 percent of electrical generation in the United States over the past two decades. It remains the single largest contributor, approximately 56 percent, of non-greenhouse gas emitting electric power generation in the United States.

Operation of the existing plants, excuse me, yes, to 60 years, extending the operation of those plants beyond 60 years, and where practical, making -- excuse me, I lost my place. I apologize. And making further improvements in their productivity are essential to support the nation's energy needs, supply, reliability and diversity.

So what does that all mean? It means, that as we await the next generation of small module reactors, advance reactors, we need to continue operating our existing fleet in the most efficient way possible.

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Maintaining safety, maintaining those intended functions and adequately managing our aging management programs. But we need to do it in an efficient manner so that we can continue to meet the carbon goals that the United States and our individual fleets have set out in front of us.

So that's kind of the big picture of why we are investing our resources into pursuing risk insights for aging management.

Next slide please. So we've had a really good conversation around this already so I won't belabor these.

But since 1995, obviously the NRC and the industry have significantly expanded their use of PRA and risk insights. We've talked about the granularity of their models, the fidelity of their models. The peer checks that have been done on each one of the PRA aspects that have been advanced since the rules were originally written.

And just here on this slide there is a number of activities where we do use risk insights to inform the oversight and the decision making that we make in the licensing space and in oversight space.

In particular we did spend some time talking about 50.69.

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And I think you will find that the STP presentation that's coming up from Wendy here in a little bit will talk about that aspect and how it can be leveraged. And what is the adequate treatment in accordance with that.

Our particular approach, as you may know from following along with the presentations that were done over the course of this year is that, I'm going to go ahead and skip to the bottom bullet that says, while the focus of each risk-informed application may be different, there are insights that can be leveraged to inform aging management effects. All right.

That's what we're talking about right now.

Making a holistic integrated decision that we've shown that this framework that was developed by EPRI can be used to efficiently implement these aging management programs.

So, I'm going to go on to the next slide please. So in January what we did, as mentioned, we submitted a couple of pilot plants that implemented this particular framework. And for the selective leaching aging management program and for inaccessible cables of medium voltage ones.

And we've had a couple of really good dialogues on those topics. Both at the RIC session

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and later on, just last June, we had an extensive public meeting where we really dove in a little bit deeper on those topics in looking for opportunities to move that review forward. Because ultimately that review will inform a larger initiative that we have to develop this technical report on a generic process that can be used for any aging management programs.

I think one of the reasons that the industry is focused on this is, we are very aligned with Allen's presentation and the interpretation of sort of the boundary conditions that exist within the rule and the statements and considerations. It's comforting to know that we interpret them kind of the same way.

Which is why the industry is focused on the implementation phase of license renewal to leverage this risk insights. We think a rulemaking would be necessary to touch on things like scoping or some of the other aspects that were brought up earlier.

And I think there is an opportunity for us to realize some of the benefits of risk informing again management in the near term, as opposed to putting more effort into something longer term, like a rulemaking.

So you hear, you know, essentially the key

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messages going forward is that we're looking at near term implementation that focus on these pilot evaluations to inform our more generic document that can be used on any aging management program.

Next slide please. So again, our number one priority, what are we interested in the NRC focusing on, where do we want to see the resources dedicated to moving risk insights into aging management and license renewal space. We are ready and willing to support the review of those particular pilot markups that we sent in, in January.

We think that the path looking forward of a potential audit and more discussions on the technical details of how this framework can be used is the best use of our time right now.

In the future we want to take those same insights from the review of those pilot AMP markups.

And we want to continue the development of this technical report that we plan to submit to the NRC for endorsement by the end of this calendar year.

And then as was alluded to, or mentioned before, that will be able to be expanded to use that framework on multiple AMPs once the methodology, as a whole, is kind of endorsed and seeing it's benefit.

So, that kind of concludes my

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presentation. Again, a lot of these are the same key elements and key messages that we have been presenting on behalf of the NEI membership and the license renewal taskforce since of the beginning of the year.

I think other opportunities, which was part of the scope of this meeting. We did ask about the GALL update and the SRP for SLR update at the project during the June 1st meeting.

If there are any opportunities to use risk insights in the drafting of those new sections. And I think one of the responses that we've heard was, essentially that that project, at this point in time, is not budgeted for that type of a deep dive into how the NRC could leverage risk insights into the GALL update. So I understand that. That makes sense to us.

But moving forward we're going to keep our emphasis on the implementation phase. And we really look forward to more conversations around these particular AMPs for the pilot plants. Happy to take any questions from the NRC.

DR. HISER: Brett, this is Allen Hiser.

I guess my only comment would be I appreciate the information and I guess, you know, we'll continue to go forward with the risk-informed AMPs. I don't see

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that as being a problem. I don't know, Lauren, if you had anything else to add on that schedule wise or anything?

MS. GIBSON: No, I understand that this is NEI's focus right now.

MR. PAIGE: Hey, Brett, this is Jason Paige with the NRC. I have one question on slide five.

Do you have a schedule of when you plan on submitting that technical report to the NRC?

MR. TITUS: So, our soft date is going to be about the fourth quarter or by the end of the calendar year. That's the space that we're in. Again, we are trying to inform that document based on the review of the pilot AMPs.

I think that will give us a lot of insights into areas where there are gaps in the staff's understanding, and so we look forward to those audits kind of helping us to refine that document and move it forward, but the end of the calendar year is our target right now, Jason.

MR. PAIGE: Okay, thank you.

MR. TYREE: Are there any other questions?

If not --

MR. MEDOFF: Before you go on, I'd just like to know if we're going to have just a general

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discussion section after the presentations?

MR. TYREE: Yes, yes, we are.

MR. MEDOFF: Okay, thank you.

MR. TYREE: Mr. Gunter, do you have a question?

MR. GUNTER: Yes, thank you. Paul Gunter, Beyond Nuclear. My question has to do with, you know, the whole idea of risk-informing age management programs, can that be performed without requiring the harvesting of real world samples from particularly through the decommissioning process?

MR. TYREE: Is that a question for the staff? I think the questions are intended --

MR. GUNTER: I would be interested in hearing from NEI as well.

MS. GIBSON: Well, from the staff perspective, I think there are things that we can do. Allen, go ahead.

DR. HISER: Yeah, thanks for the question, Paul. I think there are things, I mean, from the perspective that use of PRA would bring in the risk significance and maybe enable us to stratify or focus on the things that have high susceptibility and high consequence, I think, would be independent of harvesting.

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It's not clear to me at this point how harvesting would factor in other than it would provide the potential for additional operating experience data that we could use to either, you know, depending on whether the aging it's identified, you know, validates models that we have or if it's a little more severe than we expected.

I mean, there would be some recalibration, but I'm not sure that it would be, how significant the impact would be on the PRA results overall.

MR. TITUS: So, I'll go ahead and answer in a generality. Once again, this is Brett Titus. The method that we have for leveraging risk insights in aging management considers the fidelity of the information that we have at that point in time.

I think you heard at the RIC session, in particular when we were talking about the medium voltage cables pilot experience, there were some gaps essentially in the knowledge base that precluded some of those samples from moving to the longer frequency of testing, right?

So, those are still safety decisions that are being left in the hands of the experts that developed the risk insight models and that are looked at on kind of a holistic basis.

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So, I know I didn't answer specifically about harvesting and gathering that data, but I think it's important to know that as these aging management programs are being implemented, that they're being done so, you know, with an appropriate and scrutable process that considers what we know today and there's also a feedback loop for the things that we don't know or would come across, so I'll just kind of leave it at that.

MR. TYREE: Okay, thank you, Brett. Are there any other questions at this time? If not, we will move onto our next and last presentation from Wendy. Oh, Jeff?

MR. MITMAN: Yeah, before we leave the aging management issue, you know, there was a situation at Oyster Creek, I don't know, ten, maybe 12 years ago where they had rather significant, you know, I'll say significant in regulatory space, drywell wall thinning due to corrosion.

And if my memory is correct, there was a lot of inspections done and maybe there was some wall overlay or well reinforcement that was done to thicken the wall where they knew they were getting corrosion.

So, I think that's a classic example of what was being put forward was, hey, you know, Oyster Creek is shut down. There is a harvesting opportunity.

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You know, what insights can we go, can we, as an industry, gain from going in and looking to see how bad that damage really was and whether there was any kind of applicability to other plants, specifically the Mark I containment plants?

I think it's a real lost opportunity to say, well, you know, they're shut down. We don't need to worry about them, and just not look. You know, your risk insights, you only can use risk information if you go and you explore. If you don't expand and think about what's not currently covered, you lose that opportunity.

So, I'm sure with a little bit of thought, I could come up with other examples, but you get the gist of the comment. There's insights and risk information that can be gleaned from harvesting, and that could be used to make the license renewal process better and either streamline it more or to make it more robust if it needs to be.

DR. HISER: Yeah, Chris, I can speak to that a little bit about Oyster Creek. I mean, the plant did many measurements of the wall thickness, so I don't know that there's any additional information that could be gained by harvesting from Oyster Creek, and that's all, I think, documented in some of the hearing

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documents related to the license renewal for Oyster Creek.

MR. MITMAN: Cutting out a piece of the drywell wall gives you more insights than, you know, doing the UT thickness measurements on it. You know, likewise, if you want to confirm that everything you know is right, you know, Duane Arnold, another Mark I containment, shut down a couple of years ago. You can go look at that containment to confirm that the insights from Oyster Creek are valid.

I mean, risk needs to be used both ways, not just to justify doing less, but going out, and when you're finding areas that there might be some additional insights, go look at them and see what you can learn from them.

This perspective by the industry and by the NRC of we can only use risk to do away with the weaken, the current regulatory perspective is inappropriate. You use it to find vulnerabilities, and if you don't look for vulnerabilities, you won't find them. I'm going to stop now.

MR. TYREE: Thank you for that. Mr. Gunter, do you have another comment or question?

MR. GUNTER: Well, with regard to the Oyster Creek license renewal, I was involved in that

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and, you know, one of the things, again, that would have supported the whole idea of not, you know, not relying on the operator to volunteer information, but in that particular case, the operator had submitted conflicting information.

If you go back and look at the record, at that time it was Jersey Power and Light had even submitted information that showed that the drywell liner had healed itself and had actually gotten thicker in areas of corrosion.

So, there was an active dispute on that particular aging component, and yet there was no impetus on the part of the Nuclear Regulatory Commission to actually intervene to gather the observable and measurable science from that particular event that came about during a license renewal review, but certainly could have played a stronger role in the license renewals if that component had been served up as samples and, you know, closer analysis.

But that seems to be the dilemma that we're stuck in right now is that the -- you know, there's not a demonstrated eagerness on the part of the industry to comply or to cooperate, and I think that my concern is that this recalcitrance only gets worse when you become more reliant on risk informing license renewal.

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MR. GRANTOM: This is Rick Grantom. I would like to respond to that. The idea that we're doing less instead of doing something more efficient, that's not true.

We're applying the proper resources commensurate with the risk significance of it. There's no recalcitrance. There's no anything along that line. That's just presuming a bunch of stuff that's not true.

So, the fact that we're using risk-informed methods over here, in addition to deterministic and other types of information, makes these programs much better than that.

So, we are emphasizing the equipment that's really important. We've got hundreds and hundreds of reactor years of experience that's told us a lot of things about how components have failed. We have corrective action programs.

So, I totally reject that we're somehow doing less than what we're doing, other than maintaining these plants very well, performing a vital service to our country, and continuing to do this on an ongoing basis.

These programs using risk information only helps us to do this more effectively and efficiently

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and with better safety because we're focusing on the things that are absolutely important.

MR. GUNTER: I would just add, again, this is Paul Gunter, not that we need to go back and forth on this, but the drywell liner on a Mark I is a significant safety-critical component and we did miss an opportunity there, and it does have a role to play in terms of particularly in the subsequent license renewal reviews.

MR. TYREE: I appreciate that comment. So, we are about at the point in the agenda where we were going to take a break, so let's take a ten-minute break and we will reconvene at 2:30 to do our last presentation.

(Whereupon, the above-entitled matter went off the record at 2:19 p.m. and resumed at 2:30 p.m.)

MR. TYREE: Okay, it is 2:30, so we will get started again. Just a quick reminder that if you have a comment or a question, please provide your affiliation if you have one. If you're just, you know, a private citizen, you can just say you're a private citizen.

With that, we will move to our next presentation from Wendy Brost with the South Texas

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Project. Wendy, are you -- I guess I should check to make sure you're back.

MS. BROST: I'm back. Thank you. Thank you. And would you mind sharing the presentation?

MR. TYREE: Yes, give me one second.

MS. BROST: All right.

MR. TYREE: Okay.

MS. BROST: Great, thank you. Okay, so as it says there, my name is Wendy Brost and I'm the licensing supervisor here at the South Texas Project.

So, certainly some pros and cons for presenting last. On one hand, I get to build on some of the things you all have been speaking about. On the other hand, there may be some repetition here, but you know what? Some of these things are worth repeating, so let's get into it.

So, my purpose today is to talk a bit about a project effort that STP is working on and that is using our risk information as an input for evaluating changes to our aging management programs, and really it's using these risk insights to enhance our overall aging management strategy and developing alternate treatments for some components. So, if you could go onto the next slide?

So, a bit of relevant background here on

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STP. So, of note, STP is not a 50.69 plant. We're really the predecessor. We're the proof-of-concept pilot for risk significance categorization, so the NRC granted us some exemptions from the special treatment requirements for low safety significant components over 20 years ago.

So, here at STP, we have categorized over 100 plant systems in terms of both nuclear safety risk and plant generation risk so that the categorization data has been fully integrated into our station processes, including databases such as our master equipment database. The point there is that STP's program is quite robust. It's thoroughly integrated and well established.

So, this component risk categorization provides us with a technical basis for treatment of components commensurate with their safety and operational significance, which what that does is it better allows us to focus the most effort on the most safety significant equipment, which is what we're trying to do here.

So, the project we're working on now is we're planning to apply alternate treatment for low and non-risk significant components in 50.59 space known as RISC-3 and RISC-4, as well as doing some

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engineering evaluations on RISC-2 type components to determine if alternate treatment can be provided for those as well.

And lastly on this slide, so we are looking at each aging management program for evaluation, and due to our established categorization process and our experience, we can use our existing processes to alternatively treat many of these components is what we concluded. So, we want to go to the next slide?

And the point we wanted to make there is we're not excluding anything from the license renewal scope here. It is all being evaluated, so we're not changing the scope applying alternate treatments to what's already there.

So, the goals here, the goals and benefits, a bit of repetition, but what we're doing is applying the appropriate resources to components commensurate with their nuclear safety significance. This certainly doesn't reduce safety. From our perspective, it actually improves it.

So, the benefits here is it focuses those resources on the items that are most safety significant, results in increased availability of those components by removing the prescriptive special treatment requirements.

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In some cases, it also results in improved ALARA performance due to the dose associated with certain repair, inspection, and replacement activities which may not be needed to be performed as frequently, as well as reduced overall station burden, again focusing most resources where they should be, and that is on the most safety significant components. All right, if you want to move onto the next slide?

All right, so what we're doing right now, and just like any other change, we're going through this deliberately and with a focus on evaluation, documentation, and transparency.

So, one of the aspects of this is we are creating a procedure for performing these AMP evaluations. So, the procedure is still in draft form, so discussions like these are particularly helpful for us to help see if there's something that should also be included or considered.

So, the purpose of our procedure is to give guidance for tracking, implementation, and documentation of all of these alternate treatment actions.

Also noted there is the procedure will ensure that we also evaluate industry and station OE pertaining to age-related degradation, and we factored

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that into the evaluations as well.

So, just to echo something, we use the risk information to inform our decisions about potential AMP changes, but it's certainly not the only input.

There are other things that are looked at there.

The procedure also outlines the guidance and responsibilities for these alternate treatment implementation and maintenance, so it just clearly lines out the who, the what, and the how. Okay, move onto the next slide there.

So, another thing we've worked on, and again, in the interests of documentation and transparency is in case our basis is questioned in the future is we've created and documented our position for why we believe that this is allowable in an internal white paper. So, our conclusions relied on, in this white paper, on the interpretation and information that was already provided in the statements of consideration for 50.69.

So, of note, 10 CFR Part 54 was identified as a candidate as a special treatment requirement, and in those statements of consideration, it says that no changes are necessary to Part 54 to implement the 50.69, or in STP's case, our equivalent before renewing or after license renewal, so that was a key point in the

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white paper.

So, a few other points to point out, so license renewal is considered and aging management are considered special treatment requirements, so our exemption from special treatment would apply in those cases.

Further, risk insights can be used to evaluate aging management programs, and noting risk information being one input to the change evaluation process.

So, the conclusion that we came to was that STP can risk inform procedures and processes to implement the exemption allowances for all station programs where appropriate, and further, that what we are planning is consistent with current regulation is what we concluded there. We're going to move onto the last slide.

You know, as we're going through these evaluations and looking into applying risk insights to additional parts of license renewal, you know, we have come across a few questions and one of those is in the area of equipment qualification.

So, equipment qualification was specifically mentioned in our license renewal correspondence and there was some discussion of

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replacing these components at the dates designated in the original qualification maintenance database.

So, we are evaluating applying alternate treatments to the life of these components as well.

So, as an example, we have about 80 of these Rosemount transmitters, approximately half of which are ranked as low or non-risk significant.

So, alternate treatment evaluations considering risk would allow us the opportunity to extend the lives of these components and focus on the more risk significant and safety significant components.

Additionally, in this case, there is certainly an ALARA aspect of the replacements due to the dose that would be accumulated by replacing the transmitters as they're located in containment.

So, again, we believe this approach is consistent with current regulations and our existing exemption from special requirements, but what we came across and brought up some questions is there really isn't crystal clear guidance, right?

So, the guidance is out there, but it's not crystal clear and specific. So, what we found is what we're doing, we believe, is justifiable, just a little different.

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And really, we want to be transparent in all of our actions and what we're doing here, so we started asking ourselves what's the appropriate vehicle for communicating this change?

And I saw in the first presentation, you mentioned that 50.59 is the appropriate vehicle and we came to a similar conclusion, but again, that wasn't crystal clear as far as we could see. It's not explicitly spelled out anywhere that that's the change method for these type of things.

So, with that, I might just say that, you know, that would be a recommendation for future discussion in a public forum, you know, specifically calling out how these changes related to license renewal should be evaluated and documented just to make sure the process is more widely and better understood, eliminating any kind of misunderstandings in the future.

But that's just a status report on where we're at, the types of things we're looking at, and a couple of questions. That's about all we have.

MR. TYREE: Thank you, Wendy. With that, we can open the floor for an open discussion. Oh, Seung?

DR. MIN: Yes, thank you. This is Seung

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Min with the NRC staff. Thank you for the presentation. I have a very basic question here. So, my understanding, you know, for typical sampling approaches using risk insight, you know, sometimes the terms like high consequence items, or high consequence locations, high priority items, or something like that are utilized, but when you go back to the kind of framework, when we use or your programs use high consequence or something like that, is that related to intended function or kind of system level core damage frequency or something like that, or both of them? That's my very basic question at this point.

MR. GRANTOM: This is Rick Grantom talking. Let me introduce myself again. As I mentioned, I am the co-chair of the ASME, excuse me, of the ASME/ANS Joint Committee on Nuclear Risk Management. I'm also an independent consultant retired from the South Texas Project. I consult with a number of utilities about risk-informed applications, South Texas being one of them as well.

With regard to the question of what we're looking at, there are two figures of merit for risk-informed applications that the NRC has approved, core damage frequency and large early release.

So, what you're seeing here in the results

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are you're seeing the components' risk significance relative to core damaging events and/or large early release events in here.

So, we build from the component level, which is, you know, the lowest level in PRA basic events that are failure modes in the PRA components, to system functions, all the way up to plant level functions to be able to do this, and culminating into importance to core damage frequency using traditional PRA importance measures as an input, all of that together, to other deterministic, operating experience, engineering experience to make these final decisions. I hope that answers your question.

DR. MIN: I think pretty much, but so, once again, as you previously discussed, that type of degradation due to aging effects are kind of modeled or considered in your PRA or PSA approaches, so that's core damage frequency or system level make like a pattern so a matrix can be calculated, but I'm feeling that if that's the case, then the so-called intended function, maintaining intended function in the aging management maybe, you know, probably still well needed there, but thank you for the discussion.

MR. GRANTOM: Oh, one other thing that hasn't been mentioned yet that I'll bring up real quick

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is, yeah, I did mention that in a sense, when you look at the number of times that PRAs have been updated, they're covering, you know, decades of plant performance where, you know, some aging mechanisms have occurred or may have occurred, and that performance is being updated.

One other item that was brought up is let's assume, you know, you don't do everything that the special treatment requirement tells you to do. You're going to use an alternative treatment that's more effective or more efficient commensurate with the component.

Components that are low in the 50.69 process, there is a sensitivity study in the PRA that assumes that, well, let's just assume that the failure rate's increased, and so we multiply the failure rates of all of the low safety significant components by a factor of three to say, well, are they still low and would utilities be able to detect an increasing failure rate in this regard? And this would be seeing components fail three times their current rate and corrective action programs somehow not picking that up.

And generally what we find, that components that go through the 50.69 process, through

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the qualitative assessment, the PRA assessment, the passive assessment, and they go through a final defense-in-depth assessment, if they pass through all of that and they're low, you have high confidence they really are low and it confirms itself when we multiply their failure rates, all of their failure rates by a factor of three, it still ends up being below Reg Guide 1.174 risk assessment criteria.

So, those things continue to point to the fact that you ought to be able to focus more on the high risk stuff, you know, do something more appropriate for the low risk stuff, while still maintaining that they're able to perform their functions under normal and design basis consideration conditions.

DR. MIN: Thank you. Just a quick follow-up question, in the kind of PRA/PSA framework considering aging effects, then aging effects on different systems are kind of getting rated or considered in an integrated manner or just whenever you look at the system aging effects will be considered so that kind of isolated consideration of the aging effect should be the matrix like core damage frequency is considered.

I mean, you know, hypothetically speaking,

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as plants are getting aged, you know, different systems can go through different aging effects and degradation, so they may work together to generate combined effects.

I mean, once again, I'm not an expert in that field, but just for my curiosity, I mean, that's my problem, my last question for discussion at this point.

MR. GRANTOM: Well, I mean, there's other probably who can speak to this as well too, but, you know, PRAs are integrated models in terms of, you know, the sequencing and the identification of equipment and systems that have to play together in order to bring a plant to a stable condition or mechanistically fail things until you reach a core damaging and plant damage state of some sort.

So, they are all considered, systems considered together in the role, but as I mentioned before, you know, there's typically not a basing event, you know, that says this particular aging mechanism grows at this level for this point, and that point, and that point.

PRAs usually look at failures at the component levels or the structural piping levels that are there, and those are always included and always

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included in updates.

So, in a sense, it's included in that regard, but if you're going to do a focus-specific look at an aging mechanism and try to determine what the increase in failure rate is, that's something for research in that regard.

We're reflecting actual component history and actual mechanism history in that regard. So, I think the answer to your question is, yeah, it is all included in there. All of the things are updated, but --

DR. MIN: Okay, sounds good. Thank you very much.

MR. TYREE: Thank you. Allen?

DR. HISER: Yeah, this is Allen Hiser of the NRC. Wendy, I've got a couple of questions. I think you mentioned that Part 54 is included in the scope of, within the scope of regulations that 50.69 can modify and I don't see that within 50.69. Was that in the SOC or where was that? Where is that addressed?

MS. BROST: And if I misspoke, I apologize. I'm looking at -- so we were looking at the statements of consideration for 50.69 and --

DR. HISER: Okay.

MS. BROST: -- the specific statement was

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that, it says the NRC staff suggested that no changes are necessary to Part 54 to implement 50.69 either before renewing a license or after license renewal, so that's one of the things that we had keyed in on.

Should we interpret that differently? Is that the question?

DR. HISER: I guess I'm not sure because I look at the special treatment sections that 50.69 applies to and Part 54 is not listed is all.

MR. GRANTOM: I think one of the things is we didn't change the scope of equipment that Part 54 identifies.

DR. HISER: Yeah, okay.

MR. GRANTOM: So, that was the part -- the scope has not changed. All of that scope of equipment goes into the license renewal. The only thing that STP is doing in this regard is applying an alternative treatment to those items that are low safety significant. All of the equipment that's identified in Part 54 is included in the scope.

DR. HISER: Okay, and I guess one other question, Wendy, I was sort of hoping that you would have used one of the slides that Drew Richards used at the RIC, and it was a schematic that showed license renewal scope, and then a screen and a big red box,

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and then, you know, risk-informed AMP and aging management review.

And at first when I went back and looked at the slides, I thought this indicated that one of your applications was to actually license renewal applications, you know, so that you would incorporate the 50.69, or your special treatment exemption within the screening process in effect for license renewal.

Can you comment on that or are you really just looking at AMP implementation? And I don't know, maybe, Chris, I can show the slide if that would be --

MS. BROST: Okay, yeah, that's what I was trying to do, find it, but, yeah, if you have it, that might help.

MR. GRANTOM: It's AMP implementation.

MR. TYREE: Allen, if you have the slide, do you want to put it up there?

DR. HISER: Is that -- can you see it? Okay.

MR. TYREE: Yeah.

DR. HISER: Yeah, I guess the way this was laid out, it was like a license renewal application sort of process, and so it was confusing to me to see that within the screening step. So, this would not

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be something that you would intend to use, say, for SLR, for STP at this point in time? I mean, that's not what you're proposing, just AMP implementation?

MR. GRANTOM: The intent of what we're doing is on the AMP implementation. You can see in the LRI scope, there's no changes to the scoping.

The only question it's asked is if it is low safety significant, then we're determining an alternative treatment for it, and then that alternative treatment is going to, that will include aging considerations in the alternative treatment, but it may not be prescriptively what's in the GALL.

DR. HISER: So, for example, the part that says is the SSC GQA low or NRS? That actually should come out of the screen -- I mean, scoping and screening has been done for STP, so it actually is somewhere on the implementation piece.

I guess a concern I would have, you know, the rule lays out screening, and it's basically, you know, active, passive, periodic replacement, and long lived. Those are the only two criteria that enable you to not do aging management review of in-scope SSCs.

So, okay, I think I understand better now.

This is just a little bit misleading, I guess, would

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be the only thing. You might want to amend that --

MR. GRANTOM: Yeah.

DR. HISER: -- a little bit to reflect where the risk significance really plays into your implementation of your aging management programs. Okay, thank you.

MR. GRANTOM: Okay, yeah, that's good feedback.

MS. BROST: More clearly call that out. Thank you.

MR. TYREE: Matt McConnell?

MR. McCONNELL: Yes, good afternoon, everyone. My name is Matthew McConnell. I'm with the NRC. My question is directed at Wendy and her presentation. One of the slides, Wendy, that you mentioned discussed about equipment qualification and how you are, how STP is using, I believe you said 50.69 in order to extend the qualification. Can you -- I'm not sure if you meant 50.69 or 50.49, but could you maybe go into that a little bit more on how you're applying that if it is 50.69?

MS. BROST: So, I meant 50.59, so if I mixed that up, I apologize. Did that clear up your question or --

MR. McCONNELL: It did. It leads to other

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questions.

MS. BROST: Okay.

MR. McCONNELL: I mean, and how are you using 50.59 as far as extending the qualification then which, you know, are you still using the 50.49 process or -- I'm just trying to understand how you're using risk insights in order to extend the qualification of equipment.

MR. GRANTOM: This is Rick if I could add something in here. So, first of all, just like with 50.69, STP has an exemption that preceded 50.69, but the more 50.69 components that go through the process and are categorized as low safety significant are exempted from something like 12 special treatment requirements.

50.49 is one of the special treatment requirements for which LSS or low safety significant components are exempted from. In other words, they're removed from the scope of those programs and that's the approved process.

Now, once you remove it from the scope, you still have to have some alternative treatment to ensure that that component performs adequately in that regard.

So, you may borrow an element of an

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equipment qualification program or you may do some other mechanism by which to ensure that you have reasonable confidence, not reasonable assurance, reasonable confidence that the component will continue to perform its intended function under normal design basis conditions, but they're removed from the scope, as is all LSS components from the special treatment programs.

MR. McCONNELL: Understood, thank you. Yeah, I'm aware that the 50.49, certain equipment could reach the threshold for special treatment and exemptions of 50.49, and I'm glad you pointed out that the equipment still needs to be shown that it can perform its function under accident conditions, let alone day to day operations and design basis events.

So, is STP then categorizing then and cataloging that in some sort of documentation under some other program? Is that how you're using 50.59 in that context or is 50.69 being used as another documentation bin?

MR. GRANTOM: So, basically, you know, as I mentioned, STP doesn't have 50.69. They have an exemption. However, we're using the same criteria that's in 50.69 for alternative treatment, which means basically that there has to be a testing element of

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some sort, there has to be an inspection element of some sort, and there has to be corrective action associated with it.

So, all of the alternative treatments are handled in a separate procedure, implementing procedure that defines, you know, for these components, it's not going to be the prescriptive special treatment requirement for this low safety significant. It's going to have a different treatment associated.

Here is the inspection element of that alternative treatment. Here is the pressing element of that alternative treatment that is going to be used for this component. And that's consistent with 50.69, although STP is borrowing that.

MR. McCONNELL: Okay, I understand that.

I'm tracking along. I think then my next question is how does this play out in license renewal space?

Because you have a TLAA for 50.49 equipment specifically and taking credit for the EQ program, and then you have other requirements of the Part 54.

It seems like there's a purgatory environment, so to speak, for where does that new equipment that is being treated differently and taking credit for an existing program fit in the license renewal process?

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MR. GRANTOM: Well, so in regard to that, the fact that it's exempted from 50.49 means it's out of the 50.49 process, so it's basically not. Now, there is still discussion about that in the industry and with the regulator about that.

This is why I say you may borrow an element or you may borrow something from a qualification program of some sort, or you may do other types of relaxations and maybe use better information in order to extend qualified lives of equipment, maybe not only for high safety significant equipment, but also for low safety significant equipment as well.

But the important point being is under the 50.69 and under STP's exemption process, those components are removed from the scope. It's as if they never should have been in the scope of 50.49 to begin with.

So, basically the answer to your question is they're going into an alternative treatment, but the alternative treatment requires that they have a testing and inspection element that ensures that they perform their intended purposes even under accident conditions.

MR. McCONNELL: Okay, and that still leaves my open-ended question out there of how that

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fits within the GALL and GALL-SLR?

Whenever you pull it out of that, you know, even though it may have elements of 50.49 that it's exempted from those specific requirements and GALL and GALL-SLR, it still addresses equipment qualification, but if it's not in the bound or scope of 50.49 or that TLAA, how does the staff address --

MR. GRANTOM: That would be the point. The aging management program is a special treatment requirement, so it's exempted from that just like it's exempted from 50.49. It's out of the scope of it.

Now, I said out of the scope. It's not out of the scope of LRI, but it's available or a candidate for an alternative treatment, which is exactly what STP is doing. They don't remove it from the scope. They just say this is a candidate for an alternative treatment.

MR. McCONNELL: Okay, I think this is something I'm going to talk back or take back as a follow-up item and maybe discuss internally with the staff and decide on a path forward for this, but I appreciate your information.

MR. TYREE: Thank you. Do we have any other comments or questions? Yes, Brad Dolan?

MR. DOLAN: Hi, this is Brad Dolan. I'm

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the Chairman of the Risk Management Committee with the PWR Owners Group. I just wanted to say I thank you for your efforts in this area. I think it's very valuable to help us focus our resources on the things that really matter.

And I heard a number of questions during the presentations, things like how can we use 50.69 to adjust NRC reviews and how can we use risk information to support enhancements or exceptions?

I'm going to take those back and discuss them with my industry colleagues and with my peers, and I hope that we'll have a chance to engage further, but I just wanted to thank you.

MR. TYREE: Thank you for your comment.

Do we have anyone else? Oh, Mr. Gunter?

MR. GUNTER: Thank you. I want to, let's see, I'm going to try to frame a question that came out of the RIC session with regard to the scope of risk-informed relicensing and particularly around how the agency and industry treat single failure events versus multiple failure events.

And I'm just curious if you could help me understand the idea that you can, for example, risk inform cable failure based on single failure of a cable when, you know, the examples out there are of the Browns

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Ferry fire where you had, you know, a cable spreading room caught fire and there were over 1,600 cables involved in that fire and almost half of them were safety related.

So, I'm just curious in terms of how you determine the scope of risk. The pilot program that was raised in that particular presentation was on a single failure of a cable, and I believe it was a submerged cable that was the subject of the pilot, but fire raises some, you know, bigger consequences.

So, I'm just -- if you can help me understand how you can fairly treat risk in risk informing things like fire and submergence of electrical cables. Is that clear what I'm trying to ask?

DR. HISER: Paul, this is Allen Hiser. Let me take the first crack at it. I mean, things like fire would not be affected by aging of the component, so I'm not sure if that really would fit in. I mean, we normally --

MR. GUNTER: Aging, you know, doesn't aging involve initiation of fire?

DR. HISER: I'm not familiar with that.

MR. GUNTER: You know, cracked cable jacketing, I mean, can't -- you know, again,

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age-related initiation of a failure event could have much broader consequences than a single cable. I guess that's my -- how do you limit the scope of something like that to a single failure when the outcome is multiple failures?

DR. HISER: Let me just take half a step back. We have not approved anything like this using risk, so that probably would be one of the things that we would need to tackle, and that's not, I know that's not a satisfactory answer, but --

MR. GUNTER: Well, I may not be making my question clear enough. You know, again, if you look at age-related degradation for submerged cable, you know, it would imply that, again, looking at single failure for a single cable, you know, you're qualifying the risk on a single failure when multiple cables could be involved in that.

I'm just -- you know, to be blunt, can you -- you know, how do you check fixing the result by narrowing the scope, you know, making the risk acceptable by narrowing the scope of the aging event?

That's a concern, you know, that I think is broadly felt in terms of public confidence, that you can manipulate the scope, particularly when there are, you know --

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MS. KICHLINE: Can I try to answer this question? This is Michelle Kichline from the NRC. I think we're maybe confusing different types of PRA here. So, you talked about fire PRA and that's an external event. It would be modeled a little differently than when we perhaps model, you know, submerged cables.

So, in a fire PRA, you would definitely look at how does that cable and the fire that could occur in a cable tray impact all of the cables in the area? That would -- a fire PRA would look at the spatial analysis for everything in the area and all of the cables in the area.

But for internal events' PRA where you're looking at the cable failure degradation due to the submerged cable, you're not looking at fire as what is initiating. You're looking at the cable becoming degraded.

Now, if there was a failure mechanism in which the cable were to -- I don't know that the submerged cable is going to catch fire, but there are some situations where we do have cables that are in underground chases and they can cause, some say, high energy arching faults.

Then the scope of, you know, where does

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that arching fault go would be included in the failure mechanism. When the cable fails, what it takes with it would be also failed, so it just depends on what type of PRA you're looking at.

And I think you're specifically calling out the one pilot AMP which I'm not completely up to speed on exactly how they did the risk analysis. I think you're right that it was for a single cable that was submerged. What would occur if that cable were to fail?

MR. GRANTOM: Yeah, this is Rick. Let me add something about the fire PRA. So, fire PRA does include multiple spurious operation. It does include multiple cables failing as a result of a fire. So, those things are in the PRA standards. They're peer reviewed. So, that type of thing is included.

Single failure is one thing as a deterministic criteria, but PRA goes well beyond that and looks at multiple failures, and failures upon failures. That's how we get to core damaging events and PRA sequences to do that.

So, to answer part of the question, do we look at multiple failures? Yes, we do. PRAs are explicitly structured to do that. Fire PRA is included in that as well also.

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The risk-informed aging management program on cabling looking at primarily, I believe, like sampling rates and different types of things. I don't believe it did anything relative to the scope of cables that were included.

It looked at different ways to do sampling rates, do changing intervals for inspections and that type of thing from what I recall, but again, going back to that, fire PRAs are structured to do just in fact that, as are seismic PRAs.

MR. GUNTER: Thank you.

MS. GIBSON: I believe that the concern is that the questions get to the heart of how the risk-informed decision making and the risk-informed format is working with these AMPs, the pilot AMPs that we've seen, and we have some open questions on that from the NRC side, and that's what we're hoping to dig into with the audit and with future interactions with NEI as well. Thank you.

MR. TYREE: Are there any other questions or comments? One last housekeeping item to go over real quick is for any members of the public who have called in, if you could email me, I'm going to put my email up on the screen here in a second, to just let me, you know, give me your name and if there's any

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affiliation just for our meeting notice that we will be putting out just to include the attendee's list.

MS. GIBSON: I know we've already had plenty of opportunities for public comment, but I think we need to formally say this is an opportunity for public comment. So, are there any other public comments or questions for the NRC?

(Pause.)

MR. TYREE: Okay, if there are none, I appreciate everyone's time for today.

MS. GIBSON: So, I have a few closing comments. I'd like to reiterate some of the things that I heard here today. I heard that there were concerns about the applicability of PRA, and there's concerns about how it would be implemented in the pilot AMPs, even though the pilot AMPs were not the subject of this meeting.

I understand that there are concerns that risk needs to go both ways, that it's not just about relaxing. The AMP implementation seems to be the area of most interest across these stakeholders, and it would be helpful to have more specific guidance on 50.59 implementation.

It is stated in all of the license conditions for the individual plants that it is a change

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mechanism, but there is no further explanation for that, so I think that that would be helpful.

And I also heard concerns about the environmental qualification, TLAA, and the special treatment, and that is something that the NRC staff is going to follow up on. And I see that we have a hand up. Paul?

MR. GUNTER: Yeah, just a quick question about, so the meeting summary out of this, will we be looking for the ML number for the transcript in that summary?

MS. GIBSON: We can do that. Sure, let's talk about that, but that's a possibility.

MR. GUNTER: Thank you.

MR. GRANTOM: With regard to your takeaways on this, you know, also as a member of the public, I'd say I'd have concerns on not using risk information to perform this, so will the counterpart of what you just said also be included in that? Because you said the concern for this, or the concern for this, concern for this. Well, the counterpart is also a concern of not doing these things.

MS. GIBSON: It will be now. Thank you.

MR. GRANTOM: Thank you.

DR. HISER: Lauren, can I just ask one

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follow-up to that?

MS. GIBSON: Sure.

DR. HISER: This is Allen Hiser again. Rick, what do you mean of not -- I don't remember your exact words.

MR. GRANTOM: If you don't use the technologies that we have -- we had PRAs that meet standards that have been peer reviewed, that the method's endorsed by the regulator, and using, you know, what has been already in a sense agreed upon, to deviate from that, to say all of a sudden that, well, we have concerns on using risk, well, we use risk for risk-informed completion times. We use risk for lots of things. The reactor oversight processes use risk.

So, if you're going to say that I have a concern about using risk, I'm going to probably also say on the counterpart I have a concern about you not using risk as an input. That's what I mean.

DR. HISER: Okay, yeah, I think when we say concerns about using it, I think how it will be used and what the -- you know, how it really fits in.

MR. GRANTOM: Okay.

MS. GIBSON: My first bullet of concerns about the applicability of PRA was meant to state that we're concerned about how the PRA is applicable to aging

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management concerns, not in general the use of risk.

DR. HISER: Right.

MR. GRANTOM: Okay.

MS. GIBSON: Noted, Rick. We have your concern. We have your concern about our concern.

MR. GRANTOM: We have a nested concern, okay, very good.

MS. GIBSON: All right, anything else?

MR. MITMAN: This is Jeff Mitman. I'm a retired NRC risk analyst. I hope you also capture the concern with using outdated PRAs, that the industry and the NRC should be using the most current versions of the PRA, not the archaic 30-year-old versions of the IPE and the IPEEE.

MS. GIBSON: So noted. Thank you.

MR. MITMAN: Thank you.

MR. TYREE: Thank you. Do we have one last chance if anyone else has any comments or a question?

MR. TITUS: Lauren, this is Brett Titus, and Chris, is this the time for our closing remarks as well or are these just comments?

MR. TYREE: We can do closing remarks at this point since no one --

MS. GIBSON: This was meant to be my

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closing remarks and then we got some comments, so we can have it all at once.

MR. TITUS: Well, I'll go ahead and take this opportunity to thank the staff for continuing this conversation. I think you've heard a lot of good perspectives and some places where we can fill in with some additional guidance.

I do think, to Rick's point, there is a lot of information to be gleaned and some efficiencies to be gained, and we're looking to do that in the near term, so we look forward to more conversations about the AMPs, the pilot AMPs that we set forward, and we're looking forward to moving towards a more generic endorsement of the methodology and the framework that's been laid out in front of us.

So, we do applaud the NRC on this meeting and all of the great information that was supplied in Allen's presentation, which was an extension of your presentation from the RIC, and we think we're definitely in line with all of the boundary conditions, et cetera.

And if the NRC does feel the need to, you know, pursue a policy clarification from the Commission or embark on some kind of rulemaking, that's something that we would certainly support, but as our

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presentation alluded to, our top priority right now is at the implementation stage. So, thanks again for this opportunity.

MR. TYREE: Thank you.

MS. GIBSON: Thank you. Would anyone else like to make any closing comments?

MR. TYREE: Okay, seeing none, we will conclude this meeting for today. Thank you, everyone, for participating. Have a good rest of your day.

(Whereupon, the above-entitled matter went off the record at 3:18 p.m.)

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