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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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693RD MEETING

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

+ + + + +

WEDNESDAY

MARCH 2, 2022

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The Advisory Committee met via teleconference at 8:30 a.m., Joy L. Rempe, Chairman, presiding.

COMMITTEE MEMBERS:

- JOY L. REMPE, Chairman
- WALTER L. KIRCHNER, Vice Chairman
- DAVID A. PETTI, Member-at-Large
- RONALD G. BALLINGER, Member
- VICKI M. BIER, Member
- CHARLES H. BROWN, JR., Member
- VESNA B. DIMITRIJEVIC, Member
- GREGORY H. HALNON, Member
- JOSE A. MARCH-LEUBA, Member
- MATTHEW W. SUNSERI, Chairman

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ACRS CONSULTANT:

DENNIS BLEY

DESIGNATED FEDERAL OFFICIAL:

QUYNH NGUYEN

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C-O-N-T-E-N-T-S

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 representatives from the NRC staff

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Advanced Reactor Initiatives 100

P R O C E E D I N G S

8:30 a.m.

CHAIRMAN REMPE: So, good morning, everyone. This meeting will now come to order. This is the first day of the 693rd meeting of the Advisory Committee on Reactor Safeguards.

Because of the COVID 19 outbreak and current health precautions this meeting is being conducted remotely. I'm Joy Rempe, Chairman of the ACRS. I want to now call roll to verify a quorum, and that clear communications exist. Ron Ballinger.

MEMBER BALLINGER: Here.

CHAIRMAN REMPE: Vicki Bier.

MEMBER BIER: Here.

CHAIRMAN REMPE: Charles Brown.

MEMBER BROWN: Here.

CHAIRMAN REMPE: Vesna Dimitrijevic.

MEMBER DIMITRIJEVIC: Here.

CHAIRMAN REMPE: Greg Halnon.

MEMBER HALNON: Here.

CHAIRMAN REMPE: Walt Kirchner.

VICE CHAIRMAN KIRCHNER: Here.

CHAIRMAN REMPE: Jose March-Leuba.

MEMBER MARCH-LEUBA: Here.

CHAIRMAN REMPE: Dave Petti.

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1 MEMBER PETTI: Here.

2 CHAIRMAN REMPE: And Matthew Sunseri.

3 MEMBER SUNSERI: I'm here.

4 CHAIRMAN REMPE: Great. Everyone's here.

5 I note we have we have a quorum.

6 The ACRS was established by the Atomic
7 Entity Act, and governed by the Federal Advisory
8 Committee Act. The ACRS section of the USNRC public
9 website provides information about the history of this
10 Committee, and documents such as our charter, by law,
11 Federal Register notices for meetings, letter reports,
12 and transcripts of all full and Subcommittee meetings,
13 including all slides presented with the meetings.

14 This Committee provides its advice on
15 safety matters to the Commission through its publicly
16 available letter reports. The Federal Register notice
17 announcing this meeting was published on February
18 14th, 2022.

19 This announcement, providing a meeting
20 agenda as well as instructions for interested parties
21 to submit written documents or request opportunities
22 to address the Committee. The designated federal
23 officer for this meeting is Mr. Quynh Nguyen.

24 A communications channel has been opened
25 to allow members of the public to monitor the open

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1 portions of this meeting. The ACRS has just started
2 inviting members of the public to use the MST, the MS,
3 Microsoft Teams link to view slides and other
4 discussion materials during these open sessions.

5 If you're a member of the public who does
6 not yet have the link, please email Lawrence Burkhart
7 at lawrence.burkhart@nrc.gov. So, I'm going to repeat
8 this email address, just to make sure that everyone
9 got it that needs it. It's lawrence.burkhart@nrc.gov.

10 In the future this MS Teams link
11 information will be placed in the Federal Register
12 notice and agendas on the ACRS public website.

13 We've received no written comments or
14 requests to make oral statements from members of the
15 public regarding today's sessions.

16 Periodically the meeting will be open to
17 accept comments from participants listening to our
18 meeting. Written comments may be forwarded to Mr.
19 Quynh Nguyen, the designated federal officer.

20 During today's meeting the Committee will
21 consider two technical topics, proposed draft
22 rulemaking on 10 CFR Parts 50 and 52, and integration
23 our source connectivities in support of advanced
24 reactor initiatives.

25 A transcript of the open portions of the

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1 meeting is being kept. And it's requested that
2 speaker identify themselves, and speak with sufficient
3 clarity and volume, so that they can be readily heard.

4 Additionally, participants should mute
5 themselves when not speaking. And I'd note that if
6 participants are not muting themselves our staff will
7 mute you.

8 Before we begin today's meeting I have two
9 items of current interest that I'd like to share.
10 First, on February 9th the National Academy of
11 Engineering issued an announcement that they have
12 elected ACRS Member David Petti as one of their
13 members, because of his outstanding contributions in
14 the areas of field development and reactor safety.

15 So, I'd like to ask members to unmute
16 themselves, and join me in congratulating Member Petti
17 for this accomplishment. I'll start clapping. And
18 hopefully other folks are also clapping out there.

19 MEMBER: Congratulations, Dave.

20 CHAIRMAN REMPE: Okay.

21 MEMBER PETTI: Thank you.

22 CHAIRMAN REMPE: Great. Okay. So,
23 second, on a more somber note I'd like to acknowledge
24 that some of us have worked with or are currently
25 working with colleagues in the Ukraine that support

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1 their current operating lease for the Chernobyl site.

2 And today I'd like to acknowledge that our
3 thoughts and prayers are with these colleagues as they
4 continue to perform their duties during this difficult
5 time.

6 So, at this time I'd like to ask other
7 Members if they have any opening remarks. And hearing
8 none, I'd then like to ask Member Bier to lead us
9 through our first topic for today's meeting. Vicki.

10 MEMBER BIER: Thank you very much. Let me
11 pull up my notes here quickly. First, as we move
12 forward on the topic of Part 50 and 52 alignment that
13 the staff has been working on, I want to begin by
14 thanking the staff for all their efforts in the past
15 two briefings on this topic. I think the interactions
16 so far have been very constructive and informative for
17 the Committee.

18 Today I would emphasize a few topics that
19 the Committee has identified as being of particular
20 interest for today. One is how the Agency will assess
21 the cumulative effects of any changes during the
22 construction process for Part 52 licensees.

23 Second of all, ensuring that there is
24 sufficient flexibility for INC upgrades and
25 modernization in the new process.

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1 Third, how the staff is defining various
2 design concepts, such as essentially complete design,
3 or preliminary design, et cetera.

4 And finally, any lessons learned from
5 recent applications, or anticipated near term
6 applications, what things are on the minds of industry
7 in this process as they go forward.

8 I'd like to begin by calling on Brian
9 Smith, Director of the Division of New and Renewed
10 Licenses in Office of Nuclear Reactor Regulation for
11 any opening remarks.

12 MR. SMITH: All right. Thank you, Member
13 Bier. Good morning. Good morning, Chairman Rempe and
14 other Members of the ACRS. My name is Brian Smith.
15 And I'm the Director of the Division of New and
16 Renewed Licenses in NRC's Office of Nuclear Reactor
17 Regulation.

18 The purpose of today's meeting is to
19 finalize our discussions related to the staff's
20 rulemaking efforts to align Parts 50 and 52 licensing
21 processes. And specifically to address any
22 Subcommittee members' follow-up questions that were
23 raised during the previous two Subcommittee briefings,
24 as well as the issues that Member Bier just discussed.

25 In our previous briefings the staff

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1 described in detail the scope of the rulemaking,
2 focusing on the alignment areas between Parts 50 and
3 52, the proposed changes to the rule language, and the
4 basis for proposing the changes. The staff also
5 summarized the public comments that we received in
6 each alignment area.

7 Please remember that the draft proposed
8 rule and the associated draft revised guidance
9 documents are still under NRC management review. They
10 have not yet been reviewed by the NRC's Office of the
11 General Counsel. As such, the content of the draft
12 Federal Register notice should not be interpreted as
13 NRC's official agency positions.

14 I'll be listening to the discussions
15 today. And my staff will be attending the letter
16 writing session to ensure that you have the resources
17 available to you to finalize your review and your
18 subsequent letter.

19 My thanks to you, the Members of the full
20 Committee, for your time today. The staff is looking
21 forward to having another productive meeting with you
22 today. With that I turn it back over to you, Member
23 Bier.

24 MEMBER BIER: Thank you very much for
25 those remarks. And I would like to now turn the

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1 meeting over to the NRC staff presenters, Jim
2 O'Driscoll and Omid Tabatabar, for their presentation.

3 MR. O'DRISCOLL: Thank you. My name is,
4 hello, everybody. My name is Jim O'Driscoll. I'm the
5 lead rulemaking project manager on this effort. I'm
6 in the Office of Nuclear Material Safety and
7 Safeguards within the Division of Rulemaking,
8 Environmental and Financial Support, known as, we
9 know, known as REFS.

10 So, also joining me today is Omid
11 Tabatabar from the NRC's Office of Nuclear Reactor
12 Regulation, Division of New and Renewed Licenses. And
13 we have several other NRC staff on the call as well.

14 So, I want Slide 6, and we'll talk about
15 this meeting. The purpose of today's meeting is to
16 provide the ACRS an update on the staff's efforts
17 since the last ACRS full Committee meeting the NRC
18 staff held on this topic, which took place almost
19 exactly a year ago on March 4th, 2021. You can find
20 a summary of that meeting in ADAMS under Session
21 number ML21075A211.

22 This meeting will provide an opportunity
23 to discuss the purpose of the rulemaking with the full
24 Committee. The staff provided the ACRS a preliminary
25 draft proposed rule, Federal Register notice earlier

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1 last month. This document is publicly available, and
2 can be found under ADAMS Session number ML22020A002.

3 This meeting will also allow the ACRS to
4 further discuss items of interest to the Committee
5 from the ACRS Subcommittee meetings held last month.
6 So, last month the staff briefed the ACRS Subcommittee
7 on regulatory practices, sorry, regulatory policies
8 and practices on two occasions.

9 The first took place in February 1st,
10 2022. The staff briefed the Subcommittee on the
11 purpose of the rule, provided an overview of its
12 contents, and discussed several aspects of the
13 proposal.

14 You will find, you'll soon find the
15 transcript and slides on the ACRS public website.
16 It's under the 2022 ACRS meeting schedule page and
17 related documents page.

18 So, in the meantime the meeting slides and
19 preliminary draft proposed Federal Register notice
20 that was made available to the ACRS are available in
21 ADAMS. And I'll go into where, I won't say the
22 number. But I'll tell you how to find that in a
23 minute.

24 On February 18th the staff briefed the
25 Subcommittee in a follow-up meeting that provided an

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1 opportunity to continue a discussion on several topics
2 that we covered at the February 1st meeting.

3 That meeting also allowed an opportunity
4 for staff to discuss specific changes and several
5 guidance documents that are necessary to implement
6 those rules.

7 Again, you'll find the transcript and
8 slides on the ACRS public website, on the same page.
9 In the meantime the meeting slides and the preliminary
10 draft guidance documents that were made available to
11 the ACRS are available in ADAMS.

12 We will pause for questions and answers as
13 we go on any topics of ACRS interest. Finally, we
14 will provide you an update on the next steps for the
15 project.

16 So, we hope this interaction will provide
17 additional detail on the contents of the preliminary
18 draft proposed rule and the associated guidance that
19 is under staff management review, and the status of
20 the rulemaking.

21 We'll respond to the Committee's written
22 comments that we receive. Also, please note that a
23 list of the abbreviations used in the slides is at the
24 end of the presentation. I'll try to say the full
25 term at least once to help folks follow along.

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1 Also note that a list of the ADAMS session
2 numbers to the documents referenced in the NRC staff's
3 presentation can be found at the end of the staff's
4 slide presentation.

5 Please be careful to not discuss any
6 safeguards, security related, classified, or
7 proprietary information during this meeting. Although
8 we intend to have an open dialogue, please note that
9 the NRC staff will not make any regulatory commitments
10 during this meeting.

11 So, go on to the next slide. So, we are
12 on Slide 7. So, the staff is engaging in a rulemaking
13 to better align portions of the regulations in 10 CFR
14 Part 50 and 52 in four areas, as described in the
15 preliminary draft proposed rule.

16 The staff will also address items derived
17 from lessons learned from previous new reactor
18 licensing activities described in the preliminary
19 draft proposed rule.

20 Activity implements the Commission's
21 direction in SRM SECY 150002. Our goal is to better
22 align the Part 50 and Part 52 licensing processes such
23 that equivalent design submitted for NRC review under
24 each licensing process are assessed against consistent
25 technical standards that yield outcomes with

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1 equivalent demonstrations of adequate safety,
2 security, and environmental protections.

3 In SECY 150002, issued on January 8th,
4 2015, the staff made several recommendations to the
5 Commission regarding policy and regulatory updates to
6 ensure consistency in new reactor licensing review.

7 The staff also made recommendations to
8 address staff identified lessons learned, obtained
9 through the licensing reviews completed up to July
10 2019. These changes are intended to improve clarity,
11 and reduce unnecessary burden on applicants and staff.

12 As well as these, the staff has addressed,
13 or intends to address editorial and administrative
14 changes as well. Go on to the next slide. We're on
15 Slide 8.

16 So, there's 61 items discussed in seven,
17 excuse, and 11 general technical areas in the scope of
18 the proposed rule. This is up from the 50 items we
19 had in the scope of the regulatory basis that was
20 issued for public comment, as briefed at the time of
21 our last ACRS full Committee meeting.

22 The preliminary draft proposed rule,
23 Federal Register notice preamble, discusses how the
24 staff dispositioned each item that the staff
25 communicated in the regulatory phases.

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1 Among the 61 items discussed in the
2 Federal Register notice preamble the staff is
3 recommending rulemaking for 60 of them. This is up
4 from the 43 items we recommended for rulemaking in the
5 regulatory phases. So, the staff added a few items
6 based on public feedback and additional staff input.

7 Of these 60 items 18 of them will also
8 require the staff to develop guidance updates for
9 noticing comment with the proposed rule. There are no
10 new guidance documents proposed.

11 In the proposed rule the staff identified
12 13 different guidance documents that will be issued
13 for comment with the proposed rule. Specifically,
14 seven regulatory guides, and six revised sections of
15 NUREG 0800, the standard review plan, or SRP.

16 The staff also identified the need to
17 update one technical report with this rulemaking.
18 This rule spans a large number of CFR parts besides
19 Parts 50 and 52, to make informing changes and to
20 address other lessons learned from new reactor
21 licensing. These parts are Part 2, 21, 26, 51, 55,
22 70, and 73. Going on to Slide 9.

23 MEMBER PETTI: Yes. Hold on. This is
24 Dave. I have a question. Unfortunately I want to
25 take you back to seven, Slide 7 for a minute.

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1 MR. O'DRISCOLL: Sure. Please go ahead.

2 MEMBER PETTI: The scope of this 50 52
3 alignment, you know that we are also hearing about
4 Part 53 in parallel. And there's lots of ideas in
5 Part 53 that are risk informed and performance based.

6 I understand this alignment won't
7 necessarily be technology inclusive. But is it out of
8 bounds to take some of that though process in Part 53
9 and put it into 50 and 52? Is the SRM, and I'll give
10 you some pretty bright lines that you got to stay in
11 firmly, if you understand what I'm saying.

12 MR. O'DRISCOLL: So, yes. I can talk a
13 little bit about that, Dave. So, the way we do
14 rulemakings, we try to, we need to have, ensure that
15 we have a clearly defined scope that has been agreed
16 to by management. And we try to stick to that scope
17 as we proceed, unless there's a, you know, a need to
18 change it, or something comes up.

19 So, what we have is, we set up a group
20 called the Steering Committee that, of senior
21 management that makes sure that --

22 (Audio interference)

23 MR. O'DRISCOLL: -- so, the rulemaking
24 path's scope. And so, in this particular rule we are
25 well aware of Part 53, and the schedule of Part 53.

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1 But we had to establish essentially lines where we
2 would operate and Part 53 would operate.

3 And generally speaking we, we're, this
4 rulemaking is a retrospective approach, looking back
5 on lessons learned and alignment issues that we've
6 identified from past licensing reviews.

7 So, those things are going to require
8 changes in the regulations. Or we're going to propose
9 changes in the regulations.

10 So, the way Part 53 comes in is, we want
11 to make sure that for the sections we're touching that
12 we're staying as technology neutral as we can. So,
13 we'll go, you know, in the course of responding to
14 SECY 150002 we will write whatever regulation such
15 that it should not pose a hindrance to new
16 technologies. And it's also risk informed and
17 performance based as much as possible. Does that
18 make, does that answer your question?

19 MEMBER PETTI: Yes, no. I think it does.
20 Thanks. That helped.

21 MR. O'DRISCOLL: Sure. All right. I'll
22 move back to Slide 9. So, we're back on Slide 9. So,
23 the scope includes six items in four areas, meant to
24 better align Parts 50 and 52.

25 The proposed rule Federal Register notice

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1 includes a detailed discussion of these items in
2 Preamble Sections 3.A through 3.D. These are the same
3 areas that are identified in the originating SECY.

4 Going on to Slide 10. So, the scope also
5 includes 54 lessons learned items. The staff
6 organized these in general areas of operator
7 licensing, physical security, fitness for duty,
8 emergency planning, Part 52 licensing process,
9 environmental protection, applicability of other
10 processes to the Part 52 process, and miscellaneous
11 topics.

12 Move on to the next slide. We're on Slide
13 11. And this is estimated costs and savings. So, as
14 part of the development of the proposed rule the staff
15 considered the potential costs and savings for both
16 the industry and the NRC.

17 These estimates are preliminary and
18 subject to change as we further develop the regulatory
19 solutions in the final rule. In the proposed rule we
20 intend to make available a separate draft cost
21 estimate document that will have more details on this.

22 We evaluated the proposed changes against
23 the regulatory baseline, that is, what we are
24 currently doing right now. We analyzed savings for
25 the next ten years where it was applicable.

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1 So, the total net savings could be
2 anywhere from \$16 million to about \$26 million
3 dollars, depending on the discount rate used in the
4 estimate calculation.

5 The corresponding sensitivity study, our
6 analysis concluded there is a very, very high chance
7 of obtaining a cost savings from proceeding with this
8 rulemaking. Of course, the rulemaking also achieves
9 unquantified benefits, such as regulatory efficiency
10 and public confidence.

11 So, the biggest items that avert costs in
12 this rule are the items related to security
13 requirements for the storage of unirradiated fuel, the
14 elimination of the need for DC renewals, the
15 clarification of scope of Tier 1 information, the
16 elimination of information requirements related to
17 conformance to the standard review plan in an
18 application, enabling a construction permit applicant
19 to reference a reviewed environmental assessment.

20 So, there were several items where the
21 changes increased costs. These, the major ones are
22 the evaluation of severe accidents earlier in the Part
23 50 process, the items related to probabilistic risk
24 assessment, or PRA, requirements for new Part 50
25 licenses, the application of Three Mile Island, or TMI

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1 requirements for future Part 50 applicants, and
2 operator licensing continuing training requirements
3 for plants undergoing construction.

4 Next slide.

5 CHAIRMAN REMPE: This is Joy.

6 MR. O'DRISCOLL: Sure.

7 CHAIRMAN REMPE: I have a question. I was
8 going to bring it up later. But I think this last
9 slide's a good place to bring it up. I just want to
10 make sure, because I didn't see it in the slides
11 anywhere about, there had been a lot of discussion
12 with the stakeholders about allowing --

13 Well, first of all, you have provided
14 definitions for Tier 1, Tier 2, and Tier 2* in this
15 rulemaking effort. And those definitions were
16 designed to provide more clarity, and to help
17 applicants better select what to designate as wet.

18 But the staff did not change any of the
19 positions about whether Tier 1 information could be
20 used for 5059 changes. The staff kept the policy that
21 had been in place before.

22 And I just wanted you to confirm that on
23 the record here today. Because not everyone who's
24 listening in might have been listening in to our
25 Subcommittee meetings. Tier 1 as well as Tier 2*,

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1 right, has not been --

2 MR. O'DRISCOLL: Yes. So --

3 CHAIRMAN REMPE: -- changed?

4 MR. O'DRISCOLL: Yes. So, I can answer
5 that one. We're not changing, that's a fundamental
6 principle that we're not changing in this rule. So,
7 we are not changing what is subject, as far as the
8 tiers go, tiered information, to 5059. That is not
9 being changed.

10 CHAIRMAN REMPE: And I personally as a
11 single member agree with that. But I just wanted to
12 make sure that everyone who's here today gets that
13 point. So, thank you.

14 MR. O'DRISCOLL: Sure. Any other
15 questions?

16 DR. BLEY: Yes, Jim. It's Dennis Bley.

17 MR. O'DRISCOLL: Hey, Dennis.

18 DR. BLEY: You said I think that the TMI
19 lessons learned changes raised the costs. But I
20 thought anybody new coming in under Part 50 still had
21 to do those before they could be an operating plant.
22 Am I wrong on --

23 MR. O'DRISCOLL: No, no, they don't. If
24 you look at the beginning of 5034F there's a preamble.
25 That, those, all that stuff is applicable to a very

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1 small scope, basically a bunch of activities going on
2 or around 1979 or 1980.

3 So, if you read that to, you know, letter
4 of, you know, exact, the regulation, it doesn't apply
5 to a new Part 50 plant. So what, so this is the
6 problem. So, when we went and made Part 52, you know,
7 I think what we were thinking was, nobody's ever going
8 to use Part 50 again. So, we don't need to fix that
9 now.

10 So, we just took those TMI requirements
11 and made them a requirement for new Part 52 plants,
12 okay. But now, you know, of course we know that
13 there's a possibility of Part 50 applications coming
14 in.

15 So, we want to make sure that, you know,
16 that obviously, you know, you need to address those
17 requirements, you know, in a future, in any
18 application. So that's, I think that answers your
19 questions.

20 DR. BLEY: Yes, it does. And I'm a little
21 surprised by that. But I, that slid by me in the
22 past. Thanks.

23 MR. O'DRISCOLL: Sure. Okay. I'll move
24 on to Slide 12 if there's no other questions. So,
25 we're on Slide 12. So, from the last two Subcommittee

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1 --

2 DR. BLEY: I'm sorry, Jim.

3 MR. O'DRISCOLL: Go ahead.

4 DR. BLEY: Yes. I had one other.

5 MR. O'DRISCOLL: Sure.

6 DR. BLEY: You said the PRA raised the
7 costs. But this is something we've gotten into in
8 other cases. PRA raises the costs if you just look at
9 the cost of doing the PRA.

10 But if you look at the benefits that
11 accrue from doing the PRA I think it usually turns out
12 the other way. But I think all this analysis does is
13 say, well, we have to pay so much to get a PRA done.
14 Am I right about that one?

15 MR. O'DRISCOLL: I whole heartedly agree
16 with you. We talked about how to quantify the
17 benefits on the end. And we found that it's too
18 speculative. So, it goes under that unquantified
19 benefit efficiency, et cetera.

20 So, we're really trying to be conservative
21 when we do these estimates, and not over sell or
22 under, you know, under sell things here. Does that
23 answer your question?

24 DR. BLEY: It does. It's unfortunate that
25 it gets presented that way. But it's what I thought

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1 you were going to say. Thanks.

2 MR. O'DRISCOLL: Sure. Okay. Any other
3 questions? I'll continue on Slide 12. So, from the
4 last two Subcommittee meetings we noted several items
5 where you wished for more discussion. Several items
6 stood out. And we have a slide or two on each.

7 So, these are further discussion on the
8 relationship of this rulemaking to other activities
9 the staff is engaged that are associated with non
10 light water reactor technology.

11 The issue of cumulative effects on safety
12 changes to the design made during construction. There
13 was interest in further discussion on the details on
14 how PRA is to be used in the design phase.

15 There was also some interest in more
16 discussions on the concept of credible accident,
17 specifically, how it should or could be defined as a
18 design goal objective in a PRA.

19 There was interest in further discussion
20 on specifics regarding future licensing reviews of
21 digital instrumentation and control systems, and how
22 the ongoing rulemakings affect these reviews.

23 Finally, the Subcommittee also desired
24 further discussion on the concept of essentially
25 complete design, and how the staff plans to carry

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1 forth this concept in future licensing.

2 So, I'm going to go ahead and briefly
3 discuss each of these. So, we're on Slide 13. So,
4 this is on relationship to non light water reactors.
5 So, based on public comments on the regulatory basis
6 the staff added a cross cutting item to the scope.
7 The relationship of this rulemaking activity to
8 advance reactors.

9 And the Federal Register notice covers
10 this topic in Section 2.1.2 of the preliminary draft
11 of the Federal Register notice.

12 So, the purpose of that discussion is to
13 explain how the reader should put the rulemaking
14 activity, or this rulemaking activity in context with
15 other NRC license process efforts and rulemakings that
16 relate to non light water reactor technology.

17 The commenter commented that the NRC
18 performed a comprehensive review of Parts 50 and 52 to
19 evaluate each provision of the regulations with
20 respect to the applicability to non light water
21 reactor technology.

22 The staff partially agreed with the
23 comment. I think I mentioned this earlier. I know I
24 did. However, the effort to conduct such a review
25 would be outside the scope of the Commission's

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1 direction on this activity, in the SECY I mentioned.

2 Nevertheless, the staff agreed to evaluate
3 the applicability to non light water reactors in those
4 areas where we are already proposing to change the
5 regulations, to ensure that the recommended rule
6 language is as technology neutral as possible. Any
7 questions on that?

8 CHAIRMAN REMPE: Well, this is Joy. And
9 again, this is one where I couldn't figure out where
10 to bring up a point during your presentation. So,
11 I'll bring it up here.

12 Let me just say, from all of the
13 discussions and the responses that we heard back from
14 the staff, that when we look at the broad spectrum of
15 ongoing rule activities and the guidance available,
16 that it's not going to be very easy for someone who
17 wants to bring in a mobile reactor with a loaded core
18 to figure out what the rules will be at this time.

19 Is that perhaps a true statement? I mean,
20 they're going to have to have exemptions. They're
21 going to have to take something from Part 70, from
22 this that and the other. And maybe Part 53 will
23 address it.

24 But in the near term, I mean, we've also
25 been told that it's not clearly focusing on, Part 53

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1 is also not focusing on it. So that there's maybe
2 that needs to be done in that area too.

3 MR. O'DRISCOLL: Well, I can only, you
4 know, what I remember was what we, we briefly
5 discussed this on the February 18th meeting, Chairman.

6 And we basically described a situation
7 where, we basically described it as we don't think
8 that the regulations as they are, or as they're going
9 to change is going to be a, you know, make that
10 impossible to approve.

11 I mean, we mentioned, we always have the
12 ability to do exemption requests, and to look at
13 things on a case by case basis. And the thing is is
14 that, and I think this was the message, was that
15 there's lots of different technologies out there.

16 And you, it becomes hard to, you know, to
17 write regulations, you know, to something that is not
18 quite defined yet, as far as its design concept. So,
19 we think that that, the possibility of mobile reactors
20 right now is, we're in a position where we can manage
21 to license them.

22 But we would, as you said, would have to
23 do some exemption type of work. And I think if
24 there's anybody from DANU that would like to chime in
25 on this I can turn the mic over.

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1 MS. CUBBAGE: Yes, Jim. This is Amy
2 Cubbage from DANU. Dr. Rempe, I just would like to
3 clarify. Are you speaking about reactors that are
4 fueled in factor and transported to a fixed location,
5 or reactors that could be rapidly deployed to multiple
6 locations?

7 CHAIRMAN REMPE: I'm thinking about the
8 first alternative. And I realize there's no
9 manufacturing facility that's currently capable of --

10 MS. CUBBAGE: Right.

11 CHAIRMAN REMPE: -- making a reactor with
12 a loaded core. But yet, I think you're probably more
13 aware that I am that there's ongoing regulatory
14 engagement interactions on someone who thinks they're
15 going to do this. And I'm just thinking that it's
16 going to be a difficult, yes, it's not going to be
17 easy for them.

18 MS. CUBBAGE: Absolutely, Dr. Rempe. So,
19 I'd like to explain that we have had engagements with
20 developers who are contemplating fueling micro
21 reactors in factory and transporting to a fixed
22 location.

23 We believe that we do have the regulatory
24 infrastructure in place to support that. We produced
25 a white paper talking about micro reactor licensing

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1 strategies that goes through all of the scenarios, and
2 the different licenses and permits that would be
3 required.

4 There's the potential under Part 53 that
5 that would be, could be consolidated into a
6 manufacturing license if the developer chose to go
7 that route. However, we do believe that it could be
8 accomplished from the current requirements.

9 You would need various permits and
10 licenses to possess the material, and to transport the
11 material, similar to how an operating license for a
12 large reactor would be today, to have licenses under
13 Parts 30, 40, 70, for possession of nuclear materials,
14 and transport of nuclear materials. So, we don't see
15 this as a significant impediment.

16 CHAIRMAN REMPE: Yes. I just think some
17 guidance might be helpful. But that's just my
18 personal opinion. I also would suggest --

19 MS. CUBBAGE: Yes. So, if I --

20 (Simultaneous speaking)

21 CHAIRMAN REMPE: Excuse me for a minute.
22 Let me finish, and I'll let you come back. Okay, Amy?
23 But I think the preamble for this particular
24 rulemaking ought to say clearly, it doesn't consider
25 this case. Go ahead, Amy.

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1 MS. CUBBAGE: Well, this rulemaking does
2 not make any changes to make it any easier or harder.
3 However, the current rules do permit this. And I
4 would refer the Committee to the staff white paper.
5 If you don't have it, I can make it available through
6 your staff. That explains the different licenses that
7 would be required.

8 CHAIRMAN REMPE: So, the white paper was
9 provided to, it was mentioned during the February 18th
10 meeting. And it was provided to us. Or somehow or
11 other, a member of our staff sent us a copy of it,
12 because they were aware of it. And so, we do have it.

13 I guess, well, your comment about this
14 doesn't make it any harder. Well, there's a lot of
15 guidance that does say that it's specific about prior
16 to fuel loading.

17 So, this particular rulemaking, because
18 some of these changes have been made, which I
19 understand why those changes were made, doesn't make
20 it any easier. Because it, again, I think we were
21 told, well, we'll consider fuel loading the minute it
22 hits the site. I don't think it makes it any easier.

23 MS. CUBBAGE: Right. So, you'd be talking
24 about fuel load in the context of the COL, which would
25 need to be when the fuel arrives on site, yes. So,

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1 any of this, a larger conversation perhaps we could
2 have separately. But I think we can take the thought
3 back. Right, Jim?

4 MR. O'DRISCOLL: Yes.

5 MS. CUBBAGE: All right.

6 MR. O'DRISCOLL: Absolutely.

7 CHAIRMAN REMPE: Thank you.

8 MR. O'DRISCOLL: All right. Any other
9 questions on this topic? All right. I'm going to
10 move on to Slide --

11 MEMBER PETTI: Yes. I just --

12 MR. O'DRISCOLL: Sure.

13 MEMBER PETTI: This is Dave. Just for the
14 other members, this is not in my opinion a big issue.
15 Some of these micro reactors want to move an
16 irradiated core after life. That's a much bigger
17 challenge.

18 But people are looking at it. And again,
19 I don't think, I think as Amy said, the rules are all
20 there. And they're trying to make sure that the
21 design meets all the requirements. It's certainly
22 challenging. But I don't think it's, you know, it
23 can't be done sort of thing.

24 CHAIRMAN REMPE: I'm not saying it can't
25 be done, Dave. I'm just, I think some guidance or

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1 something sure would help the situation.

2 VICE CHAIRMAN KIRCHNER: Dave, this is
3 Walt.

4 MEMBER PETTI: Yes.

5 VICE CHAIRMAN KIRCHNER: I think, Joy, we
6 really need to be careful on the language too. We
7 don't, these are not mobile reactors. And
8 conceptually, Amy, thank you for the white paper. I
9 looked at it carefully.

10 I don't see any impediments to doing this.
11 I think the rule, you're right in suggesting that
12 perhaps a little further guidance might help someone
13 navigate the rules.

14 But if someone is taking on this
15 challenge, my review of what's out there suggests that
16 this can be done within the existing regulations. I
17 think Dave hit on the most challenging part.

18 And that is designing to take out an
19 irradiated core, and having a shipping container
20 that's certified to do it. And having a core design
21 that meets all those requirements.

22 Both shipping a fresh core and an
23 irradiated core will be quite a challenge. A few
24 examples are things like the drop test. That imposes
25 a structural load on that intact core, whether it's

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1 fresh or irradiated, that may prove rather challenging
2 in terms of design requirements and cost.

3 But having looked at this 30 odd years
4 ago, I don't see any impediment, so to speak, for
5 someone to do this. Yes, it may be less than
6 straightforward. But conceptually, I think it's
7 doable.

8 CHAIRMAN REMPE: Looks like Ron Ballinger
9 has his hand up.

10 MEMBER BALLINGER: Yes. You know, the
11 Navy has been effectively doing this for the last 30
12 years. So, I don't, I think I agree with, well, I
13 agree with Walt as well as Dave. But moving an
14 irradiated core has been happening for a long time.

15 CHAIRMAN REMPE: But in this case they are
16 not, it's going to be shipped. It's not going to be
17 defueled on the site, is the difference. And anyway,
18 I just think some guidance could be helpful here.
19 It's not the Navy doing it, or the Army this time.

20 MR. O'DRISCOLL: Okay. There's a couple
21 of hands still raised.

22 MEMBER BIER: Yes. Ron or Amy, any
23 further --

24 MS. CUBBAGE: I just wanted to add that
25 the staff stands ready to support the Department of

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1 Defense Strategic Capabilities Office, Project Pele,
2 which is contemplating the mobile, the truly mobile
3 reactor concepts. And we are prepared to support them
4 in the review of transportation aspects, both with
5 fresh and irradiated fuel.

6 CHAIRMAN REMPE: But there's also an
7 organization that's not the Army or the Navy, engaged
8 with your office right now too. And that's where I'm
9 coming from, right.

10 MS. CUBBAGE: Understood. And we stand
11 ready and prepared to support that with our existing
12 regulations for transport. So, I think, that's about
13 all I can say right now.

14 MEMBER BIER: Are we ready to move on?
15 Any further comments?

16 CHAIRMAN REMPE: I see Vesna's hand up.

17 MEMBER BIER: Oh, thanks.

18 MEMBER DIMITRIJEVIC: Hi. Yes. I just
19 want to point something out, to which in my previous
20 discussions I wasn't aware, I mean, I had time to look
21 more and think about that.

22 The actually changes in the PRA
23 requirements are all related to the light water
24 reactors. So, you know, like 50.69 is only applicable
25 to light water reactors. So, you know, the older

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1 guidance and the things that also related to the light
2 water reactors.

3 So, that some new thing which I sort of
4 like to have the time to think about. So, I bring it
5 this up to see do you sort of agree with that
6 statement?

7 MR. O'DRISCOLL: Yes. Well, I think, do
8 I agree with the fact that 50.69 applies only to light
9 water reactor technology? The answer is yes. It was,
10 that rule was, that rule only applies to that
11 technology. We thought about it. And that's how it's
12 written.

13 And in this rulemaking we, you know,
14 identified it as clearly out of scope trying to expand
15 the applicability of 50.69. But we did, you know, to
16 non light water reactor technologies.

17 MEMBER DIMITRIJEVIC: Yes. But also,
18 okay. So, this is abuse in that degree. But also,
19 the older PRA, you know, the using PRA design, what is
20 required to report, you know, to the Reg Guide 1206,
21 the 19.0, the core damage frequency, larger frequency.

22 These things are all related to the light
23 water reactor. So, I will have to say that the new
24 requirements of the PRA related things are the light
25 water reactors based.

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1 MR. O'DRISCOLL: Okay. Amy, you're --

2 MS. CUBBAGE: Yes. I just wanted to point
3 out that 50.69 is generally targeted towards operating
4 reactors who would like to make changes to risk inform
5 their facilities.

6 For new reactors we do both, especially
7 for non light water reactors, we have approved Reg
8 Guide 1.233, the licensing modernization project,
9 which has a risk informed approach to system
10 structures and component classification.

11 And also, under Part 53 we will be
12 incorporating in risk conformed licensing approaches
13 that would obviate the need for 50.69.

14 MEMBER DIMITRIJEVIC: Yes. I understand
15 that. But the level of the changes, important changes
16 you are proposing, is this is to allow to use the
17 50.69 for non operating reactors, you know, in the
18 design specification phase, in the, you know,
19 construction permit, and so, meaning applications for
20 the new license.

21 MS. CUBBAGE: Right. And I would just
22 offer that the licensing modernization project, where
23 eventually Part 53 would provide that alternative to
24 50.69 for non light water reactors. It would be --

25 MEMBER DIMITRIJEVIC: Yes. This is when,

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1 you know, you also hear our, regularly hear our
2 comments that those two applications, you know, that
3 these two upgrades somehow have to, you know, somehow
4 have to have some, not merger, but, you know,
5 adjustment to the alignment. If you align 50 and 52,
6 come finally they will have to be aligned with 53.
7 Okay. Thanks.

8 MR. O'DRISCOLL: Okay. Is there any other
9 questions on this topic? Okay, I'll move on to Slide
10 14. So, this one is cumulative effects of changes
11 during construction.

12 So, at the February 1st Subcommittee
13 meeting Chairman Rempe asked a question about this
14 during our discussion on the Part 52 change process
15 topic. So, other members of the ACRS also raised this
16 issue of cumulative effects in earlier meetings.

17 So, I want to summarize the response I
18 gave at the February 18th Subcommittee meeting, and
19 provide the opportunity for further discussion on the
20 topic.

21 So, this rulemaking is not changing a
22 fundamental difference between Part 50 and Part 52
23 processes. Part 52 continues to serve as the
24 standardization rule.

25 The foundation of the standardization rule

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1 remains the principle of one design, one review. The
2 aim of which is the final resolution of all common
3 safety issues in the standardized design early in the
4 licensing process.

5 The main features remain a design
6 certification that has finality through the Commission
7 and the Atomic Safety and Licensing Board panel
8 hearing. The design certification is codified as a
9 regulation. And the design can be referenced by
10 multiple applicants in the future.

11 The design certification includes those
12 inspections, tests, analyses and acceptance criteria
13 that when met provide assurance that the affected
14 plant meets the safety performance requirements
15 specified in the certification. There is no need for
16 an additional final check because of the existence of
17 ITAAC.

18 The process for the NRC review of
19 exemptions from the requirements of a design
20 certification rule, and departures of the plant's
21 final safety analysis report from the standard design
22 control document are reviewed by the NRC, such that
23 there is no residual accumulation of unresolved safety
24 issues.

25 The Part 52 process also requires ITAAC

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1 maintenance. So, ITAAC maintenance is important. In
2 light of the sometimes lengthy construction schedules
3 this rulemaking strengthens that idea.

4 Specifically, the rule includes an item
5 discussed in Section 3.K.7 of the preliminary draft
6 Federal Register notice that helps ensure that the
7 ITAAC were not just met at one point during
8 construction, but must continue to be met. That is,
9 ITAAC are met.

10 We continue to believe that these
11 requirements are sufficient to ensure that the Part 52
12 process does not need an additional step of a final
13 check of the as built design.

14 At the February 18th meeting Member Bier
15 asked for more details on the process by which ITAAC
16 are selected for inspection. We have added a set of
17 supporting slides on this subject to this
18 presentation, which I think will help answer your
19 question.

20 Member Bier also asked, what would be a
21 good reference that explains the process of ITAAC
22 selection for inspection? This would be NRC Procedure
23 OINRR-LIC-201, which is titled Prioritization of
24 Inspections Tests Analyses and Acceptance Criteria for
25 Inspection.

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1 And the ADAMS session number for that is
2 ML20057D521. And that's the best reference I think
3 for further information on that process of selection.

4 So, also a reminder. Aside from Item
5 3.K.7 in the preliminary draft proposed rule, we are
6 not making any changes to the ITAAC selection,
7 maintenance, or reporting processes. Are there any
8 questions on this item before I go on?

9 MEMBER BIER: Yes. Jim, I would like to
10 follow-up just briefly. Thank you, first of all for
11 the additional reference material. And I'm not sure
12 if my comment reflects a philosophical disagreement,
13 or just a lack of understanding still on my part.

14 I understand the idea about design
15 finality. But there are many details that will be
16 worked out during the construction process that are
17 not part of the previously approved design, spatial
18 interactions, which things are located where, and how
19 they might interfere with each other, the exact
20 details of, you know, power supply, and wiring, and,
21 you know, which components --

22 MR. O'DRISCOLL: Yes. I --

23 MEMBER BIER: -- get powered from which
24 busses. And that would not have been priorly approved
25 in the --

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1 MR. O'DRISCOLL: Right.

2 MEMBER BIER: -- original design. But can
3 still be important for risk. So, where is all of that
4 handled?

5 MR. O'DRISCOLL: Right. So, that's a very
6 good question. So, I can answer that.

7 MEMBER BIER: Great.

8 MR. O'DRISCOLL: So, obviously the
9 fundamental philosophy behind Part 52, that it is
10 possible to provide information in advance of a
11 construction of a plant if it's detailed enough for
12 the staff to resolve all safety issues prior to its
13 being built.

14 So, we do acknowledge, we knew that back
15 then, you know, when we wrote this regulation in the
16 '80s, you know, or '89 and updated '07, that there's
17 going to be things like, you know, as, you know, skill
18 of the craft, you know, fit ups, things like that
19 that's going to change, and not necessarily be
20 reflected in the, in what we reviewed.

21 But we believe that because the PRA has
22 got to be basically updated, that action in Part 52
23 will cover that residual issue. So, there's a few
24 folks on the line I think that may want to speak about
25 this more, or chime in, or counter my statement. Is

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1 there anybody? Anybody? Does that answer your
2 question, Chairman?

3 MEMBER BIER: not quite. Because it looks
4 to me like the licensee has a requirement to maintain
5 and update the PRA. But there is not a place where
6 whether they do that is assessed, from what I can see.

7 MR. O'DRISCOLL: I don't know if Malcolm
8 Patterson is on the line, that can basically explain
9 the, this process. Oh, there's, somebody's hand is
10 up. Whose hand is up? Malcolm, please go ahead.

11 MEMBER BIER: Yes, great.

12 MR. PATTERSON: This is Malcolm Patterson.
13 There is no requirement for the staff to assess the
14 PRA. However, if the applicant chooses to use the PRA
15 for any risk informed application the staff will do
16 so.

17 Inspectors of course will be able to
18 observe how the licensee uses the PRA in normal
19 operation. And as you pointed out the PRA must be
20 maintained and updated.

21 It will also have to be upgraded as new
22 operating modes or initiating events are addressed by
23 consensus standards that the staff endorses. It must
24 also be upgraded at least once prior to fuel load.

25 This is the opportunity for the licensee

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1 to ensure that the PRA accurately reflects the as
2 built plan, including spatial details, wiring details,
3 normal arrangement of the electrical plant, how the
4 electrical plant would be rearranged under casualty
5 conditions.

6 So, the PRA gets the updates required.
7 The fact that the staff doesn't have a milestone that,
8 in the regulations where the staff will inspect,
9 doesn't appear to me to be a fatal problem.

10 When the licensee wants to use the PRA for
11 whatever reason, whether it's categorization of SSCs,
12 or risk informing, in service tests, controlling
13 surveillance frequencies, completion times, any of
14 those activities would make it necessary for the staff
15 to confirm that the PRA was adequate for the intended
16 application.

17 MEMBER BIER: Okay. I mean, I think I
18 understand it. I'm not sure I like it. That's a
19 tough question. So, Joy, I think you have your hand
20 up.

21 CHAIRMAN REMPE: Sure. I have two
22 questions. The first one I think is best discussed if
23 you could bring up Slide 38, Jim. And I do appreciate
24 you guys providing this extra information. Okay, yes.
25 This one about prioritization process. And I thought

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1 it was Slide, oh, excuse me, it's 36. I apologize.

2 MR. O'DRISCOLL: Okay. I'm sorry. These
3 ones are, let me see. Which one is this?

4 CHAIRMAN REMPE: It's one more previous.
5 Well, in my, it's 36 out of 40 is the -- There, you
6 got it.

7 MR. O'DRISCOLL: Okay. Oops, I'm sorry.
8 Oops.

9 CHAIRMAN REMPE: It flashed up at least.
10 Okay. So, during our meeting I got, I thought,
11 anyway, it was someone, my mind though someone had
12 said from the staff that we prioritize, which I
13 (Telephonic interference.) we inspect. Because only
14 a sample are inspected based on risk.

15 But I was wondering later, because of the
16 risk assessment wouldn't necessarily help one think
17 about which ones to prioritize. And it looks now like
18 it's not really a risk assessment, that it's a safety
19 significance, some sort of extra assessment. It's not
20 the PRA. What is it that you're, is this the staff
21 who does this rank ordering? Or who does this
22 prioritization?

23 MR. O'DRISCOLL: So, I'd like to see if
24 Chris Welch on the staff could answer that question.
25 Chris, your hand is up. Please go ahead.

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1 MR. WELCH: Yes. This is Chris Welch with
2 VPO. And I've been heavily involved in the targeting
3 of ITAAC. The targeting of ITAAC utilized the
4 analytical hierarchy process, where we weight the
5 ITAAC on the significance of preventing a flaw from
6 not being recognized.

7 And the safety significance is the first
8 attribute. And in all honesty it really is the
9 driving attribute in the targeting process. And it
10 utilized a limited PRA scope that was performed for
11 the design prior to the full PRA.

12 And it involved a team of three
13 individuals that looked at each of the ITAAC, and
14 designed a level of significance to that ITAAC. And
15 then the results went through the weighting process.

16 So, it is driven based off of the limited
17 PRA that the designers perform and then weighted. And
18 it is performed by the staff. And there's one --

19 CHAIRMAN REMPE: It's just by the staff.
20 No one from the licensee gets to participate?

21 MR. WELCH: That is correct. That's
22 correct.

23 CHAIRMAN REMPE: So, would you, you know,
24 there was the design acceptance criteria that, a
25 subset of ITAAC. Are they automatically included in

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1 the prioritization, especially on, you know, ones for
2 the I&C system, the control room, et cetera? Do they
3 get in the high priority rank?

4 MR. WELCH: Right. When ITAAC, when you
5 look at the table I think, it is comprised of the
6 design commitment, the inspection test analysis, which
7 is the activity that's taken to demonstrate the design
8 commitment has been met, and then the acceptance
9 criteria, which is the criteria that has to be
10 demonstrated to prove or demonstrate that you have met
11 the design commitment.

12 So, the design commitment is in fact part
13 of the whole process of ranking the ITAAC. For
14 example, when we do the ranking we sit down, we look
15 at what the design commitment is, what is the ITA,
16 inspection test analysis, and the acceptance criteria?
17 And based off --

18 CHAIRMAN REMPE: So, excuse me for a
19 minute. But I'm not, do you know what I'm mentioning
20 when I'm saying that there were DAC that were a subset
21 of ITAAC?

22 MR. WELCH: Yes. And all the DAC were
23 required to be targeted for inspection by policy.

24 CHAIRMAN REMPE: So, that helps me. The
25 other thing was, I came away from the meeting, the

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1 Subommittee meeting with the, I was a little
2 concerned.

3 I mean, I came away with the impression
4 the staff said we are standing by our policies on
5 ITAAC. We think that's enough for having confidence
6 in a Part 52 evaluation.

7 And I am, you know, when I think back
8 about some of the history of this ITAAC and DAC
9 situation, I know that the ACRS has historically said,
10 are you going to have the folks from headquarters
11 involved in the I&C?

12 And we call it an inspection. But it's
13 really more of an evaluation. It has to be more in
14 depth. And my takeaway from the, looking through the
15 history of what happened in the past, there was some
16 concern about who would be doing it.

17 Are you just going to have the regional
18 office do it? Or did you bring in, have you done the
19 inspection I guess is the first question, on the I&C
20 system with the ongoing Votgle Plant, for example?
21 Has that been done yet?

22 MR. WELCH: Part of it has been. And
23 those inspections were conducted both by headquarters
24 and region staff during the factor acceptance testing
25 and the development. There still remains outstanding

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1 ITAAC that are really just the testing of the as
2 built/installed components down in the plant.

3 CHAIRMAN REMPE: You know, there are
4 actually, from March 21st, 2011 there was an SRM from
5 the Commissioners that, to the staff, and said the
6 staff should provide the pilot results to the ACRS for
7 review. And is that going on right now? Are you guys
8 planning to come back to us?

9 MR. WELCH: I cannot answer that question,
10 ma'am.

11 CHAIRMAN REMPE: Is there anyone else on
12 the staff that could answer that question?

13 MR. O'DRISCOLL: What was, I'm sorry,
14 Chairman. What was the SRM? Do you have the actual
15 number? We can, I --

16 CHAIRMAN REMPE: Okay. I believe it's, it
17 was dated March 21st, 2011. It was not after a
18 meeting with the Commissioners and ACRS. So, it's
19 made it a bit harder to find it.

20 But I believe it's 2010-0140. And it was
21 an SRM. And actually I can send it to Quinn, and he
22 can provide it to you. But anyway, it has a note that
23 staff should provide the pilot --

24 It's talking about the options for
25 revising the construction reactor oversight process

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1 assessment program. And it talks about the ITAAC and
2 PR graph. Above this direction it says the staff
3 should provide the pilot results to the ACRS for
4 review.

5 This was like back when I first started on
6 ACRS. And I remember Member Bley constantly talking
7 about, or not constantly, but regularly talking about
8 this SRM. And apparently it was more related to the
9 South Texas project that got cancelled with ESBWR.
10 And there was a meeting set up that got cancelled.

11 But nevertheless, the SRM refers
12 generically to ITAAC, not just South Texas project.
13 And it does say that the staff's supposed to come back
14 with the pilot results to the ACRS for review

15 And I think that, you know, if we learn
16 more about how carefully you are doing these ITAAC we
17 might have more confidence in how this interaction is
18 proceeding.

19 And that's why I brought up this question
20 about the cumulative effect of changes during
21 construction, is that maybe, at least I was not aware
22 of how well this is being performed in accordance with
23 the understanding that ACRS had with the staff.

24 There was actually, there were some
25 letters where this was mentioned from ACRS. And the

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1 staff did come back and say, yes, we'll share this
2 too. But of course the Commission direction has more
3 weight. And that's why I'm bringing it up today.

4 MR. WELCH: I vaguely recall something on
5 that line. And I guess I was thinking that that was
6 past. But ESBWR would make a lot of sense. Because
7 ESBWR had a tremendous number of DAC.

8 MS. CUBBAGE: Well actually that was a
9 ABWR plant in South Texas.

10 CHAIRMAN REMPE: Oh, I'm sorry. You're
11 right, Amy. I said the wrong thing. I was in ABWR
12 instead of ESBWR -- because of -- Thank you.

13 MS. CUBBAGE: Yes. I would guess that
14 this is a very interesting topic. And we definitely
15 need to follow-up with the Committee on that SRM item.
16 But it's outside the scope of this rulemaking.

17 CHAIRMAN REMPE: So, I would take you at
18 your word if you will follow-up with this, and it
19 doesn't get lost. I will forward the SRM to Quinn.
20 And he can forward it to Jim. But I'll take you at
21 your word, and I'll drop the subject on it for this
22 rulemaking then.

23 But I just wanted to make sure. Because
24 I, that's why I have been concerned about this, is
25 that I don't perhaps share this understanding the

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1 staff has on it. Okay.

2 MEMBER BIER: Great. Vesna, do you have
3 a follow-up?

4 MEMBER DIMITRIJEVIC: Yes. I would like
5 to bring something here. When we stop mixing this
6 design finality ITAAC in the PRA, there is a lot of
7 sort of, like, you know, the mixed responses.

8 So, for example, that we just got response
9 there could not be changes during construction that
10 are captured by PRA, right? That's what with the we
11 hear as the question, it was the response.

12 And then the question was, well how is
13 that PRA reviewed? So, which is correct, the request
14 for PRA review is only if applicant's interested in
15 the risk inform application?

16 So, that means, if applicant is not
17 interested in risk inform application we never really,
18 we review cumulative changes from design during the
19 construction. See, the requirement to PRA review is
20 related to the applicant's volunteering to use the
21 risk inform application.

22 But we also say the cumulative changes in
23 design during the construction are captured by PRA.
24 Well, and then we don't really ever review that if
25 applicant does not really have to go on to have some

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1 risk inform application.

2 So, I just want to point that this is out.
3 And this is sort of like contradictory in my opinion.
4 So, I mean, not contradictory. But this open ended
5 thing again.

6 MR. O'DRISCOLL: Okay.

7 MS. CUBBAGE: Okay.

8 MEMBER BIER: Okay. I see no further
9 hands. So, maybe we can move on.

10 MR. O'DRISCOLL: Okay. I'll move back to
11 -- so I think we're done with this topic so I'm going
12 to move on to the next one, which is a great segue,
13 use of probabilistic risk assessment design. So we
14 can talk more.

15 We're on Slide 15 now. The proposed rule
16 would amend 5034 to require applicants for future Part
17 50 power reactor construction permits and operating
18 licenses to submit a description of the plant specific
19 PRA and its results in a construction permit
20 application.

21 In addition, the purpose of the change is
22 to encourage the use of PRA methodology in the design
23 phase of the project. The existence of a PRA also
24 would allow the NRC staff and applicant a better basis
25 to risk inform the review. A risk-informed review is

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1 much more efficient than a deterministic review and
2 should result in decreased burden in the licensing
3 phase.

4 The NRC, you know, received 10 comments on
5 this item as it was discussed in the regulatory basis.
6 So I'll discuss some of these comments.

7 One commenter expressed the concern that
8 the addition of a description of a PRA and its results
9 to the Part 50 licensing process would make that
10 process a less attractive option for future
11 applicants. And the PRA would create finality
12 requirements similar to Part 52.

13 The NRC disagreed with the comment because
14 the construction permit PRA would be preliminary, just
15 like the rest of a construction permit information.

16 The mere requirement to submit the results
17 of a PRA would in no way reduce the flexibility of the
18 construction permit holder to further develop the
19 design during the construction. The issues of use of
20 PRA and finality are unrelated.

21 Another commenter stated that the review
22 of the summary of the PRA and its result is not
23 necessary for the NRC to come to a safety finding for
24 the construction permit. The commenter stated that
25 instead of a PRA, the NRC should require a

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1 "preliminary risk assessment," but the commenter also
2 recommended the development of guidance that explains
3 the expectations for the PRA in the construction
4 permit phase for an advanced plan.

5 The commenter further recommended that
6 non-power reactors should not be subject to the
7 proposed requirement.

8 The NRC agreed in part with these
9 comments. The NRC agrees that non-power reactors
10 should not be subject to the requirement, and the
11 staff further developed the proposed rule language in
12 consideration of that comment.

13 The NRC disagrees with the argument that
14 because a PRA is not necessary for a safety finding in
15 the construction permit phase, a construction permit
16 application should not include a summary and a result
17 of a PRA.

18 One purpose of the proposed change is to
19 encourage the use of PRA in the design phase in
20 accordance with the Commission's policy statement on
21 PRA, which was made, I think, in the 90s. Another
22 purpose of the proposed change is to eliminate
23 differences in the licensing processes that would
24 result in differing design bases information for
25 equivalent designs, not addressing that issue would

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1 result in differing future regulatory outcomes and
2 would not fulfill the Commission's direction for this
3 rulemaking.

4 The NRC also disagrees with comments that
5 state that new or revised regulatory guidance is
6 needed for advanced plants because the existing
7 guidance would cover the development of a PRA for an
8 advanced plant license under Part 50 as well as it
9 currently does for one developed under Part 52.

10 Another commenter stated that the needed
11 information to complete a PRA may not be available at
12 the construction permit stage and requested that the
13 NRC clarify what information the application needs
14 with respect to PRA that would address the TMI-related
15 requirements in 10 CFR 5034.

16 The commenter recommended that the NRC
17 should only require the applicant to submit a summary
18 and the result of a PRA at the operating licensing
19 stage. The NRC agrees in part with this comment.

20 If the construction permit and operating
21 license applicant submitted a summary and results of
22 a PRA that the applicant developed in accordance with
23 NRC's guidance on PRA, which is Reg. Guide 1.200, then
24 yes, many of the TMI items would be met. And that
25 would obviate some of the specific analyses

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1 requirements in 10 CFR 34.

2 For that reason, the NRC is also proposing
3 to eliminate many TMI requirements with the
4 understanding that instead, the applicant would have
5 developed a PRA and its results.

6 One commenter recommended that the use of
7 a PRA should complement the NRC's deterministic
8 approach, quoting language from the NRC's PRA policy
9 statement. The commenter recommended that a
10 construction permit applicant supply a preliminary
11 risk analysis only and use deterministic analyses to
12 demonstrate that the design meets regulatory
13 requirements.

14 The NRC agrees in part with this comment.
15 As previously stated, the NRC disagrees that a
16 submittal of the summary and results of a PRA at the
17 construction permit stage should be voluntary.

18 The NRC agrees that it is up to the
19 applicant to determine the degree of which it uses PRA
20 to demonstrate conformance with regulations. As
21 before, future Part 50 applicants are free to use
22 deterministic methods for this purpose.

23 Two commenters requested the NRC clarify
24 how the new requirement for a Part 50 PRA would work
25 with existing requirements of Part 51 for applicants

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1 to develop severe accident mitigation alternatives,
2 otherwise called SAMDAs, and applicants should use PRA
3 to support these alternatives.

4 The NRC agrees in part with the comment.
5 The NRC agrees that if the PRA was of sufficient
6 quality, an applicant could use it for that purpose.
7 However, the NRC disagrees that a PRA should be the
8 only method to do so. And if appropriate, an
9 applicant can use other methods to develop the SAMDAs.

10 One commenter asked the NRC to confirm
11 that the PRA submitted at the construction permit
12 stage would be based on preliminary design information
13 and need not be complete as one submitted at the
14 operating license stage. The NRC agrees with that
15 comment as previously discussed.

16 One commenter disagreed with the NRC's
17 assessment with the cost benefit of developing the
18 PRA. They just stated that the development of a
19 preliminary PRA at the construction permit stage would
20 cost the same as one that is done at the final stage.

21 The NRC agreed with this comment because
22 the NRC expects that an applicant would upgrade the
23 PRA at the operating license stage prior to loading of
24 fuel.

25 The NRC added additional industry cost to

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1 the cost benefit calculation to account for this. The
2 proposed change would result in additional cost to the
3 industry to develop a PRA at the construction permit
4 stage, but would result in some cost savings for the
5 NRC and the applicant later on. And that's, again,
6 unquantified as I mentioned earlier.

7 Are there any questions on this topic
8 before I go to the next topic? I don't think there's
9 questions. All right. I'm going to move on.

10 MEMBER BROWN: Yes, there was. I thought
11 I raised my hand. This is Charlie.

12 MR. O'DRISCOLL: Oh, go ahead.

13 MEMBER BROWN: It didn't show up. I
14 obviously don't know how to do that yet. I lost the
15 bubble through that long discourse.

16 MR. O'DRISCOLL: I'm sorry.

17 MEMBER BROWN: I'm not criticizing. I'm
18 just -- it's me. Okay? The PRA at the construction
19 -- if you do a PRA at the construction permit phase,
20 I mean, that's very, very early in the whole process.

21 MR. O'DRISCOLL: Yes.

22 MEMBER BROWN: And to me, most of the
23 design details aren't even available, large changes.
24 I've been involved in seven different projects in the
25 Navy, eight maybe if I count them properly.

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1 And doing stuff when we're doing those
2 very preliminary evaluations and then we get into the
3 design details would have required extensive revisions
4 to PRAs if we had been under that particular manner of
5 doing business.

6 So I really don't totally understand how
7 doing a construction permit PRA then does not
8 constrain making appropriate design changes subsequent
9 when you're actually doing the design details. I just
10 have a hard time walking my way through that.

11 That's just a comment. I have no idea.
12 I'm just very concerned that industry is right and
13 that there's a lot of baggage that comes along with
14 this, and it's just not a simple thing of not having
15 to redo the PRA when you start changing design details
16 that were preliminary in the beginning part of the
17 construction permit process. So I just don't
18 understand that, and I probably never will. That's
19 where I am right now.

20 MR. O'DRISCOLL: So it looks like Malcolm
21 Patterson has his hand raised. Malcolm, go ahead.

22 MEMBER BROWN: I'd like my hand unraised.

23 MR. O'DRISCOLL: Okay. Just click it
24 again.

25 MR. PATTERSON: This is Malcolm Patterson

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1 of Office of Nuclear Reactor Regulation. A PRA at the
2 construction permit phase is not early enough. The
3 Commission has made it clear they expect the PRA to be
4 used during design.

5 In fact, when I was in the Office of New
6 Reactors, we were looking at the PRAs being used as
7 vendors were developing their designs. And they made
8 significant design changes as a result of the results
9 of their PRAs. So we've seen how important it is to
10 be using PRA from the very beginning.

11 Using the PRA that's based only on
12 preliminary information is still very useful. And so
13 I push back against those who say, oh, it's too early
14 to do the PRA. Changes to the details of the design,
15 even significant changes during construction, are
16 expected using a two-step construction permit
17 operating license process, the Part 50 process.

18 Well, we think that's a problem that we've
19 already learned how to solve. We know that during
20 construction as changes are made that have an impact
21 on the PRA, licensees are monitoring that. They're
22 looking at the cumulative effect of design changes on
23 risk.

24 So you can't have it both ways. If you
25 have a useful PRA in the design phase, you should be

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1 using it to full advantage at the construction permit
2 phase during construction, and you need to have it
3 ready for operations and maintenance before you load
4 fuel.

5 MEMBER BROWN: Let me just respond. There
6 are systems -- for instance when we did the design
7 phase in the initial application for a number of new
8 designs as they came along, the I&C was very well
9 defined via the framework of independence redundancy,
10 deterministic behavior, control of access and on and
11 on. There's definitely a configuration and
12 architecture that is very well described within the
13 Reg. Guides and some of the preliminary documents as
14 you get started with the licensing process.

15 And a PRA doesn't really fit with that
16 framework approach to doing business. You need
17 multiple channels. You need independence. You need
18 watchdog timers if you're going to use computer-based
19 stuff. And if somebody comes along and would tell me
20 they've done their PRA and they don't need a watchdog
21 timer to make sure processors are working, I would
22 tell them to pound sound. Okay? There's just no --

23 MR. O'DRISCOLL: So I think there's a
24 difference -- and Malcolm, maybe I'm just taking your
25 thunder, but we're still doing risk-informed

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1 regulation. So, and I think Malcolm you can take it
2 over, but, you know, if there's deterministic -- you
3 know, it's supposed to work with certain, you know,
4 deterministic requirements. And if we choose, if we
5 think for I&C, whatever, this architecture, you know,
6 adherence, you know, is key to safety, then we would,
7 you know, adhere. You know, the PRA wouldn't trump
8 that. Malcolm, I'm sorry if I misspoke. Go ahead.

9 MR. PATTERSON: I'm afraid I'm in violent
10 agreement with both of you. I was principal engineer
11 for instrumentation and control at a utility. I know
12 whereof you speak.

13 PRA isn't the answer to every question.
14 In fact, even taking a look at the AP1000 design
15 certification amendment, the major I&C components were
16 created as a black box. There was no effort to get
17 into the details of a PRA even at the channel level of
18 the reactor protection system. That didn't mean the
19 PRA wasn't useful. It meant that the PRA didn't model
20 that with the level of fidelity that we would expect
21 in the operating phase.

22 MEMBER BROWN: So I can understand that.
23 In other words, you would tell me you've put a --
24 there was a black -- I actually reviewed that, okay,
25 years ago since I came on the committee back in 2008.

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1 MR. PATTERSON: Mm-hmm.

2 MEMBER BROWN: And I went through that
3 design in spades along with the APR1400 NuScale after
4 that, et cetera, et cetera.

5 So if I'm interpreting what you're saying
6 properly, while we went through the framework, laid
7 out the architecture, the independence, how the
8 detectors were connected internally to that big black
9 box, you looked at that as a block box, not what was
10 inside of it. Am I interpreting what you said
11 correctly?

12 MR. PATTERSON: That's the way the PRA
13 looked at it.

14 MEMBER BROWN: Okay. All right. I'm very
15 worried about somebody coming in and trying to extend
16 that. But if what you're saying that's the case, then
17 I guess I can quietly go away and retire to my
18 quietness again. But I get pretty protective of the
19 reactor trip and safeguard systems relative to the
20 overall methodologies we've developed with ISGs and
21 frameworks and everything else. They're getting
22 defined although slowly in the various NRC documents.

23 All right. I think you've answered my
24 question.

25 MEMBER BIER: Dennis?

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1 DR. BLEY: Yes. I kind of want to support
2 the staff and a little bit Charlie. But for Charlie
3 I would point out that there's more to a power plant
4 than the I&C although it's a crucial integrating
5 aspect.

6 MEMBER BROWN: I know that.

7 DR. BLEY: The idea of the black box kind
8 of works okay, especially with those basic criteria
9 for the architecture Charlie has talked about many
10 times. On the other hand, we have not lived yet to
11 see that that leads us to a final design that it
12 really works well. We have a couple that are getting
13 close, but we haven't been there yet.

14 I would also point out that at least, and
15 maybe more, of the design certs that have happened in
16 the last 10 years, 15 years, used the PRA throughout
17 their design to make improvements in many of the
18 systems and locations of equipment and the like. So
19 it's proved itself very useful.

20 And if we go back to the construction
21 permit stage, at that stage you won't have everything
22 worked out, of course. You're not even close. But
23 the first element of the PRA is to find out what can
24 go wrong, what are the initiating events and scenarios
25 that can lead to releases. And that needs to be done

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1 thoroughly at the design stage to support the PRA, and
2 it needed to be done, even if you weren't doing a PRA
3 to define what would be included in any safety
4 analysis.

5 And I think both the staff and the
6 committee have been pretty clear in the couple of
7 construction permits that were looked in recent years
8 that identification of the scenarios that could lead
9 to damage needs to be done well early on at that
10 stage.

11 So I think the staff is right. And I
12 don't disagree with Charlie on detail, but overall
13 maybe a little. Thanks.

14 MEMBER BROWN: I expected that.

15 MEMBER BIER: Yes.

16 MEMBER BROWN: Thanks, Dennis.

17 MEMBER BIER: So we are kind of behind
18 relative to finishing at 10 o'clock, and I don't know
19 whether we should race through or whether we have a
20 little bit of flexibility on the timing. But, Jim, I
21 --

22 MR. O'DRISCOLL: I'm fine. I can go. I
23 mean, it's really -- I think we could just continue.
24 And I'll --

25 MEMBER BIER: Okay.

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1 MR. O'DRISCOLL: All right?

2 CHAIRMAN REMPE: So, Vicki, this is Joy.
3 And although we have a little bit of flexibility,
4 let's try and adhere to it as closely as we can.

5 MEMBER BIER: Yes.

6 CHAIRMAN REMPE: Thank you.

7 MR. O'DRISCOLL: So I'll move on to the
8 next topic. So this one is about cutoff accident
9 frequency for credible accidents. So we're on Slide
10 16.

11 So there was some discussion during the
12 Part 50 and 52 change process subcommittee discussion
13 regarding the proposed addition to 50.59C(2)(9) and
14 (10). These paragraphs would require licensees of
15 power plants that are licensed under Part 50 after the
16 effective date of the final rule to seek amendment to
17 the operating license if a proposed change, test or
18 experiment would significantly increase the
19 probability or consequence of an ex-vessel severe
20 accident.

21 Chairman Rempe asked how would one know if
22 a postulated accident is credible? That is, is there
23 such a thing as a cutoff accident frequency below
24 which such accidents need not be considered?

25 At the meeting, the staff stated that what

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1 would be a credible versus incredible is not defined.
2 And such a definition is the prerogative of the
3 Commission to determine.

4 We clarified at the last meeting that the
5 new provisions would only require analyses on
6 previously identified ex-vessel severe accidents, not
7 newly defined ones.

8 The staff agreed that the proposed changes
9 don't resolve the ambiguity of the terms substantial
10 and credible. But they do align the Part 50 language
11 -- sorry the Part 50 change process to the current
12 requirements in Part 52 with regard to the impact of
13 changes, tests and experiments on the probability and
14 consequences of a severe accident.

15 So from my read of the February 1 meeting
16 transcript, there was agreement that the staff and the
17 ACRS discussion of this concept of a cutoff risk
18 frequency will continue but would not be carried
19 forward in this rulemaking.

20 And so here's some additional points that
21 the staff would like to make on this topic.

22 The NRC staff recognizes the term credible
23 is used in slightly different contexts in various NRC
24 regulations and guidance documents, but it is not
25 defined. However, the staff is taking several actions

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1 to ensure that the guidance is clear for defining
2 accident sequences, including appropriate controls to
3 prevent and mitigate potential accident consequences
4 and taking probabilistic considerations into account
5 as appropriate.

6 In most cases the term credible is used to
7 ensure that requirements are not imposed to protect
8 against non-physical or obviously very unlikely events
9 or phenomena. The definition of the term "impossible
10 demarcations" of what may or may not be deemed
11 credible can differ based on how a specific design and
12 licensing methodology incorporate the concept.

13 As such developing generic definitions of
14 credible may not present the most technology inclusive
15 approach and could unintentionally limit the ability
16 of applicants to propose reasonable alternatives,
17 methods for determining what is credible for their
18 designs.

19 The current regulations under 10 CFR Part
20 50 and 10 CFR Part 52 provide a regulatory framework
21 that if met ensures that there is adequate protection
22 of public health and safety, including appropriate
23 defense and depth.

24 The SRP provides guidance on establishing
25 the plant transients and accidents for light water

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1 reactors that should be analyzed to represent a
2 sufficiently broad spectrum of transients and
3 accidents or initiating events.

4 As required by NIMA, the Nuclear Energy
5 Innovation and Modernization Act, the NRC is
6 developing a technology-inclusive risk-informed and
7 performance based regulatory framework, which is Part
8 53 rulemaking for any new reactor applicant.

9 As part of this rulemaking activity, the
10 NRC staff is developing flexible options for selecting
11 licensing basis events. One approach for the
12 licensing basis event selection is described in NEI
13 18-04, Revision 1, titled, Risk-Informed Performance-
14 Based Technology Inclusive Guidance for Non-Light
15 Water Reactor Licensing Basis Development, which was
16 issued in August 2019.

17 The NRC endorsed Regulatory Guide -- we
18 endorsed that document in Regulatory Guide 1.233,
19 which is titled, Guidance for Technology Inclusive
20 Risk-Informed and Performance-Based Methodology to
21 Inform the Licensing Basis and Content Applications
22 for Licenses, Certifications and Approvals for Non-
23 Light Water Reactors and that was issued in June of
24 2020.

25 So this approaches PRA as an enhanced role

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1 for the selection of licensing basis events. By
2 following this approach, an applicant can establish
3 the event sequences for which its proposed design must
4 include prevention and mitigation measures while the
5 embedded methodology considers frequency, engineering
6 judgment remains an important part of the process.
7 The methodology does not address credible but instead
8 includes a determination of what sequences are
9 specifically considered in the design and programmatic
10 controls and those that contribute to the residual
11 risk associated with a facility.

12 Without using insights from a full scope
13 PRA in a holistic fashion, it's more difficult and can
14 be even more subjective to define what constitutes
15 credible for a given plan.

16 So in response to stakeholder feedback on
17 the 10 CFR Part 53 rulemaking and to avoid -- excuse
18 me, and to afford applicants additional flexibility in
19 defining and evaluating licensing basis events without
20 using PRA in an enhanced role, the staff is also
21 developing two additional approaches.

22 One of these approaches uses PRA in a
23 traditional role that is intended to better align NRC
24 requirements with the International Atomic Energy
25 Agency, IAEA, Specific Safety Requirements Number

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1 SSR2/1, which is titled, Safety of Nuclear Power Plant
2 Design.

3 This traditional approach includes
4 defining design rules and allowing the use of stylized
5 events to establish a design basis for the associated
6 structure systems and components.

7 While not meant to include physically
8 impossible events or phenomena, the traditional
9 approach introduces intentional conservatisms to
10 account for uncertainties or limitations in testing
11 and analyses data in the credible accidents that the
12 applicant is required to analyze and address in the
13 design.

14 The other option under development would
15 provide an alternative approach to selecting licensing
16 basis events by establishing a maximum credible or
17 hypothetical accident. All three approaches would
18 provide acceptable means of identifying the spectrum
19 of credible events to support the safety case. The
20 staff continues to encourage prospective new reactor
21 license applicants to engage the NRC staff as early as
22 practicable to discuss topics such as licensing basis
23 event selection and what approaches they propose to
24 identify credible accident scenarios for their design.

25 So at the February 18 meeting, Mr. Bley

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1 commented that we should avoid future use of the term
2 credible by the staff because of the uncertainty of
3 what the term means. Member Petti asked if we checked
4 if we consistently use the term in our regulations and
5 if this term -- if the term's maximum hypothetical
6 accident and maximum credible accident mean the same
7 thing.

8 By my read of the transcript, I believe we
9 satisfied the ACRS with our discussions on this item.
10 Are there any questions on this item before I go on?

11 MEMBER DIMITRIJEVIC: Well, this is Vesna.
12 I would like just to make some comments here that, you
13 know, I was thinking of making on the earlier slides.

14 You know, these statements also rely on
15 the lessons learned. And we have the numerous
16 advanced reactor applications that went through the
17 NRC. So there should be numerous data on what the
18 applicant selected as a credible accident, right?
19 What are the alternatives to the regulations? Why
20 wasn't this used in here or even quoted here?

21 I mean, why we are saying with this sort
22 of like, you know, the not well-defined definition if
23 we have experience, you know, we have a lessons
24 learned in this area. Why I wanted to make this
25 earlier because I was sort of curious how were the

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1 lessons learned?

2 MR. O'DRISCOLL: Right. So I think I can
3 answer that question. So this is the alignment in
4 lessons learned rulemaking. But we're not addressing
5 all lessons learned in all areas. We were tasked in
6 SECY 15.00.02 to address lessons learned from recent
7 large light water reactor reviews. So I think the
8 experiences you describe have to do with other
9 technologies. Is that right?

10 MEMBER DIMITRIJEVIC: Why would that mean
11 other technologies? I mean, this applies also for the
12 large advanced light water reactor with very low
13 frequency of core damage in the large release, you
14 know? So how do they select the credible accidents?
15 So it doesn't have to be new technology.

16 MR. O'DRISCOLL: Okay. I can just talk
17 from my history on this is that, you know, we asked
18 the staff in the process of developing the scope for
19 items. So I kind of, you know, can't say why we
20 didn't pick this. But we did have the opportunity,
21 the staff and the public, to propose areas that we
22 should focus on.

23 And we had to then go through a process of
24 scoping. I don't believe in my recollection, and
25 Malcolm you can correct me, if this issue of defining

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1 what is credible ever came up in the scoping process.
2 Amy, you have your hand up. Do you want to go ahead?

3 MS. CUBBAGE: Yes. So I'd just like to
4 say that's a very substantial issue that was more
5 appropriate for handling under Part 53 with the
6 development of a new technology inclusive regulatory
7 framework.

8 A lot of the work we're doing over there
9 is speaking to what events would need to be
10 considered. I think under 50 and 52 currently
11 particularly through the design basis accident dose
12 calculations, there's an expectation that there would
13 be a substantial core melt accident that's assumed.

14 This is a more deterministic approach
15 under the existing 50 and 52 and to have taken that on
16 under this rulemaking would have been a major
17 undertaking and is more appropriate to be handled
18 under the Part 53 development of a new regulatory
19 framework.

20 MEMBER DIMITRIJEVIC: Okay.

21 MR. O'DRISCOLL: Okay. Any other
22 questions on this topic?

23 MEMBER BIER: Joy, do you have your hand
24 up?

25 CHAIRMAN REMPE: Yes, I do. And I know

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1 I'm the one who is saying, no, we need to be done at
2 10:00. But, Jim, you always have so much information
3 that if you -- I may have missed something.

4 And so your response back with the IAEA
5 and the MHA issue and all of those things at a high
6 level, it's mentioning that there's many options. And
7 some of them are going to be addressed under Part 53.
8 And I think that's where Amy's comments are coming
9 back to.

10 MR. O'DRISCOLL: Yes.

11 CHAIRMAN REMPE: Is there any
12 consideration -- one am I correct in my high level
13 interpretation?

14 MR. O'DRISCOLL: Yes. Basically that
15 discussion I gave were, you know, along the lines of
16 what Amy just mentioned.

17 CHAIRMAN REMPE: Okay. So if that's true,
18 I guess I'm still wondering about a point that we
19 raised previously that, gee, there's a lot of spectrum
20 of PRAs and that what was going on in 53 might make it
21 a little more -- a better approach for what's being
22 proposed here for the alignment in lessons learned
23 because not all PRAs are done at the same level as a
24 graded approach.

25 And is staff going to have any sort of

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1 pointer or they're still thinking about it, but they
2 haven't currently in what we've seen, clearly pointing
3 to what's being developed under the Part 53 of the
4 spectrum of what a PRA could be?

5 MR. O'DRISCOLL: So I'm going to ask folks
6 in DANU to answer that one. But I know there's folks
7 in my group that are the same folks on 53. But I'll
8 let, Boyce -- if you don't mind, Boyce, can you just
9 chime in on this one?

10 MR. TRAVIS: Yes, Jim. And this is Boyce
11 Travis for the record. With regards to pointers back
12 between 50 and 52 and 53, the staff's intent with the
13 Part 53 rulemaking is to create an option or set of
14 options for a regulatory framework that stands on its
15 own.

16 That doesn't necessarily mean it's
17 independent of 50 and 52, but Parts 50 and 52 would
18 present their own licensing pathway based on a more
19 traditional approach. And the regulatory framework in
20 Part 53 will have options available to applicants that
21 will in effect be their own standalone regulatory
22 frameworks.

23 We do not expect there to be pointers in
24 50 or 52 back to 53 except for conforming changes for
25 licensing processes and administrative requirements.

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1 Does that answer your question or are you looking for
2 something more specific?

3 CHAIRMAN REMPE: Not where I particularly
4 wanted to go. It's more the guidance. I said it
5 poorly. It's not your fault. But what I'm going to
6 is the Marty Stutzke paper that's still under
7 development so of course you can't have any sort of
8 acknowledgment of it yet.

9 But the question is is that, jeppers, I
10 think it would help if one could have some sort of
11 acknowledgment that a PRA might include a very
12 simplistic -- based on the fact that you have a
13 systematic approach for looking at all the different
14 types of events, you might bound it with NMHA. And I
15 guess I don't see that anywhere in the guidance or the
16 language changes. And as you go forward with this
17 effort, it might be worth considering it is where I'm
18 going.

19 MR. TRAVIS: I think we understand where
20 you're coming from. As you said, you know, we're
21 still in the process of developing those options. I
22 will say that what you just discussed, I mean, the use
23 of a bounding event is not just going to be dependent
24 on simplicity and PRA. It's going to inherit a lot of
25 the characteristics and performance aspects of

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1 whatever the reactor design is, i.e. its size, its
2 radionuclide inventory, et cetera.

3 And so what the entry conditions are for
4 using that approach is still being explored by the
5 staff. And I guess I'll leave it there for now if
6 that's all right.

7 CHAIRMAN REMPE: Yes. I think it's
8 something that in the future that maybe should be
9 considered -- might be worthwhile considering. But,
10 of course, one has to look at the size of the reactor
11 as to how well the applicant looks at the various
12 types of challenges, too, so the selection of the
13 events would have to occur, too.

14 But if you did some sort of a risk matrix
15 like we're seeing in some of the input applications,
16 that might work for something like this. But anyway,
17 it's just a thought. And I think you understand where
18 I'm going.

19 MR. O'DRISCOLL: Amy, your hand is up?

20 MS. CUBBAGE: That is from before. Sorry.

21 MR. O'DRISCOLL: Okay. Great. Any other
22 comments on this topic before I go on to the next one?
23 All right. I'll move on.

24 So we're on Slide 17. So the issue at
25 digital instrumentation control, or I&C, licensing

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1 reviews came up at the February 1 meeting during our
2 discussion on Part 52 change process topic.

3 So Member Brown described an experience
4 last year where the staff at ACRS worked with industry
5 to obtain some additional flexibility in the use of
6 the 10 CFR 5059 change process for the application of
7 digital I&C.

8 This work resulted in consensus on an
9 industry standard NEI 96-07, Appendix D, titled,
10 Supplemental Guidance for Application of 10 CFR 50.59
11 to digital modifications.

12 The main objective of that guidance is to
13 provide all stakeholders a common framework and
14 understanding of how to apply the 10 CFR 50.59 process
15 to activities involving digital modifications. The
16 new guidance superseded 10 CFR 50.59 related guidance
17 contained in NEI-01-EPRI TR-102348, which is titled,
18 Guidelines on Licensing Digital Upgrades.

19 And the new guidance incorporates 10 CFR
20 50.59 related guidance contained in Regulatory Issue
21 Summary 2002-22, Supplement 1, which is titled,
22 Clarification on Endorsement of Nuclear Energy
23 Institute Guidance in Designing Digital Upgrades in
24 Instrumentation and Control Systems.

25 Member Brown's questions were, does that

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1 work get affected or carried forward with the changes
2 that the staff is proposing in this rule to the 10 CFR
3 50.59 process? Will it be applicable to the Part 52
4 process and other licensing processes?

5 The answer is that there are no changes
6 being proposed in this rule to the 10 CFR 50.59 change
7 process or any other change process that would undo
8 the consensus we obtained in NEI 96-07, Appendix D.
9 So to be clear, the proposed rule does not contain any
10 changes that would constitute backfitting in this
11 technical area.

12 Current licensees can continue to perform
13 digital upgrades and modernize their I&C systems using
14 existing applicable regulations and related guidance
15 documents.

16 Current licensees can continue to perform
17 screening and evaluation of digital upgrades in
18 accordance with 10 CFR 50.59 rule using NEI 96-07,
19 Appendix D, guidance as endorsed by the current
20 revision and proposed revision of Reg Guide 1.187.

21 Current licensees can continue to use the
22 interim staff guidance DI&C-ISG-06, Rev. 2, to inform
23 preparation of license amendment request for digital
24 upgrades.

25 The changes to Reg Guide 1.187 from the

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1 proposed 10 CFR Parts 50 and 52 alignment rulemaking
2 do not impact the endorsement of any NEI 96-07,
3 Appendix D, Revision 1, Supplemental Guidance for
4 Application of 10 CFR 50.59 Digital Modifications.

5 Therefore, future licensees can perform
6 digital upgrades using the current guidance. The
7 proposed 10 CFR Parts 50 and 52 alignment rulemaking
8 does not have any impact on 10 CFR 50.55 -- I'm sorry,
9 50.55a, Paragraph (h), rule that incorporates by
10 reference IEEE Standard 603-1991.

11 The staff will review I&C system design
12 submitted under the alignment, aligned Part 50 and 52
13 rule, using current applicable review guidance
14 documents, that is NuScale, DSRs's, that's Design
15 Specific Review Standard, Chapter 7, Design Specific
16 Re Review Guidance for Non-LWR Designs and Modernize
17 Standard Review Plan, Chapter 7.

18 So I'm going to go on to Slide 18 and then
19 I'll take questions if you guys don't mind.

20 MEMBER BROWN: I think I've got my hand
21 up. I just spoke.

22 MR. O'DRISCOLL: All right. Go ahead.

23 MEMBER BROWN: This is Charlie Brown
24 again. I think I remembered asking one additional
25 question when we, I don't want to say terminated,

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1 when we finished this discussion in the subcommittee
2 meeting.

3 You went through all the same comments
4 during our discussion in the subcommittee meeting.
5 And you've highlighted it here, I think, correctly,
6 based on that memory. Anyway the one question I think
7 I did ask that I'm not sure you addressed was in the
8 process of doing -- this had to do with a severe
9 accident. I think it was Items 9 and 10 --

10 MR. O'DRISCOLL: Yes.

11 MEMBER BROWN: -- in the listing. And
12 while you're saying all these things don't affect
13 anything, did industry have any comment on this? Do
14 they agree with you?

15 MR. O'DRISCOLL: We have yet to put this
16 proposed rule out for public comment.

17 MEMBER BROWN: Okay. So we will find out.
18 That's okay.

19 MR. O'DRISCOLL: Absolutely, yes.

20 MEMBER BROWN: Okay. All right. I will
21 remain silent for now.

22 MR. O'DRISCOLL: Okay.

23 MEMBER BROWN: And then we'll see how it
24 goes when it goes for public comment. Okay?

25 MR. O'DRISCOLL: Sure. And -- sure.

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1 MEMBER BROWN: Go ahead.

2 MR. O'DRISCOLL: So we're on Slide 18. So
3 for the I&C system designs in future applications
4 submitted for design certifications or standard design
5 approvals, the staff will continue to ask for the
6 level of detail necessary to make a reasonable
7 assurance of safety finding. That is the changes we
8 are making to the definition of essentially complete
9 design are not intended to affect these reviews.

10 The use of design acceptance criteria,
11 DAC, for an I&C design is not needed. For example,
12 NuScale and the APR1400 reactor designs have been sort
13 of fine without using I&C DAC.

14 So at the February 18 Steering Committee
15 meeting, there was a lengthy discussion on the issue
16 as we said. Member Brown requested additional
17 information on this item at the full Committee
18 meeting. Specifically, Member Brown requested an
19 explanation of exactly why the new Criteria 9 and 10
20 in Section 50.59C(2) would not impact operating plants
21 today or how the criteria would impact the future
22 digital I&C upgrade or change a new plant design --
23 excuse me, or change a new plant license under Part
24 50.

25 Mr. Bley asked if the staff had any

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1 discussions or open meeting with stakeholders on how
2 these two new criteria would be interpreted and
3 requested that the staff describe them at the full
4 Committee meeting.

5 So I think I answered that question. Is
6 there any other questions on this? Okay. I'm going
7 to move on.

8 So we're on -- we're almost done. So
9 we're on Slide 19. The proposed rule would add the
10 definition of essentially complete design in the
11 definition section of Part 52. The added definition
12 would provide more clarity regarding the information
13 needed in the design certification application.

14 Improved clarity on what it means for a
15 design to be essentially complete should better focus
16 the applicant and the staff to address matters that
17 relate to safety.

18 The NRC received one comment on this item.
19 The commenter requested the NRC review a letter sent
20 to the NRC from the NEI on September 24, 2020. That
21 letter had several recommendations on the subject.
22 The staff partially agreed with that comment. The
23 staff is not proposing any further changes to the
24 regulations as a result of that comment and also the
25 proposed changes are cost beneficial to both the

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1 industry and the NRC.

2 So at the February 1 subcommittee meeting,
3 there was some discussion on the aspects of what an
4 essentially complete design should mean. These came
5 up during our discussion of the design scope and
6 sanitization of the technical area.

7 The first question was from Chairman Rempe
8 where we asked if we considered adding a definition
9 for an essentially complete conceptual design on the
10 Part 50 construction permit process.

11 Member Sunseri and Mr. Bley commented that
12 the proposed definition still leaves much to
13 interpretation and the scope of the information that
14 meets the definition is unavoidably a function of the
15 staff's review of what is initially provided to them.

16 Member Kirchner commented that there seems
17 to be a break point in Part 52 where the term
18 essentially complete design seems to apply only to
19 evolutionary light water reactor designs and not
20 designs with advanced or inherent passive safety
21 features.

22 We brought these comments and questions to
23 the staff. The staff disagrees that we should apply
24 the concept of essentially complete in any form to the
25 Part 50 process. As I said earlier, the objective of

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1 this rulemaking is not to make the Part 50 and Part 52
2 process the same but to make it such that equivalent
3 designs reviewed under each process yields similar
4 outcomes with regard to safety, security and
5 environmental protection.

6 Part 50 affords a more relaxed requirement
7 for design information, maturity and changes during
8 the construction at the construction permit stage at
9 the cost of finality. The staff acknowledges that in
10 the preliminary draft proposed rule FRN preamble when
11 characterizing a construction permit application, the
12 staff used the phrase essentially complete conceptual
13 design.

14 This language appears in our response to
15 a comment summary and the language is not as precise
16 as it should be. Therefore, the staff plans to modify
17 the FRN preamble to use the phrase for preliminary
18 design when describing construction permit
19 applications and accurately align with the language
20 used in Part 50.

21 The Part 50 regulations recognize that at
22 the construction permit stage, the design is
23 preliminary and subject to future changes unlike for
24 a design certification, combined license or operating
25 license where final design information is required and

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1 all safety issues must be resolved.

2 The guidance for meeting 50.34a and 50.35
3 is contained in the Standard Review Plan Regulatory
4 Guide 1.70. And the staff is currently developing a
5 construction permit interim staff guidance to
6 supplement the standard review plan and that
7 regulatory guide.

8 So with regard to Member Kirchner's
9 comment that there seems to be a technology breakpoint
10 built into Part 52 with respect to the requirements to
11 submit an essentially complete design for review, the
12 staff looked at this and notes that it is a good
13 comment. It's a good observation.

14 However, that was not the intent of the
15 original Part 52 rulemaking. Section 52.41, Scope of
16 Subpart, which it's titled, has a Paragraph B(1) and
17 (2). B(1) says any person may seek a standard design
18 certification for an essentially complete nuclear
19 power plant design, which is an evolutionary change
20 from a light water reactor designs of plants which
21 have been licensed in any commercial operation before
22 April 18, 1989.

23 Paragraph 2 says any person may also seek
24 a standard design certification for a nuclear power
25 plant design which differs significantly from the

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1 light water reactor design described in Paragraph B(1)
2 of this section or used a simplified inherent passive
3 or other innovative means to accomplish its safety
4 functions.

5 We believe that this apparent distinction
6 in technology was not intended. Specifically, we
7 believe that the phrase in Paragraph B(1), which is an
8 "evolutionary change from a light water reactor
9 design" is not meant to qualify what Part 52
10 applicants must submit, designs that are essentially
11 complete.

12 So why is that? Because if you go to
13 52.47, Contents of Application, the purpose of which
14 that paragraph is to describe the information needed
15 for Part 52 license applications specifically does not
16 -- that paragraph specifically does not make a
17 distinction between these two classes of designs.

18 That paragraph is divided into C(1) for
19 evolutionary designs, C(2) for designs that differed
20 significantly from light-water reactor designs
21 described in Paragraph C(1) or used as simplified and
22 inherent, passive or other innovative means to
23 accomplish safety functions and Paragraph C(3) for
24 modular nuclear reactor designs. Of note is that the
25 Paragraph C(1) and C(2) both specifically require an

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1 essentially complete design.

2 Therefore, as a result of these comments
3 and this rulemaking, the staff plans to remove the
4 term "essentially complete" from 10 CFR 52.41B(1) and
5 ensure "essentially complete" is used consistently
6 within 10 CFR 52.47C(1) through (3).

7 Are there any questions on this topic? I
8 see one question. Member Kirchner?

9 VICE CHAIRMAN KIRCHNER: Yes, Jim. I
10 agree with your -- just one member's opinion. Your
11 approach to 50, the use of the terminology preliminary
12 design I think is appropriate.

13 I was going to make the same points that
14 you just did about the content of application under 52
15 both in the content Section 52.40 -- I'm probably not
16 going to get the numbers right, but C(1) and (2) --

17 MR. O'DRISCOLL: Yes.

18 VICE CHAIRMAN KIRCHNER: -- both ask for
19 an essentially complete design. Are you actually
20 going to create a definition for essentially complete
21 design or are you just going to stand by -- I think
22 your preamble in 52.47 really suggests what you're
23 looking for because it suggests a design of such
24 maturity that you would be able to look at procurement
25 specs, installation specs and construction specs for

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1 that design.

2 So obviously in my experience, that's a
3 pretty -- you're pretty advanced in the design
4 process. And also in 52 you ask for an FSAR. So that
5 suggests a much more mature and complete design than
6 the 50 process does using the two steps of the CP and
7 OL, so as long as there is consistency in the 52
8 language.

9 So if I understand you correctly then in
10 52.41, you're going to strike -- in B(1) you're going
11 to strike essentially complete and then just leave it
12 in the content of application section in C(1) and (2)?

13 MR. O'DRISCOLL: Yes, sir.

14 VICE CHAIRMAN KIRCHNER: Okay. Thank you.

15 MR. O'DRISCOLL: Okay. We're going to
16 move on to the next item. Oh, we're done.

17 MEMBER BIER: We're done.

18 MR. O'DRISCOLL: So I've completed my
19 discussions?

20 MEMBER BIER: Yes. I've been impressed
21 how intricate these discussions are that even after
22 two subcommittee meetings, there's still a lot of
23 details to go over. So thank you for your patience
24 with this.

25 In the interests of time, I'm thinking we

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1 should just go to public comment now.

2 MR. O'DRISCOLL: Okay.

3 MEMBER BIER: Do we have any comments or
4 questions from members of the public who want to state
5 their views, either you can unmute yourself, which I
6 is, I think star 6 or just on Teams? And right now I
7 hear none.

8 So, Joy, I'm thinking this might be a good
9 time for a break? I'm the sure the Committee will
10 have a lot of internal discussions but.

11 CHAIRMAN REMPE: So thank you, Vicki. I
12 appreciate you leading us through this topic. And it
13 was a complex one, and I did let us go over.

14 We have to follow the agenda. And the
15 agenda did give us between 10:00 to 11:00 for letter
16 writing, but we're halfway through that period and
17 members haven't had a break all morning and some
18 members have puppy dogs that they need to walk is
19 something that a lot of times I hear.

20 So I'm to the point where I think we
21 should just break. And we do have the subcommittee
22 for P&P that starts up at noon East Coast time. And
23 so how about giving everybody an extra half hour at
24 this point for their break or whatever.

25 And later this afternoon there is a time

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1 that would start at 3:45 p.m. And at that time, we
2 would let you read in your draft letter and discuss it
3 after we get through the afternoon topic on source
4 terms.

5 Did I correctly interpret the schedule on
6 the time because I'm looking at a computer that's
7 based in Idaho. But I believe that I've got a handle
8 on where we are in this time frame and that's the best
9 approach. Do I hear any concurrence from members or
10 disagreements?

11 VICE CHAIRMAN KIRCHNER: Joy, this is
12 Walt. I kind of lost an hour in your scheduling. Are
13 you proposing that we -- we don't have P&P starting
14 until 12:00 Eastern time. It's 10:30 Eastern time.
15 Is that correct?

16 CHAIRMAN REMPE: Okay. Right now it's
17 about 10:30 Eastern time. And at 11:00 was the in
18 time for our letter writing, which only give us a half
19 hour, and we've not had a break.

20 So I'm proposing we defer the letter
21 writing and discussion of the draft letter until this
22 afternoon, which gives us a longer lunch hour, but we
23 didn't have a break. And if I give us 15 minutes
24 break, there's not time to bring up the draft letter
25 and even read it let alone have comments. So why

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1 don't we just wait is what I'm proposing, Walt. Okay?

2 VICE CHAIRMAN KIRCHNER: I'm just missing
3 the math here.

4 CHAIRMAN REMPE: Maybe I've missed the
5 math.

6 VICE CHAIRMAN KIRCHNER: The P&P is
7 scheduled for 12:00.

8 CHAIRMAN REMPE: Right now if we came in
9 15 minutes, Walt, we'd have 15 minutes until 11:00.

10 MR. MOORE: This is Scott. P&P is
11 scheduled from noon to 1 o'clock East Coast time.

12 CHAIRMAN REMPE: Right. So if we came
13 back here at 10:45, if I gave us 15 minutes, we'd have
14 15 minutes before we were supposed to break according
15 to the agenda for lunch, which would be 11:00 to noon
16 East Coast time.

17 Now, yes, we could work through lunch but
18 I know we're not supposed to do that because of FACA
19 and the Federal Register Notice. And so I'm proposing
20 that we just take an hour and a half for "lunch."
21 We'll come back at noon, which I believe you're on my
22 time, Walt, which would be 10 o'clock Mountain Time,
23 right?

24 VICE CHAIRMAN KIRCHNER: Correct.

25 MEMBER DIMITRIJEVIC: That's (simultaneous

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1 speaking), right, Joy? But everybody else comes back
2 at 1:00, right?

3 CHAIRMAN REMPE: Right. Everyone else has
4 a very long lunch hour unless they want to come to the
5 -- everyone is invited to the subcommittee for P&P
6 also but that's what I'm proposing.

7 MEMBER DIMITRIJEVIC: Thank you.

8 CHAIRMAN REMPE: And then for the staff,
9 I apologize that we ran over, but it was a worthwhile
10 discussion. And I really appreciate you going into
11 these items we raised. I hope you'll be able to come
12 back at 3:45 East Coast time. Is that okay with your
13 team, Jim?

14 MEMBER O'DRISCOLL: That's okay with me.
15 I leave it to ask Omid. Are you good?

16 MR. TABATABAI: Yes, 3:45 is good. I will
17 be attending the letter writing session, Chairman
18 Rempe.

19 CHAIRMAN REMPE: I appreciate it. Thank
20 you. And, again, sorry we went over, but I allowed
21 it.

22 MEMBER BIER: Joy, Dennis has his hand up.
23 I don't know if that's still from before?

24 CHAIRMAN REMPE: Who has their hand up?

25 MEMBER BIER: Dennis.

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1 CHAIRMAN REMPE: Oh, Dennis. Did you have
2 a question or comment, Dennis?

3 DR. BLEY: I just had a short comment.
4 This Committee doesn't advise the staff how to manage
5 their staff. But I've reflected several times over
6 the years on something I've noticed. And that is when
7 there is a successful project, be it a nuclear plant
8 or whatever kind of project and you dig into it, you
9 find somewhere there's a champion, a person highly
10 involved, principal investigator or something who
11 really knows everything that's going on. And I just
12 want to compliment Jim. He's a champion in this role.
13 And your ability to address almost every question that
14 was raised was very impressive. Thank you.

15 CHAIRMAN REMPE: I agree. Sometimes you
16 were so good that I have trouble processing. But you
17 did a great, Jim, and I appreciate it.

18 MR. O'DRISCOLL: I'm blushing.

19 CHAIRMAN REMPE: Okay. So, everyone, I
20 didn't hear any strong disagreement with what I've
21 proposed, a longer lunch hour. And those of us who
22 come back at noon for P&P, we'll be here. And it's
23 actually on the same link for Microsoft Teams. It's
24 an open public link. And I'll see everybody then that
25 wants to join us. Okay? Thank you.

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1 (Whereupon, the above-entitled matter went
2 off the record at 10:35 a.m. and resumed at 1:01 p.m.)

3 CHAIRMAN REMPE: Okay, everybody. It's
4 1:00 p.m. on the East Coast. And I'm going to
5 reconvene for the first day of the 693rd Meeting of
6 the ACRS to verify that we have a quorum and that
7 clear communications exist. I'm going to again call
8 roll. Vicki Bier?

9 MEMBER BIER: Yes.

10 CHAIRMAN REMPE: Thank you. Ron
11 Ballinger?

12 MEMBER BALLINGER: Here.

13 CHAIRMAN REMPE: Charles Brown? I'll come
14 back (simultaneous speaking).

15 MEMBER BIER: Joy, Charlie was going to
16 walk his dog and be back in a minute.

17 CHAIRMAN REMPE: Oh, okay. Vesna
18 Dimitrijevic.

19 MEMBER DIMITRIJEVIC: I'm here.

20 CHAIRMAN REMPE: Thank you. Greg Halnon?

21 MEMBER HALNON: Here.

22 CHAIRMAN REMPE: Thanks. Walt Kirchner?

23 VICE CHAIRMAN KIRCHNER: Here.

24 CHAIRMAN REMPE: Thank you. Jose March-
25 Leuba?

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1 MEMBER MARCH-LEUBA: Yes.

2 CHAIRMAN REMPE: Dave Petti?

3 CHAIRMAN REMPE: Yes.

4 CHAIRMAN REMPE: And Matthew Sunseri?

5 MEMBER SUNSERI: Here.

6 CHAIRMAN REMPE: So we have a quorum, and
7 Charlie will be joining us later. At this point, I'm
8 going to ask Member Petti to lead us through the topic
9 for this afternoon, which is the integration of source
10 term activities. And, Dave, I'll turn it over to you.

11 MEMBER PETTI: Thank you. So as we came
12 out of subcommittee two weeks ago as most of you know
13 since I think you were all there, we had a really in-
14 depth briefing from the staff on this topic. And I
15 said that I would put together a couple slides, that
16 the staff didn't have to give another summary here,
17 that I would put together a number of slides about why
18 I thought it was important that we write a letter.

19 And so I think I have a slide on sort of
20 why and then a little bit, I have a high level
21 conclusion and recommendations. And if the full
22 Committee agrees with the letter, I have that letter
23 ready to be worked on.

24 So, you know, I think as you all know, the
25 source term is really the raison d'être for the NRC,

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1 right? If we didn't have radioactive material in a
2 nuclear system, what would we be regulating for?

3 Also I think it's important that being
4 able to develop a source term that can receive
5 regulatory approval is really critical to the success
6 of any of the new reactor design and licensing,
7 whether that be something like NuScale, which we had
8 seen had a slightly different approach to the advanced
9 reactor designs that are going to look very different
10 and have very different source terms.

11 Also on October 8, we had one of our
12 periodic meetings with the commissioners. And during
13 that meeting, we discussed our plans to perform an
14 integrated review of the source term activities. And
15 we stated that a roadmap showing how all the pieces
16 fit together would be worthwhile.

17 So it seems like, in my opinion, we need
18 to put a letter together to kind of, you know, close
19 on this issue A. B, the staff spent a lot of time on
20 it and felt it was important to give them the credit
21 here in this area.

22 Joy, your hand is up?

23 CHAIRMAN REMPE: So I'd like to explore
24 this last bullet a bit more. It's true that there was
25 a slide in your presentation that said that we plan to

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1 perform an integrated review of source term
2 activities.

3 And it's true that there was a bullet that
4 said a roadmap showing -- I think it almost said we
5 recommended that a roadmap showing how all the pieces
6 fit together would be worthwhile. But was that last
7 statement ever in any of our letters?

8 MEMBER PETTI: Oh, I don't think so.

9 MR. BLEY: This is Dennis. And, Dave, if
10 I could.

11 MEMBER PETTI: Go ahead.

12 MR. BLEY: We did write a couple of
13 letters that referred to the source term. My memory
14 -- I don't have them out in front of me -- is we never
15 actually used the word roadmap here, but we said
16 guidance was really needed for these new ones. So we
17 said that multiple times.

18 CHAIRMAN REMPE: It's true we said the
19 guidance was needed. But we never had in our letters
20 the word roadmap. And I remember discussing this,
21 Dave, a while ago with you before the presentation
22 because there were a lot of things that I said, hey,
23 that's not in the letter. We pulled it. And I let
24 this one go because your response was, well, I've been
25 talking to the staff and we both, the staff and I,

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1 came to the conclusion that a roadmap was needed.

2 And I just want to make sure that it's
3 clear in everyone's mind because, again, if we write
4 a letter, I don't want it to be implying that -- it
5 would be great for us to say better guidance or a
6 roadmap is needed on that web page, but I think we
7 need to be careful about what we've said in the past
8 in our letters.

9 And I wouldn't -- we actually should be
10 careful, too, about what we present and make sure it's
11 clear when it's a single member's opinion or it's a
12 paraphrasing and things like that. But I want to make
13 sure everyone understands that point. Okay?

14 MEMBER PETTI: Yes. I think the staff --
15 and when we had the discussion with the staff, we
16 agreed that a presentation on this topic would be very
17 useful so.

18 Next slide, Mike. Oh, okay. So I move
19 in. So here's the first conclusion and
20 recommendation. The regulatory basis for the source
21 term is widely disbursed -- I'm going to not read it
22 word for word -- in numerous documents focused on
23 LWRs. The dedicated website being developed by the
24 staff is designed as a one-stop shop to capture the
25 information and keep applicants up to date.

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1 The applicants and stakeholders would also
2 benefit from consolidated guidance to determining if
3 the acceptable attributes are suitable for a
4 particular design. And in particular if the staff
5 provides an overview on the website explaining how the
6 applicant can best use this information in concert
7 with pre-application consultations with the staff,
8 applicants will be better prepared to develop a high
9 quality submittal.

10 The next two -- the staff has expanded
11 significant effort evaluating system accident response
12 for the ranger technologies anticipated from future
13 applicants as described in the Non-LWR Vision and
14 Strategy, Volumes 1, 2 and 3, with computer code
15 development. The development of the computer codes
16 for confirmatory analysis of these non-LWR technology
17 should promote expeditious reviews of current and
18 future applications.

19 And the third was a clear common
20 definition of maximum hypothetical and maximum
21 credible accident should be established along with
22 guidance on how it should be developed to assist
23 potential applicants that would use this concept in
24 their licensing strategy.

25 CHAIRMAN REMPE: Dave, I do have some

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1 questions or comments. First of all, a comment on --
2 you don't have to go back to the slide on C&R 1. And
3 I was going through -- again, I'm new at being
4 Chairman. And sometimes when there's these very
5 length C&Rs in some of the statements, it's hard to
6 tell what's a conclusion and what's a recommendation.
7 And we always have to figure whether it's plural or
8 singular on C&Rs.

9 Now there's enough here I don't think that
10 will be a problem with your letter. But be careful
11 because sometimes I think that some of this is almost
12 wishful thinking. But I'd like to go on to my real
13 point here on the next slide.

14 A big point that I was trying to make
15 during this meeting is that I do like the reference
16 plan evaluations. And I think the staff has done a
17 great job. But if we're going to commend them for it,
18 I really would like to see them go further because the
19 insights they are gaining about whether there is not
20 only gaps in the data, but the gaps are important is
21 an important thing that needs to be communicated to
22 the design developers with these new technologies
23 because, yes, there's a lack of data, but some data
24 isn't as important as other data.

25 And, of course, we're assuming that these

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1 current models are correct for these technologies.
2 But if we're going to buy-in with that, then they
3 could really help with showing that this piece of data
4 is going to be very important. And if you don't have
5 it, you need to get it.

6 MEMBER PETTI: That's in the letter. And
7 if you want to --

8 (Simultaneous speaking.)

9 CHAIRMAN REMPE: That's the thing I would
10 put up because --

11 (Simultaneous speaking.)

12 MEMBER PETTI: Yes, I don't have a problem
13 with that at all.

14 CHAIRMAN REMPE: Yes. I think it's an
15 important thing. If we're going to do this, let's --
16 again, at the end of the meeting, I said, you know,
17 these are individual member's comments, and you can
18 take or leave them. But I feel important in this --
19 that this is important. But the staff did respond and
20 say, yes, we've got them. And so, you know, again,
21 the rules of the game have always been, well, if you
22 write the letter, let's make sure all the important
23 ones are highlighted in the conclusions and
24 recommendations. Okay?

25 And then the last thing, I thought Walt

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1 and other folks -- it was on the Part 50 and 52
2 discussion where it came across, and it was actually
3 a staffer, Michelle Hart, who came up with what her
4 opinion was about the difference between a maximum
5 credible accident versus a maximum hypothetical
6 accident and that there is a difference.

7 And so I would make this that there's two
8 definitions, one for each of these things if we're
9 going to do this because I think that there is --
10 perhaps there is a difference of opinion on what the
11 difference between a maximum hypothetical accident is
12 or a maximum credible accident and that needs to be
13 documented by the staff.

14 So anyway, if we're going to do this, I
15 would change this last bullet to be the fact that
16 there are two things that need to be defined. Or if
17 they're the same thing, then staff should say they're
18 the same thing, and we're not going to distinguish
19 between them. But it's (simultaneous speaking).

20 MEMBER PETTI: I got confused. That's why
21 I asked the question in the context of 50 and 52
22 because I heard it put together, and I've heard them
23 separately. So it was very confusing to me whether
24 they were two separate things or the same thing. And
25 I think it maybe might depend on the context.

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1 (Simultaneous speaking.)

2 VICE CHAIRMAN KIRCHNER: Dave, this is
3 Walt. Part 52 is pretty explicit. It's a maximum
4 hypothetical accident is what is required in using the
5 52 process.

6 MEMBER PETTI: Okay.

7 VICE CHAIRMAN KIRCHNER: It's not an or.
8 Now the applicant may define, well, for my system this
9 is the most maximum credible accident, but at least 52
10 requires that you postulate a maximum hypothetical
11 accident.

12 MEMBER PETTI: Right. And Part 53 --

13 VICE CHAIRMAN KIRCHNER: I just say that
14 as a clarification.

15 MEMBER PETTI: Yes. Part 53 --

16 MEMBER DIMITRIJEVIC: Walt and Dave,
17 didn't we just discuss this morning credible as a part
18 of alignment between 50 and 52 for like a half hour?
19 And then they never said hypothetical. They said
20 credible. So I am not sure that's really 52 means
21 hypothetical if now we just discussed credible today.
22 Remember this morning that we were discussing credible
23 --

24 MEMBER PETTI: Yes, yes, yes, yes.

25 MEMBER DIMITRIJEVIC: -- actually.

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1 VICE CHAIRMAN KIRCHNER: No, I do, Vesna,
2 yes, thank you. I'm not sure what the staff's intent
3 is on changing the language. But I was just making
4 the distinction that 52 asks you, as an applicant, to
5 postulate a maximum hypothetical accident. I don't
6 think it uses the terminology credible accident.

7 MEMBER HALNON: Yeah. This is Greg. I
8 thought that the staff -- and I have to go back and
9 look at the transcript. One gentleman jumped in and
10 said they were actually writing a definition in one of
11 the draft documents that from what I heard made them
12 equate them as probably the same interchangeable. But
13 I got to go back and look at the transcripts to be
14 sure. So just to add to the confusion, I think that
15 or should be an and.

16 MEMBER PETTI: Yes, yes, no, that's fine.
17 Yes, I agree. No, I'm not sure that's right, Greg,
18 because that was exactly my question, and I thought
19 they answered it as no. They are two different
20 things. And it certainly was in Michelle's mind. She
21 had two different ideas. So, yes, I think a little
22 bit of clarity here would help.

23 MEMBER HALNON: Yes, I think so.

24 DR. BLEY: Dave?

25 MEMBER PETTI: Yes?

1 DR. BLEY: This is Dennis. Certainly
2 historically there's been a difference if you go all
3 the way back to the 50s and come from then. There
4 have been times over the history of the AEC and NRC
5 where the same initials, acronyms, have changed actual
6 word meaning so that might be where the staff is
7 headed to bring them together, but historically they
8 were different.

9 MEMBER PETTI: Okay. I think that's all
10 I have for the slides. I think it's -- oh, no, it
11 isn't. There it is. Okay. So here's just to give
12 you an idea of what the letter looks like. There's a
13 background, about 15 lines. I tried to summarize the
14 regulatory basis and discuss all the documents that
15 touch on source term that kind of show that it is
16 somewhat distributed and sets the stage.

17 Observation on source term development,
18 these are sort of -- it's a real technical meet.
19 These are basically things I gleaned from all the
20 presentations, or a number of the presentations, and
21 just try to put a focus on them because I thought they
22 were the important things and then talk about the work
23 on the website and then a summary. So it's not a very
24 long letter. It depends on what font you use, I
25 guess.

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1 CHAIRMAN REMPE: So at one point you were
2 going to say more than the website is needed, like
3 guidance is needed. And I'm not sure that you are
4 still feeling that way because I guess, again, another
5 point I tried to make during the meeting is as I
6 recall, the person sending it said, oh, there's a typo
7 on this website, and we're going to fix it. And that
8 happens a lot with websites. it's not like a document
9 that gets reviewed ,and it's there. Even if you give
10 it, and there are still errors in the document. It's
11 issued. The website you fix it and you update, you
12 know, last modified date at the bottom, and you go on.

13 And are you going to try and recommend
14 that they do something a little more concrete? Are
15 you going to say, no, it's changing so fast this is
16 the best I can do?

17 MEMBER PETTI: Yes. I think I moved away
18 from more guidance at least in the near-term just
19 because I think they've got so much on their plate.

20 CHAIRMAN REMPE: So not even some sort of
21 roadmap is needed anymore?

22 MEMBER PETTI: I think that the website
23 fulfills that function. Hold on. No, I do. I'm
24 sorry. I wrote this. I do say that the benefit from
25 consolidated guidance to aid in determining acceptable

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1 applicants. What I didn't say is what that guidance
2 should look like. Should it be something that's on
3 the website? Should it be a separate document? I
4 leave that up to them. I'm kind of silent on that.

5 CHAIRMAN REMPE: So, again, I think as we
6 decide to do a letter that some acknowledgment of the
7 fact that websites are temporal and can easily be
8 fixed. I think a website is great as a way to start.
9 But I'm wondering if maybe something a little more
10 concrete is needed or something or at least we should
11 acknowledge that websites are not the same, you know,
12 firmness. And given that the landscape is changing so
13 fast this is probably the right level to hit on it,
14 but acknowledge that something -- that it is very
15 easily changed.

16 DR. BLEY: Joy, this is Dennis again.
17 Maybe somebody on the staff could help. But over the
18 last up to 10 years, the staff has put a number of
19 tools for themselves and other kinds of information
20 into websites that are well controlled.

21 And I think if you folks do write a
22 letter, and I would recommend you do because we've
23 raised this issue so many times -- where was I going?
24 With the website, maybe somebody from the staff can
25 talk about the kind of control they will have on that

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1 and if they've got examples where in fact guidance is
2 presented on the NRC website and is under the same
3 kind of control that you have on a document.

4 CHAIRMAN REMPE: Dennis, you know, even if
5 it's controlled, when I do references to a website and
6 publications that are archival, you always put last
7 access, whatever date, because it's recognized that
8 websites can change their information. I mean, that's
9 (simultaneous speaking).

10 DR. BLEY: That's very reasonable because
11 you put revision numbers on your documents. But I
12 think rather than speculating if the staff can address
13 that, I think it would be helpful. And it doesn't
14 sound like they are ready to do that so I withdraw
15 that recommendation.

16 MR. SEGALA: This is John Segala, Chief of
17 the Advanced Reactor Policy Branch and NRR. You know,
18 we put this website together, you know, to serve as a
19 roadmap and to provide easy access to anybody who is
20 interested in terms of where to find, you know,
21 information on source term.

22 Even as a result of the subcommittee
23 meeting that we just had on source term, we went in,
24 and we added some information on NUREG-1537, you know,
25 the guidance that is there for non-power reactors, you

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1 know.

2 So we definitely plan to keep that website
3 up-to-date. And that website references official, you
4 know, NRC documents. So even as we update, you know,
5 the text on the website, it's still going to be
6 referencing official ADAMS, you know, documents that
7 are in our agency-wide document management system.

8 So, you know, we have been -- you know we
9 created our advanced reactor public website back in
10 2016. And we've been updating it on a regular basis.
11 And so we do put a conscious effort into keeping the
12 advanced reactor related websites up-to-date. And
13 this source term website is a page off of our advanced
14 reactor overall web page. I don't know if that --

15 DR. BLEY: Hey, John?

16 MR. SEGALA: -- answers your questions or
17 not.

18 DR. BLEY: John? It's Dennis. I think
19 so. And I played around on the website and found
20 things that I wouldn't have been able to find without
21 it, I think.

22 The website itself is not guidance. It
23 points you to the guidance, correct?

24 MR. SEGALA: Yes.

25 DR. BLEY: Dave, I didn't have anything

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1 else.

2 MEMBER PETTI: Oh, okay. Thanks.

3 Members, any other comments? Well, as the
4 subcommittee chair, I'd like --

5 VICE CHAIRMAN KIRCHNER: Dave?

6 MEMBER PETTI: Yes?

7 VICE CHAIRMAN KIRCHNER: Dave, this is
8 Walt. If I might ask John, who is with us, the
9 intention is to have Draft Guide 1389 as the next
10 revision to Reg. Guide 1.183. That's really LWR
11 specific. Is there any one stop shop place for a non-
12 LWR to develop its source term? What would be the
13 last Reg. Guide that you would refer someone to?
14 Would it be 1.183 and then modify it for non-LWR
15 technology?

16 MEMBER PETTI: John, you're muted.

17 MR. SEGALA: Yes. thank you. I don't
18 know if maybe Michelle Hart can add. I think there is
19 general information in Reg. Guide 1.183 on how to
20 develop a source term so a non-light water reactor
21 developer can start with that information, you know,
22 to develop either their design specific source term or
23 even scenario specific source term.

24 So there's a lot of good information in
25 there even though it's light water reactor specific

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1 for the majority of the Reg. Guide. And then we have
2 other information, you know, that's on the website
3 that non-light water reactor developers could use.

4 We also have, you know, the licensing
5 modernization project in our Reg. Guide 1.233 that
6 endorses that document, the non-light water reactor
7 PRA standard. You know, there's lots of the melt core
8 scale workshops that we've done and whatnot.
9 Michelle, are you on?

10 MS. HART: I'm here. Yes, I don't think
11 that there's anything additional to add to that. I
12 will say that we do not have a plan to provide a
13 source term for the reactors like we do in Reg. Guide
14 1.183.

15 The other features of a consequence
16 assessment you can use the information in there, you
17 know, pretty easily. But the development of the
18 source term, maybe you can look at the basis for the
19 source term that's in Reg. Guide 1.183 for light water
20 reactors and you, as a non-light water reactor
21 applicant, would be able to figure out, well, what
22 information do I need to come up with similar types of
23 information for my reactor is kind of the thought
24 behind that.

25 VICE CHAIRMAN KIRCHNER: You know, the

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1 reason I asked this was because it seems to me that
2 it's very useful to have all of this information on
3 a website and such. But it seems to me, Dave, right
4 now that rather than use the term roadmap, that
5 suggests one -- it goes through all these documents to
6 figure out what your source term should be.

7 It seems to me right now that 1.183 as
8 revised in DG-1389 is the latest and greatest
9 resource, so to speak, that an applicant should look
10 at. And then if that applicant is a non-LWR
11 technology, then one is going to have to supplement
12 accordingly to develop a mechanistic source term.
13 Does that make any sense? I mean, rather than ask the
14 staff to develop a roadmap, I'm a little -- I guess I
15 shared Joy's concern as well.

16 I think rather than a "roadmap", one
17 should be pointing specifically to a Reg. Guide that
18 provides an acceptable approach for developing a
19 source term --

20 MEMBER PETTI: (Simultaneous speaking.)

21 VICE CHAIRMAN KIRCHNER: -- supplemented
22 by the Sandia and INL Reports, et cetera, et cetera.

23 MEMBER PETTI: There's an appendix in one
24 of these documents. And I keep getting confused. I
25 thought it was in 1.183. But maybe it's in the -- I'm

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1 not exactly sure. But it kind of provides sort of an
2 overview of what it takes to put together a source
3 term. Michelle, do you know which Reg. Guide that's
4 in?

5 MEMBER HALNON: Dave, that's in the EP --
6 well, the Appendix B in the new EP?

7 MEMBER PETTI: Okay. That's what I was
8 remembering. That was maybe the one so.

9 MEMBER HALNON: I think it's 1.242, I
10 think.

11 MS. HART: Yes. It's Reg. Guide 1.242.
12 It has a discussion on considerations for source
13 terms, how to develop source terms. And that is for
14 the emergency preparedness rulemaking.

15 CHAIRMAN REMPE: I haven't checked this
16 website recently. But is Reg. Guide 1.242 pointed to
17 in the website as it is configured today?

18 MS. HART: I don't think so.

19 CHAIRMAN REMPE: Because that was
20 something that I thought we did review this EPZ
21 rulemaking that was a good source. So that might be
22 something you might want to add to this slide.

23 MR. SEGALA: This is John Segala. I was
24 just going to say that I think we were trying to point
25 to documents that are out there. I think that guide

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1 is -- you know, with the rulemaking package is up in
2 front of the Commission right now to vote on that
3 rulemaking. So once the Commission votes on that
4 rulemaking, that Reg. Guide will be issued final. And
5 then we'll add the reference to that onto our website.

6 CHAIRMAN REMPE: Actually, I just checked
7 the website. It's on there pointing to 1.242, Rev. C,
8 July 2021. So you do have it, I think, actually.
9 Sorry. Just to correct the record.

10 MR. SEGALA: No, that's okay. I was just
11 saying we won't have a reference to the final version
12 until it's issued, and the Commission approves it.

13 MEMBER PETTI: Okay. So maybe in the
14 letter, I've noticed I have a paragraph about that is
15 arguing that appendix may be a good entry point for
16 applicants thinking about a source term, that and
17 1.183 probably together.

18 So I guess the question in front of the
19 Committee is do we want a letter? I recommend that we
20 do. And it's --

21 CHAIRMAN REMPE: Do we need to have a
22 vote? And do you want me to lead the vote, Dave, or
23 how do you want to go forward here?

24 MEMBER PETTI: I don't know how we -- I mean,
25 if anyone disagrees maybe we should just, you know, by

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1 acclimation, only if you don't agree.

2 CHAIRMAN REMPE: The last time it was
3 about half and half so why don't we just go through
4 it. Okay?

5 MEMBER PETTI: Okay. That's fine.

6 CHAIRMAN REMPE: So let's call for a vote.
7 I'm going to say a yes means a letter, no means not a
8 letter. And in the past, I learned that some members
9 are undecided. So an undecided is also a legal vote
10 here. And I've got my pen to take down the votes.
11 Ron Ballinger, how do you vote?

12 MEMBER BALLINGER: Yes.

13 MEMBER REMPE: Vicki Bier?

14 MEMBER BIER: Mostly undecided, but slight
15 yes.

16 CHAIRMAN REMPE: So now I don't know how
17 to record you. Should I put a yes or a U, Vicki?

18 MEMBER BIER: Oh, I don't know. We'll see
19 how it works out at the end. But I'm fine being a U.
20 I'm not super informed on this topic so.

21 CHAIRMAN REMPE: Okay. Charlie Brown, a
22 yes, an undecided or a no.

23 MEMBER BROWN: Undecided, but I'll cancel
24 out Vicki's and say the other way.

25 CHAIRMAN REMPE: Okay. I'm putting both

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1 of you as U's. Vesna Dimitrijevic?

2 MEMBER BROWN: As what, U's?

3 CHAIRMAN REMPE: Yes. Undecided.

4 MEMBER BROWN: Oh, okay. All right.

5 CHAIRMAN REMPE: I've got to keep track of
6 this. Okay?

7 MEMBER BROWN: Thank you. Thank you. I'm
8 like Vicki. I'm not as versed in this. So I'll
9 defer.

10 CHAIRMAN REMPE: Okay. Vesna, how do you
11 vote?

12 MEMBER DIMITRIJEVIC: Yes.

13 CHAIRMAN REMPE: Greg, how do you vote?

14 MEMBER HALNON: Yes.

15 CHAIRMAN REMPE: Okay. Walt Kirchner, how
16 do you vote? Walt, are you on mute?

17 VICE CHAIRMAN KIRCHNER: Yes. I couldn't
18 find the mute.

19 CHAIRMAN REMPE: Okay. Jose, how do you
20 vote?

21 MEMBER MARCH-LEUBA: Yes, write the
22 letter.

23 CHAIRMAN REMPE: Okay. I bet, Dave,
24 that's a yes. Matt, how do you vote?

25 MEMBER SUNSERI: Yes.

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1 CHAIRMAN REMPE: Okay. And I'm an
2 undecided, but I don't see any no's. So we are going
3 to do a letter. Are you ready to switch to having --
4 do we need five minutes for -- do we want to take a
5 break. It's only been 30 minutes since we started.
6 So should we just go ahead and ask Sandra to bring up
7 the screen again?

8 MEMBER PETTI: Yes, I think she's ready,
9 yes.

10 CHAIRMAN REMPE: Okay. Sandra, are you
11 ready out there?

12 SANDRA: I'm ready.

13 CHAIRMAN REMPE: Okay. Go ahead and bring
14 up and share your screen, and we'll let Dave start
15 reading. And thank you to the staff who -- I'm sorry.
16 Court reporter, I need to say we're going to go off
17 the record. Thank you for reminding me.

18 (Whereupon, the above-entitled matter went
19 off the record at 1:32 p.m.)

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ACRS Briefing:

Content of Proposed Rulemaking to Align Licensing Processes and Incorporate Lessons Learned from New Reactor Licensing

March 2, 2022

OPENING STATEMENT

Joy Rempe – ACRS Chairman

AGENDA

**Lawrence Burkhart – ACRS
Technical Support Branch**

PROPOSED DRAFT RULEMAKING

REMARKS

**Vicki Bier – ACRS Subcommittee on
Regulatory Policies and Practices
Chairman**

**Brian Smith – Director, Division of
New and Renewed Licenses, Office
of Nuclear Reactor Regulation**

NRC Staff Presenters



Jim O'Driscoll,
NMSS
Rulemaking Project
Manager



Omid Tabatabai,
NRR
Senior Project
Manager

Today's Meeting

- Discuss the purpose and content of the proposed rule
- Discuss items of interest from the February subcommittee meetings
- Provide an update on next steps and the rulemaking schedule
- Receive ACRS members' perspectives

Purpose of the Rulemaking

- Implement Commission direction in SRM-SECY-15-0002, “Proposed Updates of Licensing Policies, Rules, and Guidance for Future New Reactor Applications,” to:
 - Align Parts 50 and 52 reactor licensing processes
 - Improve clarity
 - Incorporate lessons learned in recent licensing proceedings
 - Reduce unnecessary burden on applicants and staff

Scope of the Proposed Rule

- Number of technical areas: 11
- Number of items in scope: 61
- Items with rulemaking recommendation: 60
 - Number of items with rulemaking and guidance development or revision: 18
 - Number of guidance documents with rule: 13
- Number of 10 CFR parts affected by rulemaking: 9

Alignment of Parts 50 and 52

- The proposed rule addresses four areas where the NRC's policies and direction for new reactors have resulted in requirements and guidance for Part 52 applicants only:
 - Application of Severe Accident Policy Statement (1)
 - Probabilistic Risk Assessment Requirements (3)
 - Three Mile Island Requirements (1)
 - Fire Protection Design Features and Plans (1)

Lessons Learned from Recent Experience

- The proposed rule covers topics for which the NRC's recent experience with new light water reactor licensing has resulted in lessons learned

<p>Operator Licensing (5)</p>	<p>Physical Security (2)</p>	<p>Fitness For Duty (4)</p>	<p>Emergency Planning (7)</p>
<p>Part 52 Licensing Process (21)</p>	<p>Environmental Protection (1)</p>	<p>Applicability of Other Processes to the 10 CFR Part 52 Process (5)</p>	<p>Miscellaneous Topics (9)</p>

Estimates of Costs and Savings

- Total net averted costs to industry and the NRC between \$16.1 million and \$25.5 million
- To account for sensitivity to plant-specific conditions, the NRC staff performed an uncertainty analysis, which found that the chance of net averted costs is greater than 99%
- Rulemaking would yield unquantified benefits as well (regulatory efficiency, public confidence)

Topics for Further Discussion

- Relationship to non-LWRs
- Cumulative effects of changes to the design when the plant is built
- Use of probabilistic risk assessment in design
- Cutoff accident frequency for “credible” accidents
- Flexibility for changes related to digital I&C
- Definition of “essentially complete design”

- Cross-cutting item
- The item was added in response to public comments on the regulatory basis
- The goal of the discussion and proposed changes is to explain how this rulemaking activity fits with other licensing process efforts and rulemakings that relate to non-light water technology

Cumulative Effects of Changes During Construction

- Part 50 and Part 52 remain distinct processes
- Part 52 is based on:
 - Essentially complete nuclear plant design
 - Final design information
 - Resolution of all safety issues
 - Finality for resolutions in subsequent proceedings

Use of Probabilistic Risk Assessment in Design

- Change: Extend the current PRA requirements in Part 52 to apply to Part 50 power reactor license applicants
- Affected regulations:
 - § 50.34(a), “Preliminary safety analysis report”
 - § 50.34(b), “Final safety analysis report”
- Aligns Parts 50 and 52 on the use of PRA in the design of the facility and ensures that similar risk information is supplied in applications for new power reactor CPs or OLs under Part 50
- Public comments:
 - Ten comments; expressed concern over changes and need for clarification on how to meet requirements
 - In response to comments, NRC changed the cost model to reflect the significant effort required to complete an upgrade prior to loading fuel
- Cost/benefit: Development of PRA, rulemaking; qualitative

Cutoff Accident Frequency for “Credible” Accidents

- A discrete cutoff accident frequency for credible accidents is not defined
- The changes to 10 CFR 50.59(c) would align the Part 50 change process with Part 52 with regard to consideration of severe accidents
- This rulemaking does not further define “credible” or what is “substantial”

Review of Changes Related to Digital I&C

- Endorsement of NEI 96-07 Appendix D unaffected
- RG 1.187 unaffected
- Current interim staff guidance unaffected
- No changes to 10 CFR 50.55a(h) in this rulemaking

Review of Changes Related to Digital I&C (cont'd)

- Staff will ask for the level of detail necessary to meet a safety finding
- Design acceptance criteria are not needed
- Proposed change process for standard design approvals would use current methods

Clarify the Phrase “Essentially Complete Design”

- Change: Add standardized definition of “essentially complete design” to Part 52
- Affected regulations:
 - § 52.1, “Definitions”
- Add clarity and efficiency; reduce scope of information needed for review
- Public comments:
 - Review September 24, 2021 NEI letter to NRC
- Cost/benefit: Cost-beneficial

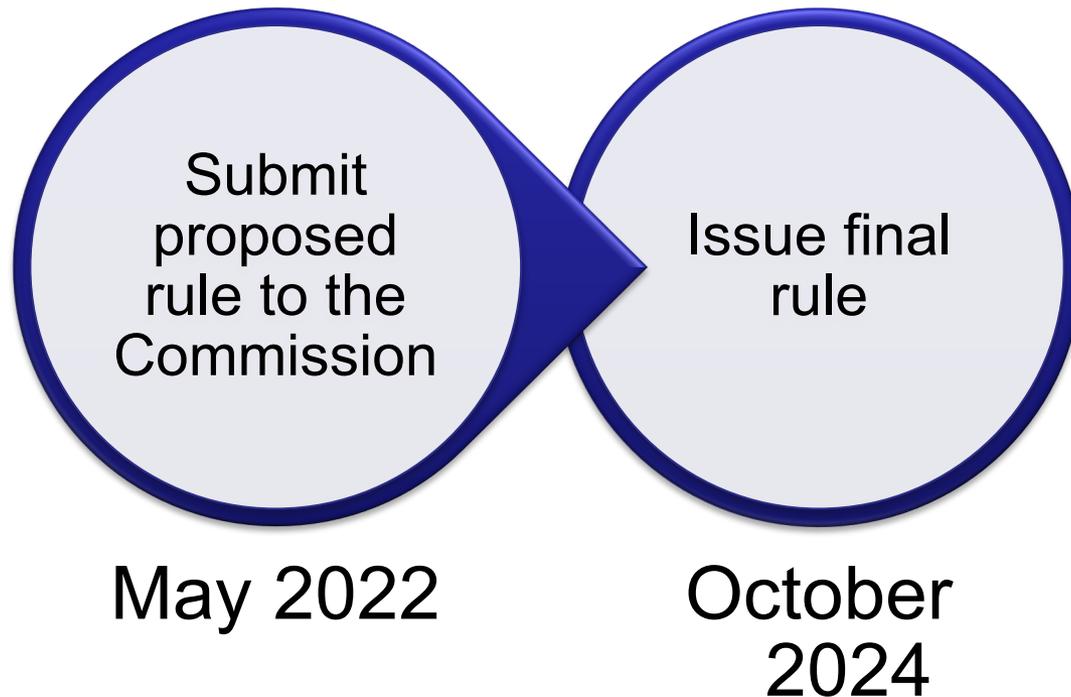
Questions



Recap and Next Steps

- Complete concurrence on draft proposed rule
- Submit the proposed rule to the Commission
- Plan for additional public meeting(s) during the public comment period for the proposed rule

Rulemaking Schedule



Contact Information



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SUPPORTING INFORMATION

Abbreviations

ACRS	Advisory Committee on Reactor Safeguards	LAR	License Amendment Request
ADAMS	Agencywide Documents Access and Management System	LWR	Light-Water Reactor
AEA	Atomic Energy Act of 1954, as amended	ML	Manufacturing License
CFR	Code of Federal Regulations	NEI	Nuclear Energy Institute
COL	Combined License	NEIMA	Nuclear Energy Innovation and Modernization Act
CP	Construction Permit	NMSS	Office of Nuclear Material Safety and Safeguards
DAC	Design Acceptance Criteria	NRC	Nuclear Regulatory Commission
DC	Design Certification	NRR	Office of Nuclear Reactor Regulation
DG	Draft Regulatory Guide	OL	Operating License
ECCS	Emergency Core Cooling System	PRA	Probabilistic Risk Assessment
EP	Emergency Planning	RG	Regulatory Guide
ESP	Early Site Permit	SDA	Standard Design Approval
FFD	Fitness For Duty	SECY	Office of the Secretary
FRN	<i>Federal Register</i> Notice	SRP	Standard Review Plan
FSAR	Final Safety Analysis Report	SSC	Structure, System, and Component
I&C	Instrumentation and Controls	STP	South Texas Project
ISG	Interim Staff Guidance	TMI	Three Mile Island
ITAAC	Inspections, Tests, Analyses, and Acceptance Criteria		

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Regulatory Guide 1.70, Revision 3, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," dated November 1978	ML011340122
SECY-90-241, "Level of Detail Required for Design Certification Under Part 52," dated July 11, 1990	ML003707877
IEEE Std. 603-1991, "Standard Criteria for Safety Systems for Nuclear Power Generating Stations," dated December 31, 1991	https://ieeexplore.ieee.org/document/159411
NEI 01-01/EPRI TR-102348, Revision 1, "Guideline on Licensing Digital Upgrades," dated March 2002	ML020860169
NEI 00-04, Revision 0, "10 CFR 50.69 SSC Categorization Guideline," dated July 2005	ML052910035
Regulatory Guide 1.201, Revision 1, "Guidelines for Categorizing Structures, Systems, and Components in Nuclear Power Plants According to Their Safety Significance," dated May 2006	ML061090627
NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Chapter 13.3, Revision 3, "Emergency Planning," dated March 2007	ML063410307
NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Chapter 19.1, Revision 3, "Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," dated September 2012	ML12193A107
Regulatory Guide 4.7, Revision 3, "General Site Suitability Criteria for Nuclear Power Stations," dated March 2014	ML12188A053
NEI 96-07, Appendix C, Revision 0 – Corrected, "Guideline for Implementation of Change Processes for New Nuclear Power Plants Licensed Under 10 CFR Part 52," dated March 2014	ML14091A739
"Results of Periodic Review of Regulatory Guide (RG) 1.201," dated April 23, 2015	ML15091A788

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Regulatory Guide 1.206, Revision 1, "Applications for Nuclear Power Plants," dated October 2018	ML18131A181
DI&C-ISG-06, Revision 2, "Licensing Process," dated December 2, 2018	ML18269A259
NEI 18-04, Revision 1, "Risk-Informed Performance-Based Technology Inclusive Guidance for Non Light Water Reactor Licensing Basis Development," dated August 2019	ML19241A472
NEI Letter to the NRC, "Part 50/52 Lessons Learned Rulemaking," dated March 9, 2020	ML20108F543
NEI 96-07, Appendix D, Revision 1, "Supplemental Guidance for Application of 10 CFR 50.59 to Digital Modifications," dated May 2020	ML20135H168

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Public Meeting to Discuss the Status of Rulemaking to Align Licensing Processes and Apply Lessons Learned from New Reactor Licensing [NRC-2009-0196; RIN 3150-AI66] held April 29, 2020, dated May 26, 2020	ML20141L609
Regulatory Guide 1.233, "Guidance for a Technology-Inclusive, Risk-Informed, and Performance-Based Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light Water Reactors," dated June 2020	ML20091L698
NRC Letter to NEI, "Part 50/52 Lessons-Learned Rulemaking: U.S. Nuclear Regulatory Commission Transparency and Stakeholder Engagement," dated September 8, 2020	ML20156A308
Regulatory Guide 1.200, Revision 3, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," dated December 2020	ML20238B871
Regulatory Guide 1.237, Revision 0, "Guidance for Changes During Construction for New Nuclear Power Plants Being Constructed Under a Combined License Referencing a Certified Design Under 10 CFR Part 52," dated February 2021	ML20349A335
"Design Review Guide (DRG): Instrumentation and Controls for Non-Light-Water Reactor (Non-LWR) Reviews," dated February 26, 2021	ML21011A140
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NEI, "Industry Comments on the Regulatory Basis for Alignment of Licensing Processes and Lessons Learned from New Reactor Licensing (Docket ID: NRC-2009-0196)," dated May 14, 2021	ML21144A164

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Document Title	ADAMS Accession Number/FR Citation
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NUREG-1021, Revision 12, "Operator Licensing Examination Standards for Power Reactors," dated September 2021	ML21256A276
Draft Interim Staff Guidance; Request for Comment, "Safety Review of Light-Water Power-Reactor Construction Permit Applications," dated December 14, 2021	86 FR 71101
Draft FRN to Support ACRS Subcommittee Meeting – 10 CFR Part 50/52 Rulemaking to Align Licensing Processes and Lessons Learned from New Reactor Licensing, dated January 27, 2022	ML22020A002
ACRS Subcommittee Public Meeting – NRC Presentation for 10 CFR Part 50/52 Rulemaking to Align Licensing Processes and Lessons Learned from New Reactor Licensing, dated February 1, 2022	ML22020A001
Draft Guidance Documents to Support ACRS Subcommittee Meeting Regarding Part 50/52 Proposed Rulemaking, dated February 15, 2022	ML22040A074
ACRS Subcommittee Public Meeting – NRC Presentation for 10 CFR Part 50/52 Rulemaking to Align Licensing Processes and Lessons Learned from New Reactor Licensing, dated February 18, 2022	ML22046A035



ACRS

**ITAAC
PRESENTATION**

MARCH 2, 2022



Atomic Energy Act's ITAAC Requirements

- Section 185b. (42 U.S.C. 2235(b)) of the Atomic Energy Act of 1954, as amended (AEA), and 10 CFR 52.97(b) require that the Commission identify within the combined license the Inspections, Tests, and Analyses (ITAs), including those applicable to emergency planning, that the licensee shall perform, and the acceptance criteria that, if met, are necessary and sufficient to provide reasonable assurance that the facility has been constructed and will be operated in conformity with the license, the provisions of the AEA, and the Commission's rules and regulations. To fulfill this requirement, the Commission included ITAAC in Appendix C to the combined license (COL) for VEGP Units.
- Following issuance of the combined license, Section 185b. requires that the Commission ensure that the prescribed ITAs are performed and, before operation of the facility, find that the prescribed acceptance criteria are met. The NRC codified the requirement to ensure completion of the ITAs in 10 CFR 52.99(e) and codified the requirement to find that the acceptance criteria are met in 10 CFR 52.103(g).
- In the July 19, 2013, Staff Requirements Memorandum for SECY-13-0033, "Staff Requirements – SECY-13-0033 – Allowing Interim Operation Under Title 10 of the Code of Federal Regulations Section 52.103" (ADAMS Accession No. ML13200A115), the Commission delegated the responsibility for the 10 CFR 52.103(g) finding to the staff.

Staff's two-pronged approach to fulfill the requirements

- First, the staff reviews 100 percent of the licensee's ITAAC Closure Notifications (ICNs) submitted under 10 CFR 52.99(c)(1). These reviews verify that the licensee provided a sufficient basis to demonstrate that the ITAs were performed as required and that the results met the prescribed acceptance criteria. The staff also reviews 100 percent of the ITAAC Post Closure Notifications (IPCNs) submitted under 10 CFR 52.99(c)(2) to verify that the ITAAC are still satisfied notwithstanding new, material information.
- Second, the staff performs independent inspections of a carefully selected sample of ITAAC to independently verify (1) the licensee's performance of the ITAs and (2) that the obtained results met the prescribed acceptance criteria.
 - Additionally, these inspections also verified that the licensee (1) had quality construction programs, processes, and procedures; (2) provided adequate quality assurance (QA) oversight of construction activities; and (3) identified and corrected conditions adverse to quality.
 - Moreover, a sample of the ICNs were inspected against their associated closure packages to verify the accuracy of the information reported in the ICNs.



ITAAC Prioritization Process

While the scope of the NRC's inspection programs is comprehensive, 100-percent inspection is neither necessary nor efficient when evaluating licensee performance. For this reason, the NRC historically has relied on a risk-informed sample-based inspection program. For VEGP, the Construction Inspection Program (CIP) focused on a select sample of predefined inspection targets (i.e., "targeted ITAAC").

The methodology for prioritizing the ITAAC for inspection was based in part on a quantitative process called the Analytic Hierarchy Process (AHP). AHP is a method of comparison used to reduce the subjectivity in prioritization and provide structure to the decision-making process.

The prioritization process was managed such that the rating given each ITAAC correlated to the amount of assurance one could obtain from inspecting that ITAAC. In this way, **it was not the ITAAC that was prioritized, but rather the value of inspecting that ITAAC, to maximize the agency's ability to detect any significant construction flaw.**

The "Technical Report on the Prioritization of Inspection Resources for Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)" (ADAMS Accession No. ML060740006), contains further detail on the AHP process. The process for prioritizing the ITAAC for inspection is described in OI NRR-LIC-210, "Prioritization of Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) for Inspection" (ADAMS Accession No. ML20057D521).



ITAAC Prioritization Process (cont'd)

The first step in the prioritization process classifies and groups the ITAAC into families to facilitate ITAAC inspection sampling within each family. ITAAC are classified based on (1) the activities performed to implement it, and/or (2) its acceptance criterion. The ITAAC Matrix (see next slide) establishes a logical way to group the ITAAC into families for inspection sampling purposes, but it does not provide directions on what ITAAC to inspect.

ITAAC are grouped by selecting the single best combination of a matrix column (i.e., construction program) and a matrix row (i.e., construction process or system, structure, or component) that best covers the ITAAC's construction activities. For example, all ITAAC for the as-built inspection of instrumentation and control components will be binned in the matrix family [A10] formed by the intersection of column (A) and row (10).

The use of the ITAAC Matrix provides a consistent framework for developing the inspection program for each new or advanced reactor design and establishes a sound, efficient, inspection sampling approach. Because the ITAAC within a family are similar, an equivalent licensee performance can be expected for each of them.

ITAAC MATRIX

	A) As-Built Inspection	B) Welding	C) Const Testing	D) Opn Testing	E) Qual Criteria	F) Design /Fab Req
01) Foundations & Buildings	A01	B01	C01	D01	E01	F01
02) Struc Conc	A02	B02	C02	D02	E02	F02
03) Piping	A03	B03	C03	D03	E03	F03
04) Pipe Spt & Restraints	A04	B04	C04	D04	E04	F04
05) RPV & Int'l's	A05	B05	C05	D05	E05	F05
06) Mech Comp	A06	B06	C06	D06	E06	F06
07) Valves	A07	B07	C07	D07	E07	F07
08) Elec Comp & Systems	A08	B08	C08	D08	E08	F08
09) Elec Cable	A09	B09	C09	D09	E09	F09
10) I&C Comp & Systems	A10	B10	C10	D10	E10	F10
11) Containment Integrity & Pen's	A11	B11	C11	D11	E11	F11
12) HVAC	A12	B12	C12	D12	E12	F12
13) Eqp Handling & Fuel Racks	A13	B13	C13	D13	E13	F13
14) Complex Sys w/ Multi-Comp	A14	B14	C14	D14	E14	F14
15) Fire Prot	A15	B15	C15	D15	E15	F15
16) Engineering	A16	B16	C16	D16	E16	F16
17) Security	A17	B17	C17	D17	E17	F17
18) EP	A18	B18	C18	D18	E18	F18
19) Rad Prot	A19	B19	C19	D19	E19	F19



ITAAC Prioritization Process

The second step involves rank-ordering the ITAAC based upon certain defined attributes that make one ITAAC more or less important to inspect. The defined attributes are:

- (1) safety significance,
- (2) propensity for making errors,
- (3) construction and testing experience,
- (4) the opportunity to verify ITAAC completion by other means, and
- (5) licensee (applicant) oversight. {Not used}

Each attribute is weighted based on its importance in achieving the overall objective of detecting significant construction flaws.



“ITAAC MAINTENANCE RULE” 10 CFR 52.99(c)(2)

ITAAC post-closure notifications. Following the licensee’s ITAAC closure notifications under paragraph (c)(1) of this section until the Commission makes the finding under 10 CFR 52.103(g), the licensee shall notify the NRC, in a timely manner, of new information that materially alters the basis for determining that either inspections, tests, or analyses were performed as required, or that acceptance criteria are met. The notification must contain sufficient information to demonstrate that, notwithstanding the new information, the prescribed inspections, tests, or analyses have been performed as required, and the prescribed acceptance criteria are met.



10 CFR 52.103(g) vs. ITAAC MAINTENANCE

What does “ITAAC are met” mean in 10 CFR 52.103(g)?

At the time of the 52.103(g) finding the staff will consider all acceptance criteria “are met” if both of the following conditions hold:

- All ITAAC were verified to be met at one time; and
- The licensee provides confidence, in part through the notifications in 10 CFR 52.99(c), that the ITAAC determination bases have been maintained and the ITAAC acceptance criteria continue to be met, and the NRC has no reasonable information to the contrary.

This approach will allow licensees to have ITAAC-related structures, systems, or components, or security or emergency preparedness related hardware, undergoing maintenance or certain other activities at the time of the 10 CFR 52.103(g) finding, if the programs credited with maintaining the validity of completed ITAAC guide those activities and the activities are not so significant as to exceed a threshold for reporting.



ITAAC MAINTENANCE THRESHOLDS

- **Material Error or Omission**—Is there a material error or omission in the original ITAAC closure notification?
- **Post Work Verification (PWV)**—Will the PWV use a significantly different approach than the original performance of the inspection, test, or analysis as described in the original ITAAC notification?
- **Engineering Changes**—Will an engineering change be made that materially alters the determination that the acceptance criteria are met?
- **Additional Items to Be Verified**—Will there be additional items that need to be verified through the ITAAC?
- **Complete and Valid ITAAC Representation**—Will any other licensee activities materially alter the ITAAC determination basis?



Post 10 CFR 52.103(g) Finding

Pursuant to 10 CFR 52.103(h), after the Commission makes the 10 CFR 52.103(g) finding, the ITAAC do not, by virtue of their inclusion in the combined license, constitute regulatory requirements for the licensee.

While ITAAC are no longer requirements after the 10 CFR 52.103(g) finding, subsequent changes to the facility or procedures described in the final safety analysis report (as updated) must comply with the requirements in 10 CFR 52.98(e) or (f), as applicable.

The technical specifications in the combined license NPF-91, Appendix A, “Vogtle Electric Generating Plant Units 3 and 4 Technical Specifications,” become effective upon a finding that the acceptance criteria in the license (ITAAC) are met in accordance with 10 CFR 52.103(g).

Integration of Source Term Activities in Support of Advanced Reactors

- Source Term is the *raison d'être* of the NRC
- Development of a source term that can receive regulatory approval is critical to the success of the new reactor design and licensing
- On October 8, 2021, we had one of our periodic meetings with the Commissioners
 - During that meeting we discussed our plans to perform an integrated review of source term activities. We also stated that a roadmap showing how all the pieces fit together would be worthwhile.

Integration of Source Term Activities in Support of Advanced Reactors: C&R - 1

- The regulatory basis for the radiological source term is widely dispersed among numerous documents largely focused on light water reactors. The dedicated website for source term related documents being developed by the staff is designed as a “one stop shop” that will capture this information and keep potential applicants up to date on latest developments in this area. Non-LWR applicants and stakeholders would also benefit from consolidated guidance to aid in determining the “acceptable” attributes of the source term suitable for a particular design. In particular, if the staff provides an overview on the website explaining how an applicant can best use the available information in concert with pre-application consultations with the staff, applicants will be better prepared to develop high quality submittals.

Integration of Source Term Activities in Support of Advanced Reactors C&R-2 and 3

- NRC staff has expended significant effort evaluating system accident response for a range of technologies anticipated from future applicants as described in their non-LWR vision and strategy Volumes 1, 2 and 3 related to computer code development. Development of the computer codes for confirmatory analysis of non-LWR technologies should promote expeditious staff reviews of current and future applications.
- A clear, common definition of maximum hypothetical or maximum credible accident should be established along with guidance on how it should be developed to assist potential applicants that would use this concept in their licensing strategy.

Source Term Letter: Contents

- Background (15 lines)
- Regulatory Basis – discuss all documents that touch on source term, largely LWR based and very distributed – sets the stage on the need for consolidated guidance (40 lines)
- Observations on Source Term Development – key aspects of source term that should be considered (40 lines)
- Recent NRC focus – website and computer code development and application to advanced reactors; significant NRC effort and should promote expedited reviews of future submissions (35 lines)
- Summary (10 lines)