



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

September 21, 2016

MEMORANDUM TO: ACRS Members

FROM: Weidong Wang, Senior Staff Engineer /**RA**
Technical Support Branch
Advisory Committee on Reactor Safeguards

SUBJECT: CERTIFICATION OF THE MINUTES OF THE MINUTES OF THE
ACRS PLANT OPERATIONS AND FIRE PROTECTION
SUBCOMMITTEE HELD ON AUGUST 16, 2016, IN ROCKVILLE,
MARYLAND

The minutes for the subject meeting were certified on September 9, 2016. Along with the transcripts and presentation materials, this is the official record of the proceedings of that meeting. A copy of the certified minutes is attached.

Attachments: As stated

cc w/ Attachments: A. Veil
M. Banks



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 – 0001**

MEMORANDUM TO: Weidong Wang, Senior Staff Engineer
Technical Support Branch
Advisory Committee on Reactor Safeguards

FROM: Gordon Skillman, Chairman
Plant Operations and Fire Protection Subcommittee
Advisory Committee on Reactor Safeguards

SUBJECT: CERTIFICATION OF THE MINUTES OF THE ACRS
PLANT OPERATIONS AND FIRE PROTECTION
SUBCOMMITTEE ON AUGUST 16, 2016,
ROCKVILLE, MARYLAND

I hereby certify, to the best of my knowledge and belief, that the minutes of the subject meeting held on August 16, 2016, are an accurate record of the proceedings.

/RA/

September 9, 2016

Gordon Skillman, Chairman
Plant Operations and Fire
Protection Subcommittee

Date

**ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
MINUTES OF THE (ACRS) PLANT OPERATIONS AND
FIRE PROTECTION SUBCOMMITTEE MEETING
August 16 2016
Rockville, MD**

INTRODUCTION

The ACRS Plant Operations and Fire Protection Subcommittee held a meeting on August 16, 2016 in Room T2B1, 11545, Rockville Pike, Rockville, Maryland. The meeting convened at 8:30 am and adjourned at 11:04 am.

ATTENDEES

ACRS Members/Consultants/Staff

Gordon R. Skillman, Subcommittee
Chairman
Ronald G. Ballinger, Member
Harold B. Ray, Member
Dana A. Powers, Member

Jose A. March-Leuba, Member
John W. Stetkar, Member

Weidong Wang, ACRS Staff -
Designated Federal Official

The NRC Staff

Robert Caldwell, NRO
Tuan Le, NRO
Tim Lupold, NRO
Thomas Scarbrough, NRO

SUMMARY OF MEETING

The purpose of this meeting is to review the draft final regulatory guide (RG) 1.26, Rev. 5 (DG-1314) "Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants." The Subcommittee heard presentations by and held discussions with representatives of the U.S. Nuclear Regulatory Commission (NRC).

The meeting transcripts are attached and contain an accurate description of each matter discussed during the meeting. The presentation slides and handout used during the meeting are attached to these transcripts.

Significant Issues/Topics Discussed	Reference pages in Transcript
<p>Chair Skillman commented that the RG 1.26 Revision 4 was issued in 1986 and there have been many changes in the industry in the last 32 years. Chair Skillman is particularly interested in how quality group classifications has been changed as the NRC has moved from Part 50 to Part 52 license processes. The Subcommittee wants to hear how Revision 5 provides guidance to the designer of the passive and modular plants.</p>	Page 7
<p>The staff summarized four areas that the RG has been updated. The updates include: 1) clarification for the definition of quality group A, 2) reference to the scope of the ASME Code for Operation and Maintenance of Nuclear Power Plants (OM Code), 3) reference to the other quality classification approaches such as ANS standard and the IAEA standard, and 4) reference to a risk-informed alternative approach that may be used for categorizing and treating SSCs (10 CFR 50.69).</p>	Pages 8-9
<p>Chair Skillman commented that the RG 1.26 is very prescriptive and the Committee members discussed quality group classifications under situations with risk considerations in current operation plants and the passive plant designs.</p>	Pages 12-13
<p>Member Stetkar and the staff discussed how to determine the categories for RTNSS (regulatory treatment of non-safety systems) and new plant components which are important enough to safety.</p>	Pages 13
<p>Chair Skillman commented that new designs, such as NuScale, stretches the limit of the terms in the current guides and he did not see how the draft Rev. 5 of RG 1.26 provides guidelines to the new reactor designs. In response, the staff highlighted additions to the RG, such as adding 10 CFR 50.69 into the RG1.26 to provide the applicant an option to look at different technology with the risk information for classification. The staff stated that the RG 1.26 is applicable to the operating reactors as well as to the new reactors. It has been used in the AP1000 and ESBWR designs. The staff will apply the RG to APR1400 and NuScale small modular reactor reviews.</p>	Pages 16-20
<p>The relationship between quality program and quality group classification was discussed.</p>	Pages 24-30, 34-35
<p>Member Stetkar made comments on RTNSS and quality group categorization under design reliability assurance program (DRAP). The Current guidance is not clear for how those components in the DRAP list are categorized among groups B, C and D consistently. He also commented that the B, C and D components are all non-</p>	Pages 35-50, P 68, 69, 70

safety related and the only safety-related components are characterized as group A.	
Chair Skillman commented that the RG 1.26 needs additional clarification so that different new plant designs have the same basic principles in the classifications of non-safety related components.	Pages 50-51
Chair Skillman and the staff further discussed the definition of quality group A, B, C, and D. Portions of a system can belong to various quality groups.	Pages 56-60
The staff presented the RG 1.26 application to the NuScale design. Through the communication with NuScale, the staff understood that the applicant used the RG 1.26 for the passive reactor quality group classification. Since the application is not finalized, the staff stated the example is speculative.	Pages 63-67
Member Ray commented on group classification and pointed out that quality group classification is a complicated for plants that have multiple redundancies and passive systems to prevent or mitigate accidents.	P75, 76
The staff stated that that the RG 1.26 was written to identify the classification for those components that are required to shut down the reactor and maintain it in a safe condition.	Page 74
Chair Skillman summarized that the critical topics is the functional performance requirements and the requirements apply to a plant that has active or passive cooling. The way of the functional performance requirements may be different, based on whether it's an active plant or a passive plant. It is a challenge for how does the emergent RG 1.26 apply to new plants that have passive cooling.	Pages 76-78
Member Stetkar commented on the need of a clear guidance under a situation that a group with certain attributes needs to be elevated into a higher category. But the staff does not want to commit for a new revision at the present. The staff will put this request on a revision schedule within five years.	Pages 84-85
During the discussion of NuScale reactor design, Chair Skillman commented that old design rules might be challenged and it needs to be studied very thoroughly. The staff responded that, as for the NuScale design, so far, they haven't seen a challenge to the overall RG 1.26 principles. NuScale are making a reactor vessel and their reactor coolant pressure boundary in quality group A and making the containment and penetrations in quality group B or higher.	Pages 87-88
The staff discussed their work plans for the next five years. They will spend resources on other standards for the RG development. The staff will review the concepts that have been discussed today, but suggested not to revise the RG 1.26 Revision 5 immediately.	Pages 89-90

Member Ray made his final comments that it's a challenge for the RG in new reactor application. It is worth devoting some time and attention.	Pages 92-93
Member Stetkar commented it is worthwhile to revise the Rev. 5 so that it can be timely used for new reactor designs in the next a few years. Members and the staff exchanged views on revising the Rev. 5 with consideration of the issues discussed in this meeting or publishing this Rev.5 with no additional revision. The staff considered additional revision would take more than two years and the resources are limited.	Pages 94-100
The Subcommittee determined to have a full committee meeting to hear the issue and to determine the next step.	Page 111
The staff made their final comments and wished to publish this revision soon.	Page 112

Official Transcript of Proceedings
NUCLEAR REGULATORY COMMISSION

Title: Advisory Committee on Reactor Safeguards
 Plant Operations and Fire Protection

Docket Number: (n/a)

Location: Rockville, Maryland

Date: Tuesday, August 16, 2016

Work Order No.: NRC-2537

Pages 1-105

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

+ + + + +

PLANT OPERATIONS AND FIRE PROTECTION SUBCOMMITTEE

+ + + + +

TUESDAY

AUGUST 16, 2016

+ + + + +

ROCKVILLE, MARYLAND

+ + + + +

The Subcommittee met at the Nuclear
Regulatory Commission, Two White Flint North, Room
T2B1, 11545 Rockville Pike, at 8:30 a.m., Gordon R.
Skillman, Chairman, presiding.

COMMITTEE MEMBERS:

GORDON R. SKILLMAN, Chairman

RONALD G. BALLINGER, Member

JOSE A. MARCH-LEUBA, Member

DANA A. POWERS, Member

HAROLD B. RAY , Member

JOHN W. STETKAR, Member

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DESIGNATED FEDERAL OFFICIAL:

WEIDONG WANG

ALSO PRESENT:

ROBERT CALDWELL, NRO

TUAN LE, NRO

TIM LUPOLD, NRO

THOMAS SCARBROUGH, NRO

*Present via telephone

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Adjourn.....105

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P R O C E E D I N G S

8:30 A.M.

CHAIRMAN SKILLMAN: Good morning. This meeting will now come to order. This is a meeting of the Plant Operations and Fire Protection Subcommittee, a standing subcommittee of the Advisory Committee on Reactor Safeguards. I'm Dick Skillman, the chairman of this Plant Operations and Fire Protection Subcommittee. ACRS members in attendance are John Stetkar, Dana Powers, Harold Ray, Ron Ballinger, and Jose March-Leuba. And the Designated Federal Official is Weidong Wang.

In this meeting, the subcommittee will review Regulatory Guide 1.26, Revision 5, Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants. The subcommittee will hear presentations by and hold discussions with representatives of the U.S. Nuclear Regulatory Commission. The entire meeting will be open to public attendance.


The subcommittee will gather information, analyze relevant issues and facts, and formulate proposed positions and actions as appropriate for whether there is a need for a full

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1 committee deliberation.

2 The rules for participation in today's
3 meeting have been announced as part of the notice
4 of this meeting previously published in the Federal
5 Register. A transcript of the meeting is being
6 kept and will be made available as stated in the
7 Federal Register notice. Therefore, we request
8 that participants in this meeting use the
9 microphones located throughout the meeting room
10 when addressing the subcommittee. The participants
11 should first identify themselves and speak with
12 sufficient clarity and volume so that they may be
13 readily heard.

14 I request that all attendees please
15 silence their electronic devices. We will now
16 proceed with the meeting and I call on Tom
17 Scarbrough to introduce the topic. Tom?

18 MR. SCARBROUGH: Good morning, my name
19 is Thomas Scarbrough and I'm in the Mechanical
20 Engineering Branch in the Office of New Reactors.
21 This morning we're going to talk about Regulatory
22 Guide 1.26, the proposed Revision 5 which is titled
23 Quality Group Classifications and Standards for
24  Water-, Steam-, and Radioactive-Waste-Containing
25 Components of Nuclear Power Plants.

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1 The revision to the Regulatory Guide is
2 part of our normal update to Regulatory Guides. It
3 was issued as a Draft Regulatory Guide DG-1314 in
4 April 2015, so a little over a year ago. And
5 according to the Office of Research we've received
6 no public comments on the proposed revision to the
7 Regulatory Guide.

8 So this morning we're going to walk
9 through the changes that we're proposing to the
10 Reg. Guide. We've had some questions come in on
11 how this would sort of fit in into the regulatory
12 treatment of nonsafety systems for past reactors.
13 We're going to talk about that. And we'll be glad
14 to answer any of your questions about the
15 Regulatory Guide.

16 With me is Tuan Le. He is the lead
17 technical person for this Regulatory Guide update
18 and so I'll now turn it over to Tuan to begin the
19 presentation.

20 MR. LE: Thank you, Tom. Good morning.

21 CHAIRMAN SKILLMAN: Good morning.

22 MR. LE: My name is Tuan Le and today I
23 have a presentation for the ACRS Subcommittee and
24 I'd like to welcome the staff and ACRS members for
25 attending this meeting.

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1 Today's subject is the Regulatory Guide
2 1.26 which is the Revision 5 and the title for this
3 Reg. Guide 1.26 is Quality Group Classifications
4 and Standards for Water-, Steam-, and Radioactive-
5 Waste-Containing Components of Nuclear Power
6 Plants.

7 CHAIRMAN SKILLMAN: Tuan, let me just
8 respond for a second here. This is Revision 5.
9 Revision 4 was 1986. It has been 32 years since
10 this has been revised and there have been many
11 changes in the industry in 32 years.

12 MR. LE: Right.

13 CHAIRMAN SKILLMAN: And so I asked for
14 this presentation and what I'm particularly
15 interested in is how the thinking by the staff for
16 Quality Group Classifications has changed as we
17 have moved from Part 50 licenses to Part 52
18 licenses and we're moving into an area of small
19 modular reactors. And so I'm very interested for
20 the committee, for the ACRS to hear how this
21 Revision 5 allows the designer of the passive
22 plants and the modular plants to be designed.
23 That's why we're here today. Okay?

24 MR. LE: Good, good. So that's our
25 intention to -- approach to that discussion also,

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1 information on this topic will be addressed, some
2 of the questions you may have raised already.

3 So let me go through each of the topics
4 in the presentation. So let me start with the
5 presentation outline for the presentation for the
6 Reg. Guide 1.26. The staff provided this
7 presentation with the intention that with the
8 updated information for the Reg. Guide 1.26 and to
9 gain additional feedback from the ACRS members and
10 also the NRC staff.

11 The update of the Regulatory Guide for
12 1.26 is represented in the following topics. We
13 have the background of what is derived from the
14 previous revision of the 1.26, the background has
15 come up to this point, Revision 5. And then the
16 second topic on that is applicable rules and
17 regulations. The third topic is applications of
18 Reg. Guide 1.26. We have a little more information
19 on that -- those topics, the application for the
20 Reg. Guide 1.26.

21 In Revision 5 of Reg. Guide 1.26, we
22 have it summarized in four areas of information
23 that the Reg. Guide has been updated. The first
24 area is the clarification for the definition of
25 Quality Group A. The second topic of Revision 5 is

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1 the reference to the scope of the ASME OM Code.
2 And a third is the reference to the other quality
3 classification approaches such as ANS standard and
4 the IAEA standard. The fourth topic for Revision 5
5 is the reference to the risk-informed automatic
6 approach which this is regarding to the 10 CFR
7 50.69.

8 After that the following information
9 will be presented for the new reactors, application
10 for the Reg. Guide 1.26, what application that
11 we'll use for new reactors.

12 The following is the related guidance
13 which we'll start providing information, what is
14 the Reg. Guide 1.26 related to other SRP Section
15 and also the regulatory guidance from the NRC. And
16 lastly, there's going to be a summary of all these
17 topics.

18 So let me start with the background of
19 Reg. Guide 1.26. In March 1972, the NRC issued a
20 Safety Guide 26 which is the Quality Group
21 Classification Standards. This guidance provides
22 the quality classification system to satisfy
23 General Design Criterion or GDC 1. This GDC 1 is a
24 part of the 10 CFR 50, Appendix A.

25 And then later in September 1974, NRC

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1 revised and changed that to a -- from Safety Guide
2 26 to Reg. Guide 1.26.

3 Following that because the staff had
4 been gaining information during the new reactors
5 over the years, and additional information would be
6 appropriate to add in for the Reg. Guide 1.26, the
7 updates which are derived to a Revision 5 today.

8 So since 2007, the clarification of the
9 Quality Group A would need to be established --
10 there would need to be more additional information
11 for clarification of Quality Group A to be
12 incorporated into Revision 1.26.

13 Also, the reference to code and
14 standards would need to be created a reference in
15 the Reg. Guide 1.26. And also a third topic is the
16 risk-informed process for categorizing and treating
17 the structures, systems, and components, SSCs that
18 could be used to be incorporated into the Reg.
19 Guide 1.26.

20 The following is the applicable rules
21 and standards which is 1.26 which addresses and
22 provides the guidance for the applicants and
23 licensees to address its applicable rule and
24 regulations.

25 The first one is 10 CFR 50, Appendix A,

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1 GDC 1 which is the quality standards and records.
2 In this GDC 1 is SSC designed, finished, and
3 erected and test quality -- to the quality standard
4 commensurate with the importance to safety. Notice
5 one example that 10 CFR 50, Appendix A, GDC 1. And
6 the second rule and regulation is 10 CFR 50.55(a)
7 which is the Codes and Standards. These Codes and
8 Standards establish criteria not only for the
9 piping system, but also components, technical
10 methodology, and design of the components in the
11 piping system, establish the criteria for the
12 piping system and components.

13 10 CFR 50.69 which is the risk-informed
14 categorization and treatment for other structures,
15 systems, and components, SSC for nuclear power
16 reactors. In this regulation is the SSC
17 classification process using the Probabilistic Risk
18 Assessment to do the classification process.

19 CHAIRMAN SKILLMAN: Tuan, please
20 prevent your paper from hitting your microphone.

21 MR. LE: I'm sorry for that.

22 CHAIRMAN SKILLMAN: Tuan, please go
23 back a slide, go back to slide 4.

24 MR. LE: Okay.

25 CHAIRMAN SKILLMAN: I read your comment

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1 regarding 10 CFR 50.69 risk-informed, but I know
2 from first-hand experience utilizing Reg. Guide
3 1.26 or the old Safety Guide 1.26 was very
4 prescriptive. There was very little opportunity to
5 negotiate a safety classification or the importance
6 of a component based on risk. So how does a
7 designer resolve, for instance, Quality
8 Classification B which is emergency core cooling,
9 but there are some plants that have more important
10 emergency core cooling than other plants with
11 different emergency core cooling systems because
12 they may be passive. How does one negotiate under
13 risk when the Safety Guide or the Regulatory Guide
14 is very prescriptive relative to Quality Group B?

15 MR. SCARBROUGH: If an applicant was
16 interested in following 50.69, the pilot plant for
17 50.69 right is Vogtle I and II. It's an operating
18 plant. So we're sort of learning from that
19 application of how to categorize under 50.69.

20 If an applicant was interested in
21 performing a 50.69 review with the categorization,
22 what I would encourage them to do because I'm sure
23 they would come in and say we have this intent to
24 follow 50.69 approach for our application. I would
25 have them go back and look at guides or standards

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1 that already address that approach because you're
2 right, 1.26 is prescriptive in its table what's
3 included in there by the IAEA standard SSG-30
4 actually does categorize in terms of frequency and
5 consequences in terms of different activities,
6 different events.

7 So I would encourage them to go back
8 and take a look at the SSG-30 to see how they could
9 apply that combination of consequences and integral
10 frequency for an event and then try to follow it.

11 That was one reason why we put the paragraph in the
12 background section of 1.26 to alert people that
13 there's a IEEE, IAEA standard SSG-30 which does
14 address this sort of combination with is not quite
15 the way we've been doing it in 1.26, but let them
16 know that they could use that as guidance and try
17 to develop what you're talking about. But we
18 haven't seen anybody come in with a 50.69
19 application for a new plant at this time. But
20 that's what I would encourage them to do.

21 MEMBER STETKAR: Tom, we'll get to this
22 later, but you're focusing on 50.69. I want to
23 talk about RTNSS because we have seen people come
24 in with RTNSS or for active plants, whatever is on
25 their Design Reliability Assurance Program,

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1 nonsafety- related stuff that's deemed important to
2 safety. And we do now have experience with that.
3 So it's the direct analogy, so don't shove it off
4 to the fact that nobody has done 50.69 yet.

5 MR. SCARBROUGH: Oh, no.

6 MEMBER STETKAR: So how do we determine
7 the appropriate categories for stuff in a passive
8 new plant that's designated RTNSS, R-T-N-S-S for
9 the transcript, or for an active new plant stuff
10 that's designated as important enough to safety
11 such that it's covered by the Design Reliability
12 Assurance Program. Are you going to go through
13 that --

14 MR. SCARBROUGH: Yes. We're going to
15 talk a lot -- and that was more -- because 50.69 is
16 just beginning and we really haven't seen anybody
17 come in with an application yet. We really don't
18 know how they would try to do that, but you're
19 right, it would be difficult under the pure Reg.
20 Guide 1.26 just to come in and do that.

21 That's why I think the IAEA standard
22 starts looking at that in terms of how you would
23 look at the probability or the frequency of an
24 event and the consequences of trying to do that.

25 MEMBER STETKAR: But Tom, my point is

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1 people have already done that for the new reactors.
2 They have already done that because that's how they
3 populate their RTNSS and DRAP list. So it's not
4 conceptual things that people in the future could
5 do it. People at Vogtle and Summer and other new
6 reactors that have been certified have already done
7 that. So I would like to understand because people
8 have already done it how the staff treats that.

9 MR. SCARBROUGH: Right.

10 MEMBER STETKAR: My point is it's not a
11 conceptual -- we can think about how they're going
12 to use frequency and consequences and all. People
13 have already done that.

14 MR. SCARBROUGH: Exactly, but the
15 difference is 50.69 is equipment that allows you to
16 take safety-related equipment.

17 MEMBER STETKAR: They've already done
18 that. That's the whole point of RTNSS. Regulatory
19 treatment of nonsafety systems. That's RTNSS.

20 MR. SCARBROUGH: Right.

21 MEMBER STETKAR: So they've already
22 done it for nonsafety related equipment. It's
23 direct analogy to 50.69. Design Reliability
24 Assurance Programs and their lists of programmatic
25 controls for new active, so-called active reactors,

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1 think USAPWR, EPR, are populated with so-called
2 nonsafety systems that are judged to be important
3 to safety already.

4 It's a directly analogy of 50.69.
5 They've already done that categorization. They
6 haven't called it, you know, what whatever, Risk 2,
7 but they've called it RTNSS or they've called it
8 important enough to be on the Design Reliability
9 Assurance Program. And they've already done that
10 categorization, so people have already made that
11 decision.

12 MR. SCARBROUGH: Right and we're going
13 to get there.

14 CHAIRMAN SKILLMAN: I'm glad we're
15 speaking this way because this is why I asked for
16 this meeting. Let me add one more to John
17 Stetkar's comment. I've got Chapter 19 -- excuse
18 me, Rev. 19, the design control document for the
19 AP1000, element 3.2.2 and this is now Westinghouse
20 Toshiba has laid out this particular part of their
21 technology.

22 And so we have not only a revision to
23 Reg. Guide 1.26, we not only have passive plants
24 that have RTNSS and other issues pertaining to
25 uniqueness of design for the passive plants, we

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1 also have plants like NuScale that are actually
2 stretching the limit of some of the terms that we
3 use and that will cause us to question how should
4 this particular Reg. Guide be applied.

5 And I don't see the words in this draft
6 that either cautions or suggests heads up, there
7 are going to be some different ways of approaching
8 this whole issue of classification so be advised,
9 there are different ways to apply this.

10 What you've done in a document is kind
11 of punted to the Standard Review Plan 3.2.2. I
12 understand why you did that. That covers part 52,
13 but it seems like the text that would describe what
14 John was talking about needs to be an integral of a
15 Regulatory Guide that has not been updated for 32
16 years and that is now on the desk of designers that
17 are designing the new plants that have unique
18 features. That's the rub. That's what I'm asking
19 for.

20 MR. SCARBROUGH: Right, and I agree
21 with that. And from a Risk 2 perspective I agree
22 completely with that. My concern was the Risk 3
23 stuff. But in terms of a Risk 2, we do have a
24 slide. We are going to talk quite a bit about --

25 CHAIRMAN SKILLMAN: But it's got to be

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1 in this document that it's being used for the
2 industry. And we have some 25-year-olds and 30-
3 year-olds that are going to be coming up to take
4 the place of the people are retiring and those
5 young men and women need to know how to do this
6 stuff and this is your hallmark document.

7 MR. SCARBROUGH: Right. We did add
8 some paragraphs in the background discussion
9 because that's exactly what -- we wanted to alert
10 the users that for the IAEA standard, there's the
11 ANS standard that we're going to talk about more,
12 which does deal with RTNSS equipment. And so we
13 wanted to alert the users that they could do that.
14 But I am perfectly fine with adding additional
15 discussion to amplify that. But that's why we put
16 it in the background discussion in terms of alert
17 people the IAEA standard is a good place to look
18 and then the ANS standard actually references RTNSS
19 equipment. It's actually -- it's a good discussion
20 of how try to categorize nonsafety related with
21 augmented requirements which we sort of do not very
22 specifically.

23 We have ATWS. We have station blackout
24 when we have all this nonsafety-related equipment
25 that we add additional requirements on. And ANS

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1 standard takes that and puts it right into the
2 standard and indicates that these are nonsafety-
3 related components that have augmented requirements
4 associated with them and they list station blackout
5 and ATWS and RTNSS as well. So that's why we put
6 it in there.

7 But I'm certainly -- we'd be more than
8 happy to add additional discussion to highlight
9 that more because that was the intent was to make
10 sure that there was additional guidance documents
11 that a user could apply and for this new type of
12 categories that we haven't seen before in Reg.
13 Guide 1.26.

14 CHAIRMAN SKILLMAN: Let me ask you to
15 proceed and let's see where this discussion takes
16 us.

17 MR. LE: I just wanted to add in to
18 that discussion -- adding the 10 CFR 50.69. This
19 option has been put into Reg. Guide 1.26 to provide
20 the applicant -- the licensee has the option to
21 look at the different technology whereas the risk
22 informed for classification.

23 Like Tom mentioned, ANS 50.14 and also
24 the IAEA SSG 30 standard also covers some of the
25 aspect of the option that the licensee and

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1 applicant want to approach the classification
2 process. Therefore, that's one of the reasons that
3 the staff gathered over a year this information
4 exists and put in Revision 5. Any additional
5 information that you think will be appropriate for
6 more clarification or maybe more information --
7 informative -- to help the applicant to get the
8 right approach, just let us know.

9 With that, I'd like to get into the
10 next topic. So the next topic of this presentation
11 is the application for Reg. Guide 1.26. Reg. Guide
12 1.26 is applicable to the operating reactors and
13 also the new reactors. This has been demonstrated
14 in the AP1000 design, ESBWR design. The wisdom
15 currently is that APR1400 and also the staff
16 anticipates that is going to be used for the
17 NuScale small modular reactor coming up.

18 Applicants, the licensees may volunteer
19 to use this guidance in Reg. Guide 1.26 to
20 demonstrate that they are in compliance with the
21 underlying NRC regulations. However, whenever they
22 choose their methodology and the method and
23 solutions, however, different from describing this
24 Reg. Guide 1.26 may be deemed acceptable to the
25 staff if there's sufficient basis and information

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1 is provided for the staff to review and safety
2 determination to verify that the appropriate
3 alternative demonstrates that the compliance would
4 be appropriate, NRC regulations.

5 With that, the current licensees may
6 continue to use their current licensing basis, just
7 maybe deviate from the Reg. Guide 1.26, but if the
8 methodology and solution has demonstrated that it's
9 compliant with the appropriate NRC regulation and
10 that will be acceptable to the staff.

11 So what is in the Revision 5? So the
12 staff had four areas that considered Revision 5 to
13 be updated. The first is the clarification for the
14 definition of Quality Group A. Secondly, is the
15 reference to the scope of the ASME code for the
16 Operation and Maintenance for Nuclear Power Plant;
17 references to other quality classification
18 approaches ANS standard; reference to the risk-
19 informed automatic approach that may be used for
20 categorizing and treating the SSCs. This is
21 regarding the 10 CFR 50.69 regulation.

22 It is noted that the Revision 5 does
23 not impose any new technical requirements, there's
24 no technical -- no new technical requirements in
25 Revision 5.

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1 Okay, so for the clarification of the
2 definition of Quality Group A was from 1965 and
3 1968 editions the ASME Code, Section III refers to
4 the Class A, B, C as a quality group. However, in
5 the 1971 the code class had changed to Class 1, 2,
6 3 components. Reg. Guide 1.26 revisions have the
7 classification system that consists of four quality
8 groups A, B, C and D.

9 Methods for assigning these components
10 to those quality groups and specific quality
11 standards applied to each of the quality group. So
12 from the ASME Code Class 1, 2, 3, the original one
13 Reg. Guide 1.26 that's a paragraph noted, 10 CFR 50
14 required the component to be reactor coolant
15 pressure boundary to be designed, fabricated,
16 erected and tested in accordance with the
17 requirement of Class A component. That's the
18 highest quality class for the reactor coolant
19 pressure boundary components.

20 This Class A component is in Section
21 III of the ASME Code. The guide mentioned that the
22 ASME Code 1971 edition used Class 1 in lieu of
23 Class A. So because of the 1971 edition has
24 changed to Class 1, 2, 3 component, code
25 components, and Reg. Guide 1.26 is recognized as

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1 Class 1 as Quality Group A components.

2 Reg. Guide revisions reference the
3 criteria of Section III ASME Code, Class 1, 2, 3
4 corresponds to the quality stands for Quality Groups
5 A, B, C of the NRC classification system. So
6 clarification for Quality Group A will be needed for
7 the information to demonstrate that this class
8 evolved from Class -- from Quality Group A
9 corresponding to the Class 1 component for the ASME
10 Code.

11 In addition to that, the 10 CFR 50.55(a)
12 requires that components of the reactor coolant
13 pressure boundary, Class 1, meets the requirements
14 of the ASME Code Class -- ASME Section III with the
15 section with the 10 CFR 50.55(a)(c)(1). This
16 corresponds to the quality standards for the Quality
17 Group A of the NRC classification systems.

18 Original revision for the Reg. Guide
19 1.26 referenced Quality Group A in discussion
20 section. Only the original references to Quality
21 Group A. The revisions that followed referenced
22 Group A in the footnote regarding the ASME edition
23 prior to 1971. The proposed Revision 5 of the Reg.
24 Guide 1.26 provides clarification for the Quality
25 Group A in the Staff Regulatory Guidance section.

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1 CHAIRMAN SKILLMAN: Tuan, let me ask you
2 this. On that slide, you use that words Quality
3 Group A several times. You probably know, but you
4 may not know that Regulatory Guide 1.26 and by the
5 way 1.29 seismics were produced at the same time,
6 approximately, that Appendix B to 10 CFR 50 was
7 produced. That clump of regulation emerged in about
8 1972.

9 I had been working for three years doing
10 this design work before these documents were
11 produced and I will tell you it was a scavenger hunt
12 to find our way through what were then the 70
13 general design criteria in 50.55(a) to figure out
14 what was supposed to be at what quality level and
15 what seismic level. But there was no QA program and
16 so we kind of assumed everything that was reactor
17 coolant system pressure boundary had to be the best
18 quality that ultimately became Quality Group A.

19 So I find it interesting that you use
20 that term Quality Group A, but you really haven't
21 communicated the important link of this early safety
22 guide, now Reg. Guide to Appendix B at 10 CFR 50,
23 why?

24 MEMBER RAY: Well, before you answer
25 that question, let me -- just to underscore what you

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1 say. I read through all of this and concluded there
2 was no connection between this and Appendix B.
3 Moreover, no connection between it and safety
4 related versus RTNSS which is what John is talking
5 about.

6 So I am here mostly to hear that because
7 my take on it is the two things are separate.
8 **Quality program and quality classification** are two
9 separate and different things. And Appendix B
10 applies to safety-related stuff as we all know and
11 then RTNSS came along because of the passive design
12 development. But this is independent of that in my
13 opinion.

14 CHAIRMAN SKILLMAN: The wording that is
15 used in the Regulatory Guide was wording that came
16 with the birth of Appendix B to 10 CFR 50 and there
17 was a very clear understanding on the NSSS
18 designers' part of what that quality classification
19 meant in terms of the QA program, the application of
20 the QA program.

21 MEMBER RAY: Well, you had a different
22 experience than I did and that's quite relevant here.
23 But at least I just wanted to say because your
24 question implied there was a connection and I wanted
25 to say in my perception and experience there isn't a

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1 connection between the quality group classification
2 on the one hand and whether something is safety
3 related and therefore subject to Appendix B on the
4 other hand.

5 CHAIRMAN SKILLMAN: I believe if one were
6 to create a matrix of what is Quality Group A and the
7 application of the Quality Assurance Program, there
8 would be thorough alignment. They would lock right
9 in.

10 MEMBER RAY: Is that right?

11 CHAIRMAN SKILLMAN: Yes.

12 MEMBER RAY: Because I sure as heck don't
13 see it that way.

14 CHAIRMAN SKILLMAN: Yes. In fact, I
15 believe that's --

16 MEMBER RAY: But if that's true, Dick, it
17 is astounding that that connection isn't explicit
18 anywhere to my knowledge.

19 CHAIRMAN SKILLMAN: It isn't
20 communicated, but this is the genesis of those
21 regulations and that's how they flowed in 1972 and
22 1973. Quality Group A was ASME Section 3 Class 1 and
23 that was the highest application of Appendix B in 10
24 CFR 50.

25 MEMBER RAY: I was both on the Section 3

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1 Subcommittee drafting and involved in the Appendix B
2 development and I just have a different perception on
3 this subject. But I don't know everything for sure.
4 If there is a direct connection like you say, then
5 show it to me. I just -- in 40 years, I've never
6 seen it.

7 MR. LUPOLD: This is Tim Lupold. I'd
8 like to talk to that a little bit.

9 CHAIRMAN SKILLMAN: Speak your name for
10 the record, please.

11 MR. LUPOLD: Tim Lupold.

12 CHAIRMAN SKILLMAN: Okay.

13 MR. LUPOLD: And Quality Group A, you're
14 required to make anything that's a reactor coolant
15 pressure boundary as Quality Group A. There are a
16 couple of exceptions. We've kind of codified that
17 over the year, 50.55(a)(c). It says that anything
18 that is part of the reactor coolant pressure boundary
19 that's to be designed to ASME Class 1 which in
20 essence is Quality Group A. We consider Quality
21 Group A to be the reactor coolant pressure boundary.

22 Now you can go to 50.2 to get definitions
23 on what the reactor coolant pressure boundary is and
24 the ASME Code has quality requirements built into it.
25 Appendix B has quality requirements also that go much

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1 further. As you obviously know, Appendix B covers a
2 lot of other things like controls and special
3 processes, tests, experiments, corrective action
4 programs, nonconformances, design requirements which
5 still have to be met, but ASME does establish quality
6 requirements for the purchase of materials for Class
7 1. They establish requirements for the welding and
8 joining of components and all that. That's all part
9 of the Quality Program so you can design a system
10 under ASME standards and those quality requirements
11 there.

12 Now your design group who does the
13 design, yes, they have to meet the requirements of
14 Appendix B. You have to have the right oversight.
15 You have to have the right experienced individuals,
16 etcetera.

17 CHAIRMAN SKILLMAN: I'm very, very well
18 aware of that.

19 MEMBER RAY: That's not on point, I don't
20 believe. I mean N-131 almost word for word is the
21 same as Appendix B, but it's not word for word. And
22 regardless, the point is Appendix B applies to what
23 it applies to by its own terms. And Dick, you and I
24 were both involved at the same time in the early '70s
25 when it was developed. The fact that something that

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1 is Category A is safety related and therefore
2 Appendix B applies to it is just a consequence of
3 what it applies to. But it isn't a result of
4 Appendix B and the categorization here being linked
5 in any way.

6 Reactor coolant pressure boundary is
7 safety related. Okay, fine. That means Appendix B
8 applies to it, but it also means it's Category A.
9 But that doesn't have the implication that you're
10 referring to, I believe. And all I was trying to in
11 my original comment was to say your implication was
12 that there should be an explicit linkage that you've
13 said does exist and I wanted to raise the point I
14 don't think there has ever been that linkage because
15 I think the two things were completely independent
16 and I was involved in both of them when they were
17 developed.

18 CHAIRMAN SKILLMAN: At least from my
19 experience as an NSSS person, we saw those as
20 thoroughly linked.

21 MEMBER RAY: Okay, and I was just want to
22 say I see it differently.

23 CHAIRMAN SKILLMAN: Okay.

24 MEMBER RAY: As yes, they both apply,
25 they're both relevant. They're both -- but Appendix

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1 B applies as was stated here much more broadly and it
2 isn't tied to what quality group you're talking about
3 at all.

4 CHAIRMAN SKILLMAN: I would just make the
5 comment that there was no 10 CFR 50 Appendix B in the
6 year or two that preceded the release of 1.26. And
7 one of the reasons that we ended up with the Reg.
8 Guide with Appendix B and with the Reg. Guide 1.26,
9 1.29, and the thundering herd that followed was the
10 recognition that those pieces of regulation were
11 nonexistent. There was a void and the effort though
12 proceeded. That void was to create a system or a
13 framework for what components needed to be at what
14 elevation in terms of quality and in terms of design
15 requirements.

16 MEMBER RAY: Well, I just totally
17 disagree. Like I say, I was there, too. You were
18 looking at it through the NSSS lens which naturally
19 would tie to this as you see it. I was looking at it
20 from the standpoint of a licensee and the two things
21 were just not connected at all.

22 CHAIRMAN SKILLMAN: Okay, I'll be happy
23 to disagree, but that was the experience for years
24 that I have.

25 MEMBER RAY: Okay.

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1 CHAIRMAN SKILLMAN: Please proceed, Tuan.
2 Thank you.

3 MR. LE: Okay. So the next topic for
4 this presentation for Reg. Guide 1.26 I want to
5 follow number two which is the reference to the scope
6 of the ASME OM Code, previously, the revision of the
7 Reg. Guide 1.26. This information now is referenced
8 to Revision 5 which is the ASME code is incorporated
9 into the reference of the NRC requirement for the 10
10 CFR 50.55(a) seeing as how we incorporated by
11 reference in regulations.

12 The ASME OM Code now as accepted by the
13 NRC describes it describes the in-service testing
14 program for pumps, valves, dynamic restraints at the
15 nuclear power plants.

16 The user of Reg. Guide 1.26 should
17 confirm that its classification process is considered
18 the scope of the pumps, valves, and dynamic
19 restraints specified in the ASME Code, OM Code.
20 Since starting now is that reference in the
21 regulation.

22 The next topic is also references to the
23 other quality classification approaches.
24 Particularly is the ANSI standard which is the
25 American National Standards Institute and American

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1 Nuclear Society, ANS. This standard refers to
2 ANSI/ANS-58, 14-2011 edition 2011. The title is the
3 "Safety and Pressure Integrity Classification
4 Criteria for Light Water Reactors."

5 The next reference, as with is the
6 previous discussion with the 10 CFR 50.59 which is
7 the "risk-informed categorization and treatments of
8 the structures, systems, and components for nuclear
9 power reactors."

10 The staff also referenced to the IAEA
11 Specific Safety Guide, SSG authority. This is an
12 international guide and is an international standard
13 for the "Safety Classification of Structures,
14 Systems, and Components in Nuclear Power Plants."

15 The next topic is a reference to the
16 risk-informed alternative approach that may be used
17 for the categorizing and treating SSCs which is
18 referred to as 10 CFR 50.69. The 10 CFR 50.69
19 provides -- it is a voluntary risk-informed process
20 for the categorizing and treating, e.g., inspecting
21 and testing, SSCs that may be used as an alternative
22 approach. The applicant can approach this 10 CFR
23 59.69 as a voluntary methodology as opposed to the
24 classification process.

25 This other approach is described in the

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1 Reg. Guide 1.201 which is the "Guidelines for
2 Categorizing Structures, Systems, and Components in
3 Nuclear Power Plants According to the Safety
4 Significance" that accepts Nuclear Industry Institute
5 NEI 00-04 which the title is "10 CFR 50.69 SSC
6 Categorization Guideline" with regulatory positions.

7 MR. SCARBROUGH: Okay, why don't I take
8 this next slide, okay?

9 MR. LE: Okay.

10 MR. SCARBROUGH: So now we're to new
11 reactors and this is what I wanted to talk about in
12 terms of how, in particular, the AP1000 has dealt
13 with this categorization process. And basically, if
14 you look at their AP1000 design control document Tier
15 2 section 3.2.2 on their classification system the
16 AP1000 has several classes, but they have A, B, C,
17 and D which aligns with Reg. Guide Quality Groups A,
18 B, C, D.

19 And in the discussion of each of those,
20 Class A is safety related within certain scope. B is
21 also safety related and they apply Appendix B as well
22 for that and C is safety related and apply Appendix B
23 for that as well.

24 And we get to their Equipment Class D, in
25 their description of Equipment Class D, they indicate

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1 that this is nonsafety related --

2 CHAIRMAN SKILLMAN: Just -- I'm going to
3 spar with my friend Harold or my colleague Harold.
4 I'm in 3.2.2. This is Rev. 19 of the DCD. This is
5 actually 6 and 7. And the description Harold is the
6 assignment of safety-related classifications, codes,
7 and standards informs 50.55(a), development of
8 Quality Group classification for these codes and
9 standards, a description of the equipment
10 classification which follows identifies the
11 classifications requiring the full 10 CFR 50 Appendix
12 B QA Program as described in Chapter 17 and the
13 Quality Group assigned with each classification.

14 So I think even in the DCD that we will
15 be dealing with and we are dealing with, there is
16 this whether it's happenstance or not, this
17 connection between the quality classification in
18 Appendix B. I think at least that's how Westinghouse
19 sees it.

20 MEMBER RAY: Well, I read that statement
21 differently than you do and the word and means the
22 two things apply separately and one isn't the
23 consequence of the other, other than from the
24 standpoint of the function being performed.

25 So anyway --

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1 CHAIRMAN SKILLMAN: Fair enough, okay.

2 MEMBER RAY: But that's an interesting
3 discussion I would like you to continue on. I'm
4 interested in it looking at it through the lens of
5 50.69 which is I think where John would be interested
6 as well which has these different risk-informed
7 classification schemes. But anyway, go ahead.

8 MR. SCARBROUGH: I'm focusing on the
9 RTNSS --

10 MEMBER STETKAR: Please don't do that
11 because the ACRS has written letters saying that
12 conceptually there's no difference. RTNSS is an
13 arbitrary aberration of something that ought to be
14 risk-informed. For some reason somebody arbitrarily
15 decided that ATWS shall be RTNSS and arbitrarily
16 decided that station blackout shall be RTNSS. And
17 there's two or three other categories in there so
18 that for some reason you come at a little box, it's
19 automatically RTNSS.

20 There is a Design Reliability Assurance
21 Program by definition. Everything that is put in a
22 RTNSS box is part of the Design Reliability Assurance
23 Program and anything else that is important to risk.
24 So for a passive plant, you can have active equipment
25 that is not RTNSS, but in the Design Reliability

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1 Assurance Program. And for any active new plant like
2 an EPR or a USAPWR or an APR1400 or any of those
3 plants, RTNSS does not apply because for some reason
4 RTNSS only applies to a passive plant, so ATWS for an
5 active plant can't be RTNSS. Can't be RTNSS because
6 RTNSS can't apply for an active plant. But a Design
7 Reliability Assurance Program also applies for active
8 plants.

9 The Design Reliability Assurance Program
10 concept is the same as 50.69. It's risk-important
11 stuff. It may be designated safety related. It may
12 be designated nonsafety related. So don't focus only
13 on RTNSS.

14 I want to understand how stuff -- you may
15 focus on RTNSS. I think that's arbitrary. How stuff
16 on the Design Reliability Assurance Program where an
17 applicant has come in and done a risk assessment of
18 their entire plant. Didn't care whether it's safety
19 related or nonsafety related, piece of cardboard of
20 whatever it was designed to and said whoa, this
21 equipment for whatever reason is important enough to
22 safety that we're going to put it on our Design
23 Reliability Assurance Program and apply enhanced
24 controls over it, whether it's maintenance, testing,
25 surveillance, you name it, okay?

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1 So let's talk about it in the context of
2 the Design Reliability Assurance Program to avoid
3 RTNSS because everything for AP1000 anyway that's on
4 the RTNSS list is in the Design Reliability Assurance
5 Program.

6 How does this Regulatory Guidance tell me
7 how to distinguish among Categories B, C, and D for
8 things that are on the Design Reliability Assurance
9 Program? How do I know whether some stuff -- because
10 I'm looking at the table for the normal, residual
11 heat removal system in the USAPWR and it's contrary
12 to this slide. It's indeed distributed among A, B, C
13 and D. In fact, the only things that are D are the
14 motors and only the motors for the pumps. The pumps
15 themselves are C. They're C. I'm looking at the
16 table.

17 MR. SCARBROUGH: Right.

18 MEMBER STETKAR: And this slide leads us
19 to believe that it's a D, but it's not. It's
20 distributed. In fact, all of the systems that you've
21 listed there are distributed among at least B, C, and
22 D. A only applies to the normal residual heat
23 removal system isolation valves for the inlet and the
24 return to the reactor coolant system. There's
25 reactor coolant system pressure boundary isolation

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1 valves.

2 MR. SCARBROUGH: Right, right, right.
3 Those have to be --

4 MEMBER STETKAR: So how do I know whether
5 something ought to be B, C, or D if it's on my DRAP
6 list.

7 MR. SCARBROUGH: Right. In terms of how
8 they applied this, what they indicated was for --
9 okay, so we have --

10 MEMBER STETKAR: I know how they applied
11 it. How do I know that they applied it consistently
12 with APR1400, consistently with USAPWR? That they
13 all used the same sort of thought process and that
14 it's consistent with the basic guidance in Reg. Guide
15 126?

16 MR. SCARBROUGH: Well, in terms of how
17 they look at it, you'd be looking at the functions of
18 that line in terms of flow through the lines and such
19 as that.

20 Now in terms of the A class, the
21 isolation valves have to be alpha because it's a
22 nonsafety- related system. Therefore, it has to have
23 that requirement to function.

24 Now the other portions of the system in
25 terms of the motors, because it's a nonsafety-related

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1 function, they are not required to have it a safety-
2 related category. So they put it into a D which is a
3 nonsafety-related category.

4 MEMBER STETKAR: I'm sorry, B, C, and D
5 are all nonsafety related.

6 MR. SCARBROUGH: No, not --

7 MEMBER STETKAR: I'm sorry, they are.
8 Everything that I'm looking at in Table 3.2-3 for the
9 normal residual heat removal system, RNS for the
10 record, categorized as B, C, and D are nonsafety-
11 related components on sections of piping. The only
12 safety-related stuff is characterized as A. It is
13 the isolation valves for the reactor coolant system
14 boundary. So don't go with me with the safety
15 related and nonsafety related. All B, C, and D
16 stuff.

17 I'll go out to the component cooling
18 water system. The component cooling water system,
19 the whole system is nonsafety related. It's still
20 distributed among B, C, and D. Nonsafety related in
21 the AP1000 jargon. But it is classified as important
22 to risk, risk significant.

23 MR. LUPOLD: This is Tim Lupold. I'm
24 sorry.

25 MEMBER STETKAR: As are the emergency

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1 diesels which are categorized uniformly as D.

2 So my question is if something is on my
3 DRAP list, I was careful to ask the question of how
4 do I distinguish whether it ought to be -- what
5 trunks of that stuff ought to be B or C or D, what
6 criteria apply and how do we know that each of the
7 applicants is applying those criteria consistently?

8 So I don't get a specific kind of
9 component like the tube side of the normal residual
10 heat removal heat exchanger B assigned to Category C
11 for the USAPWR -- I'm sorry, the AP1000 and somebody
12 else decides it ought to be a D.

13 MR. LE: My opinion, the way they
14 approach without the DRAP is when you have a list of
15 components in there which is risk significant,
16 they're usually approached by (a) what a category of
17 risk they're going to have --

18 MEMBER STETKAR: I'm sorry, what category
19 of risk? There isn't a category of risk.

20 MR. LE: If they had it. If they had it.
21 if not, then they're supposed to look to 50.69 --

22 MEMBER STETKAR: No, they don't ever use
23 50.69.

24 MR. LE: So if they do that --

25 MEMBER STETKAR: They categorize things.

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1 They use a combination of numerical risk significance
2 and indeed different applicants have proposed
3 different metrics for what is important to risk so
4 the ESBWR has a different metric compared to other
5 applicants for what's important to risk numerically,
6 quantitatively. And they use also the input from an
7 expert panel so that there's a qualitative input
8 because the risk assessments are not necessarily, the
9 design risk assessments, are not necessarily
10 comprehensive, so then they look at other modes of
11 operation like a shutdown and the panels may decide
12 that something may be very, very important to
13 shutdown, but that wasn't treated very well in the
14 quantitative part, so they may add those things to
15 the Design Reliability Assurance Program based on
16 qualitative judgment. So it's a combination of
17 quantitative and qualitative.

18 However, we already know that different
19 applicants, in particular, if I look at the numerical
20 criteria that the ESBWR used to populate their Design
21 Reliability Assurance Program list is different from
22 the metrics, for example, that USAPWR and the USEPR
23 were using. And NuScale has just come into propose a
24 different set of metrics.

25 So on a quantitative basis, you're not

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1 getting apples and apples and apples based on even
2 risk importance and then it's not at all clear to me
3 how people are determining, given something that's on
4 the list, how it's distributed among B, C, and D in
5 this construct.

6 I'm not hearing a lot of confidence that
7 you thought about it. Yet, people are doing it.

8 MR. SCARBROUGH: Right, and they've
9 been doing it for a long time, and that's the
10 thing. If you look in the --

11 MEMBER STETKAR: Well, they've been
12 doing it for risk a long time, except for the
13 AP1000 ESBWR, the new applicants and new guys
14 coming in today.

15 MR. SCARBROUGH: Right, and how I look
16 at it in terms of the AP1000, in terms of the
17 specific sections of whether they call the normal
18 RHR system, what portions they might call an A or a
19 B or a C --

20 MEMBER STETKAR: I know why they
21 called A an A. The other questions I have are how
22 does one determine what's distributed among B, C, D
23 and how is that done consistently, such that we
24 don't get a different construct used for different

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1 applicants?

2 MR. SCARBROUGH: Right, right, and I
3 think what the reviewers would do is look at how
4 they described in their B-C-D of like B includes
5 fission product barrier, provides fission product
6 barrier and just sort of the level of importance of
7 that, and then ones that did not fall within that
8 sort of examples that they had would fall into the
9 C category, where they would -- those are basically
10 the ones that don't sort of rise to the A or the B.

11 MEMBER STETKAR: But see, that
12 guidance isn't in 126. 126 says things like
13 systems or portions of systems important to safety
14 that are designed for reactor shutdown and residual
15 heat removal. It doesn't say fission product
16 barrier, it doesn't say the criteria, the specific
17 criteria that AP1000 used to differentiate.

18 MR. SCARBROUGH: Right, right, and
19 that's something that we could add to the
20 discussion section, to try to give examples of how
21 you take this system, which is a RTNSS system that

22 --

23 MEMBER STETKAR: Don't talk RTNSS.
24 Please just say DRAP.

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1 MR. SCARBROUGH: Okay, the DRAP system.
2 The DRAP system that's high safety significance,
3 that's going to have additional attention applied
4 to it. So it sort of falls into this quality group
5 D category, because it's officially non-safety
6 related.

7 But there's going to be augmented requirements
8 applied to it.

9 But you have to have the alpha, the A
10 portion is going to be isolation, because that's
11 non-safety related. You want to isolate it from
12 the safety-related, and then you have other
13 portions. Just like you mentioned, there's some B
14 sections and C sections and the B would be a higher
15 level of importance in terms of their radioactivity
16 or, you know, fluids and things of that nature, and
17 then C sort of falls in that category. It's still
18 safety-related, but it --

19 MEMBER STETKAR: It's not safety-
20 related.

21 MR. SCARBROUGH: It's not safety-
22 related, but it has that -- it has that sort of a
23 tension of it's not an A or a B, but it's a fluid
24 system and it has --

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1 MEMBER STETKAR: I'm sorry, it could
2 be a B.

3 MR. SCARBROUGH: Yeah, yeah. You could
4 elevate it to a B. So I think I understand what
5 you're saying. I think we could add some more
6 discussion because the intention was to try to give
7 guidance in the Background section of how to sort
8 of deal with these high importance, non-safety
9 related pieces of equipment that are called
10 different things in different plants.

11 MEMBER STETKAR: You see, the problem
12 is Tom, is that the guidance was written for the
13 construct of a currently operating plant, where
14 you've either got safety-related stuff or non-
15 safety related stuff, and it discusses things like,
16 you know, reactor shutdown and residual heat
17 removal and auxiliary feedwater and all of those
18 things that everybody 30, whatever you said, 32
19 years ago kind of sort of thought they knew about.

20 And as Dick mentioned in the
21 introduction, there are now a whole bunch of stuff
22 that nobody ever thought about them. If there are
23 basic principles, if there are basic principles of
24 how one might populate the lists of B, C and D,

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1 because those kind of obviously apply all to non-
2 safety related stuff now, and people are assigning
3 them to non-safety related stuff, it would I think
4 be very useful for the guidance to elaborate those
5 principles.

6 Now if those principles align with the
7 principles that Toshiba used for AP1000, so be it.
8 I mean if the staff really loves those principles.
9 If the staff looks at the principles that were
10 applied for ESBWR or proposed for USAPWR or USEPR,
11 and feels that perhaps some modification of those
12 principles might be pertinent, so be it, you know.

13 MR. SCARBROUGH: Right.

14 MEMBER STETKAR: But kind of establish
15 the expectations going in, so that you don't get
16 different applicants coming and saying well
17 according to my principles this ought to be a D,
18 and somebody else says well according to my
19 principles, I thought it should have been a B.

20 MR. SCARBROUGH: Right, right. Yeah, I
21 understand, and that was sort of what we were
22 trying to do by referencing the A&S standard,
23 because I thought it does a good job of trying to
24 provide that sort of extra category that NRC

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1 doesn't have, a clear indication that there's
2 actually three categories.

3 There's safety-related, there's non-
4 safety related with augmented requirements and then
5 there's non-safety related, and it provides a lot
6 of good information in terms of how to deal with
7 that sort of non-safety related augmented category
8 which we have lots of, but we never really sort of
9 officially called them anything. And so -- but
10 yeah, I think --

11 MEMBER STETKAR: The new people are
12 calling them part of the Design Reliability
13 Assurance Program.

14 MR. SCARBROUGH: Yes.

15 MEMBER STETKAR: That's -- however
16 they're populating that, that's that category.

17 MR. SCARBROUGH: Right, I understand.

18 MEMBER STETKAR: Which by definition
19 includes everything that's called RTNSS but can
20 include much more.

21 MR. SCARBROUGH: Yeah, and I've heard
22 the PRA staff talk about that. That's what they --
23 that's where they put that equipment. But we
24 could, you know, we added that paragraph in the

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1 background discussion, but we could more specifics.

2 MEMBER STETKAR: That's I think what I
3 was trying to say, is that just simply establishing
4 that broad category is what people have already
5 done. They're doing it -- different vendors have
6 proposed different metrics about, you know, to
7 populate that big group.

8 But still if I just look at the
9 tabulated example from AP1000, that group typically
10 doesn't subdivide systems into piece parts. It
11 just says the RNS system, the normal residual heat
12 removal system is part of the Design Reliability
13 Assurance Program.

14 MR. SCARBROUGH: Right.

15 MEMBER STETKAR: It says that the
16 emergency -- I'm sorry. I have to be careful on
17 the terms. The ancillary diesel generators are
18 part of the Design Reliability Assurance Program,
19 despite the fact that they're non-safety related.
20 My initial reaction is okay, if something's on the
21 Design Reliability Assurance Program, at a minimum
22 it is Category D in this construct.

23 But it could be elevated to either B or
24 C. Parts may be A, if they're safety-related for

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1 pressure boundary. But those are -- that's a
2 different animal.

3 MR. SCARBROUGH: Right.

4 MEMBER STETKAR: But the broad
5 category doesn't give you criteria about what
6 parts. It's only, for example in AP1000 Section
7 3.2.2, where they go and say well these are the
8 attributes that we use to call something B. These
9 are the attributes we use to call something C and
10 then these are the final attributes that are left
11 over, that something is D.

12 MR. SCARBROUGH: Yeah exactly.

13 CHAIRMAN SKILLMAN: And to build on
14 this, it seems like the heavy lifting has been
15 accomplished, at least for the AP1000 in Table
16 3.2.1 and probably 3.2.2. Those tables really
17 depict what you're trying to communicate, and they
18 depict it in many fewer words than it will take you
19 to describe what those tables are doing.

20 MEMBER STETKAR: Well, it's really the
21 text in Section 3.2.2 of the AP1000 design
22 certification document, where they explicitly go
23 through each of the four equipment classes and say
24 -- there are bullet items that says this and this

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1 and this are the criteria that needs to be
2 satisfied to call it a B.

3 MR. SCARBROUGH: Yes.

4 CHAIRMAN SKILLMAN: But what's
5 important though is that those tables pull together
6 the safety classification, the ASME classification,
7 the seismic classification and the Appendix B
8 classification, 10 C.F.R. 50. It pulls those
9 pieces together, at least my orientation is this is
10 a guide for a designer, and I remember how awfully
11 difficult it was to achieve a somewhat
12 comprehensive grasp of all of those pieces, and
13 until this Reg Guide 1.26 and the Safety Guide in
14 1.29 were produced, a lot of us were really
15 floundering.

16 When this information came out, all of
17 a sudden there was an order to it. But what's
18 happened, like John just said, in all of these
19 years we've got now an ESBWR, we've got a NuScale,
20 we've got an AP1000, we've got passive, we've got
21 active, we've got people who would prefer to have a
22 Part 50 plant with the old way we did stuff.

23 So if this guide is going to be used
24 and useful, it needs some, from my perspective,

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1 some additional clarification of how a designer
2 would actually use this, because the Reg Guides are
3 for staff reviewers. So that a reviewer of the,
4 you know, new plant design X versus new plant
5 design Y can have the same basic principles, so
6 that they understand that yes indeed, these
7 principles were followed.

8 The expectations, principles, whatever
9 you want to call them were followed consistently in
10 terms of the classifications of that non-safety
11 related stuff.

12 MALE PARTICIPANT: Right.

13 MEMBER STETKAR: So that you don't get
14 into endless, you know, a particular reviewer's
15 interpretation of whatever is written or not
16 written, and their own experience might differ from
17 another person's. We heard a little bit of that
18 already this morning even among members of this
19 esteemed body.

20 And so there's a consistent
21 expectation, and you don't get something like
22 ratcheting, where a reviewer will say these other
23 guys categorized something that I think is similar
24 as Category B, and you're trying to get away with

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1 categorizing it as D, you know. Explain yourself
2 please.

3 MR. SCARBROUGH: We'll go back in the
4 discussion section, we can expand it to incorporate
5 the concepts that are in 3.2.2.

6 MEMBER STETKAR: But my point is don't
7 look at only 3.2.2 simply because we happen to be
8 building a couple of those today. You need to look
9 at the equivalent constructs that have been
10 proposed by other, you know, we have one other
11 certified design, the ESBWR. But we've got a
12 couple of others that, one that's still nominally
13 in the middle, one that isn't. But take a look at
14 those and see if there's a line.

15 MR. SCARBROUGH: I know. I had been
16 looking at the APR1400.

17 MEMBER STETKAR: And they will have a
18 list.

19 MR. SCARBROUGH: It's similar, it's
20 similar. But I'll take a closer look at it, and
21 also it's an active plant.

22 MEMBER STETKAR: It is. That's why I
23 keep bringing up the DRAP notion rather than just
24 RTNSS. It's not, it's beyond the thing called

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1 RTNSS.

2 MR. SCARBROUGH: Right, right.

3 MEMBER STETKAR: It's the stuff that
4 the applicant puts into their non-safety related
5 important to safety bin, and how is that treated?

6 MR. SCARBROUGH: Right, uh-huh, right.

7 MEMBER STETKAR: And that bin always
8 devolves into the DRAP list.

9 MR. SCARBROUGH: Now I had looked at
10 the AESBWR. Their numbering scheme was a little --
11 or lettering scheme was different --

12 MEMBER STETKAR: Yeah. Well, and
13 also, I mean as I said, the quantitative criteria
14 that they used to populate that bin was different
15 than the quantitative criteria used by AP1000,
16 which used the criteria adopted from AP600, and was
17 different from the criteria that had been proposed
18 by USAPWR and USEPR.

19 The quantitative criteria are
20 different. So the stuff that was thrown into the
21 bin was different. That's a different issue, you
22 know. The stuff that's in the bin is up to them.
23 But once it's in the bin, once you have that in the
24 DRAP list, then how do you distinguish among the

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1 fact that, you know, a particular piping section or
2 a particular valve is in Category B or C or D, for
3 example?

4 MR. SCARBROUGH: Right, right. How do
5 you make that separate?

6 MEMBER STETKAR: How do you make that
7 separate? What principles do you apply? AP1000
8 has enumerated the principles pretty well. I
9 didn't, I must admit I didn't go back and check the
10 others, because I just looked at AP1000.

11 MR. SCARBROUGH: Right, and the others
12 --

13 MEMBER STETKAR: Just because -- my
14 point is just because they made the decisions
15 doesn't necessarily make them God, you know, as far
16 as going forward.

17 MEMBER RAY: May I make one point here?
18 We did have a lot of discussion, and I think you
19 may remember it. I certainly do as AP1000
20 Subcommittee chair, on this point that we're now
21 discussing, the outcome of which you've been
22 referring to.

23 But the one thing I still want to
24 underscore again is, you know, Appendix B is

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1 separate from what you're talking about here DRAP
2 and so on. It's anything that prevents or
3 mitigates the consequences of an accident that
4 would have undue risk to the public health and
5 safety.

6 That's got to be independent. You're
7 not going to try and address that here in this Reg
8 Guide, . what is safety-related and what's not?

9 MR. SCARBROUGH: No, no.

10 MEMBER RAY: No, and as long as that's
11 the case, I'm good. I mean do all you can to make
12 it consistent like Dick's asking for and so on and
13 so forth. But at the end of the day, you step back
14 and say have we got the things that are safety-
15 related clearly defined. Now we went through that
16 agonizing process on AP1000. We'll probably go
17 through it again on everything else that comes up
18 for certification. But it's an independent
19 decision, okay.

20 MR. SCARBROUGH: Right, yeah. They're
21 two separate things. They sort of overlap in
22 certain aspects.

23 MEMBER RAY: They seem aligned because
24 the outcomes are the same, you know.

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1 MR. SCARBROUGH: Yes.

2 MEMBER RAY: But the point is they're -
3 - it's an independent imposition of very onerous
4 requirements on things that prevent or mitigate the
5 consequences of an accident with undue risk to the
6 public health and safety.

7 I'm not sure what damn valve or pump or
8 pipe you're talking about. If it does those
9 things, it's safety-related. If it doesn't, it's
10 not, okay.

11 MR. SCARBROUGH: I understand, yes.
12 We'll try to make sure that's clear.

13 MR. LUPOLD: My name's Tim Lupold. If
14 I could make a few comments on what I've heard here
15 today. The Reg Guide 1.26 is general velocity that
16 makes erectable pressure boundary as Quality Group
17 A, and then it looks at those systems that would
18 mitigate an accident and contain the fission
19 products, remove the fission products as Quality
20 Group B.

21 And then those other systems that
22 support like heat removal of these important
23 pieces of equipment, it makes them Quality Group C.
24 And then anything that drops out after that would

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1 be considered to be Quality Group D. Now if we
2 take that and look at it --

3 CHAIRMAN SKILLMAN: Well, wait a
4 minute. Let me challenge you there. I believe the
5 A is reactor coolant system pressure boundary,
6 reactor coolant system. B is all ECCS and decay
7 heat removal.

8 C is systems that contain radioactive
9 components, radionuclides and process, and D is all
10 others, and C may include all of your component
11 cooling water, essential cooling water, river
12 cooling water, all the systems upon which B depend.
13 At least that's my memory of the construct.

14 MR. LUPOLD: I believe that Quality
15 Group B under Part A talks about post-accident
16 fission product removal.

17 CHAIRMAN SKILLMAN: B is decay heat
18 removal and ECCS.

19 MR. LUPOLD: Yes, I'll read it.
20 Quality Group B, Part A. Systems or portions of
21 systems important to safety in their design for
22 emergency core cooling, post-accident containment
23 heat removal or post-accident fission product
24 removal.

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1 CHAIRMAN SKILLMAN: I'm just keeping
2 you honest, because you said C for decay heat
3 removal. Decay heat's B. At least that's what I
4 think you said.

5 MR. LUPOLD: That's okay.

6 CHAIRMAN SKILLMAN: That's okay. We
7 have a transcript.

8 MR. LUPOLD: I thought I meant
9 containment heat removal, okay.

10 CHAIRMAN SKILLMAN: Okay.

11 MR. LUPOLD: But what I'm --

12 CHAIRMAN SKILLMAN: Go ahead.

13 MR. LUPOLD: What I wanted to continue
14 on to say is that one system may be in various
15 quality groups.

16 CHAIRMAN SKILLMAN: Portions may be. I
17 agree with that.

18 MR. LUPOLD: As Mr. Stetkar pointed out
19 --

20 CHAIRMAN SKILLMAN: Oh yeah. John said
21 that. I agree with that.

22 MR. LUPOLD: --the residual heat
23 removal system, the isolation valves are separated
24 from the reactor pressure boundary. They actually

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1 are part of the reactor coolant pressure boundary
2 definition. So those valves and in that length of
3 piping in between would need to be categorized as
4 Quality Group A.

5 CHAIRMAN SKILLMAN: Yeah.

6 MR. LUPOLD: Now in the current
7 operating fleet of reactors, the residual heat
8 removal system, you know, might be a Category Group
9 B, it could be. Now there's sections of piping
10 there between containment and there's containment
11 isolation. Those sections would be Quality Group
12 B, you know.

13 Where we have, you know, all these
14 piping penetrations are Quality Group B, where they
15 penetrate containment.

16 CHAIRMAN SKILLMAN: As long as they're
17 not reactor coolant system pressure boundary.

18 MR. LUPOLD: As long as they're not
19 reactor coolant system pressure boundary, that is
20 correct, right.

21 CHAIRMAN SKILLMAN: Yeah, yeah.

22 MR. LUPOLD: They always go to the
23 highest level and then back down from there.

24 CHAIRMAN SKILLMAN: But I think a very

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1 important part of this conversation that John
2 spearheaded is with the passive designs, you can
3 have a decay heat removal system that's
4 accommodated under DRAP. It's not safety-related
5 at all.

6 MR. LUPOLD: True.

7 CHAIRMAN SKILLMAN: And that's why the
8 text in this document needs to be clear, so there
9 are principles upon which designers can agree. And
10 that is the fundamental reason why we're here
11 today.

12 When a number of this looked at this
13 document, we said gee whiz, how does the revision
14 to Reg Guide 1.26 apply to a fleet of plants that
15 are different from what we've seen in the past in
16 terms of passive systems, different applications of
17 equipment to accommodate the same functions, but
18 perhaps with a very different risk perspective.

19 Now I think the one that I'm so eager
20 to hear about here is NuScale. I want to hear
21 about containment and pool and how one classifies
22 what is purportedly a very small core, without a
23 whole lot of inventory, that's inside of a flask.
24 How do we work our way through the application of

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1 this regulatory guide to that machine?

2 MR. LUPOLD: We're going to talk about
3 that.

4 CHAIRMAN SKILLMAN: Good.

5 MR. LUPOLD: But we can go through that
6 and talk about that. Let me clarify one item,
7 though. When I talked about heat removal, I was
8 talking -- I was referring more to like the
9 component cooling in the service water systems.

10 CHAIRMAN SKILLMAN: Okay, all right.

11 MR. LUPOLD: Component cooling does a
12 lot of bearing, heat removal and, you know, other
13 heat exchangers, things like that. I did not mean
14 to imply that residual heat removal was included as
15 part of that when I talked about Category C.

16 CHAIRMAN SKILLMAN: Okay, Tim.

17 MR. LUPOLD: You want to go to the
18 slide, put up a picture of the NuScale reactor.

19 CHAIRMAN SKILLMAN: No. Let's stay on
20 -- we're at Slide 12. Let's continue the marathon
21 here. Let's go to 13 and keep on going.

22 MALE PARTICIPANT: Yeah. Go on to 13.

23 MR. LE: Okay. So okay. Let me pick
24 up on Slides No. 13, which is the related guidance.

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1 For a link, I want six. These are the related
2 guidance to the Reg Guide 2.60. SRP Section
3 3.2.2, as we mentioned previously, this SRP section
4 is the system body group classification. We are
5 using that as the standard review plan for the new
6 reactors applications.

7 Reg Guide 800, SRP Section 17.5 for the
8 assurance program description, design
9 certification, early site permit and the new
10 license application. These apply to using the
11 reference to Reg Guide 1.26. Reg Guide 1.143, the
12 design guidance for radioactive waste management
13 system, structures and components installed in the
14 light water cooled nuclear power plants.

15 CHAIRMAN SKILLMAN: You raised the
16 point of the Standard Review Plan Section 3.2.2.
17 It is in draft, Revision 3. Why is still draft?
18 Why is the Standard Review Plan still in draft?
19 It's been a year.

20 MR. LUPOLD: It's just in draft form
21 because we revised a whole large quantity of SRPs
22 at one time, and until all those SRPs get to the
23 stage where we can release them as a group, it's
24 still in draft. So it's just a formality until it

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1 goes through.

2 CHAIRMAN SKILLMAN: But it's also
3 referred to in the Version 1.26 Rev 5. So it seems
4 like where do all of these pieces finally gel, or
5 do they finally link as final documents?

6 MR. LE: Yeah, they are connected.
7 They are connected. Section 3.2.2 refers to
8 several area regarding Reg Guide 1.26 for the
9 applicant and that is (indiscernible).

10 CHAIRMAN SKILLMAN: Yeah. It's
11 referred to in the Standard Review Plan.

12 MR. LE: Right.

13 CHAIRMAN SKILLMAN: Okay. Please
14 proceed.

15 MR. LE: Okay. So before I get to the
16 summary of this presentation, I would like to go to
17 the backup slide. Well, there's two slides that we
18 referred that's (indiscernible). It's Slide Nos.
19 15 and 16, which is the -- referred to as
20 NuScale's classification approach. So it's in a
21 NuScale design.

22 MR. LUPOLD: Before you continue on,
23 Tuan, let me just say that we have had a lot of
24 interactions with NuScale up to this point. They

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1 have shared some details with us about what their
2 proposed design is. However, they have not made a
3 submittal to us at this time.

4 MEMBER STETKAR: Is this public
5 information, by the way?

6 MR. LUPOLD: This is public information
7 that we're going to go over. However, our
8 discussions will be somewhat speculative based on
9 how we think they may classify these systems, and
10 then you'll hear our opinions about, you know, what
11 we think would be an appropriate classification.

12 MEMBER STETKAR: And for the record,
13 the ACRS has not yet -- we've written one letter on
14 their quantitative risk methods that they're
15 proposing to determine whether something is
16 important, quantitatively important to safety.
17 We're not quite finished with that, and we haven't
18 yet had any meetings on any of the other of their
19 proposals for their safety classification system.

20 So all of this, as far as the ACRS,
21 even at the subcommittee level, is more speculative
22 than what the staff has seen. Let's just put it
23 that way.

24 MR. LUPOLD: Okay.

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1 MR. LE: So as Tim mentioned, the
2 information in these two slides, No. 15 and 16, is
3 not anticipated. This information is because the
4 staff have an interface with NuScale, the
5 applicants on several area regarding the
6 classification, and noticed this information public
7 information and no proprietary information on these
8 two slides, 15 and 16.

9 Okay. Let me go through. So it's
10 NuScale classification approach is Reg Guide 1.26,
11 it definitely is used for the quality group
12 classification for NuScale design. That express
13 that propose verbally through communication with
14 the applicant. I think staff anticipate that Reg
15 Guide 1.26 will be used very much for the passive
16 design, for NuScale design.

17 Also, Reg Guide, this SRP Section
18 3.2.2, which is system quality group
19 classification, with reference to Reg Guide 1.26 is
20 also to be used for DCD and the COLA application
21 referred to the NuScale design. NuScale
22 application tentatively scheduled to be submitted
23 by September of this year, 2016. With that, I'm
24 just going to go to some simple classification for

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1 the NuScale.

2 First of all, it's the bigger one, this
3 is the NuScale in general somewhat slim, given how
4 some of the components for the reactor NuScale
5 design. This is including the reactor vessel
6 supports, steam generator, (indiscernible) nuclear
7 core reference to the water, the water line, steam
8 line.

9 As Reg Guide 1.26 provide the guidance
10 for Quality Group A, so it's a special reactor
11 pressure boundary, reactor coolant boundary
12 components would be expect to be the classification
13 for Quality Group A, a higher quality group.

14 MR. LUPOLD: The reactor coolant
15 pressure boundary in this particular drawing --

16 CHAIRMAN SKILLMAN: Make sure you're on
17 the mic.

18 MR. LUPOLD: The reactor coolant
19 pressure boundary in this particular drawing is
20 quite different than any other reactor we've ever
21 looked at and evaluated. Reactor coolant pressure
22 boundary, this is the reactor vessel. That's
23 basically the reactor coolant pressure boundary,
24 but there might be a charge in the letdown line

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1 that penetrates into the reactor vessel. So that
2 would need to be Quality Group A until it goes to
3 the double isolation valves associated with that.

4 Now depending on whether that system is
5 safety-related or not, is going to determine what
6 the downstream piping classification will be. Now
7 I don't know what that final classification is
8 going to be at this point. There's some
9 speculation that it may be non-safety related, and
10 you know if it is, then it would be Quality Group
11 D. You'd make a transition at the -- at those two
12 valves.

13 MEMBER STETKAR: Or B or C.

14 MR. LUPOLD: If they want to make it a
15 B or a C, that's one thing that I do want to point
16 out, that if a licensee comes in and proposes a
17 quality group which is higher than what we think is
18 necessary, we're going to find it acceptable.

19 MEMBER STETKAR: That is the key. How
20 does the staff consistently determine what is
21 necessary, what criteria do you use? It's always
22 dangerous to do things in real time, so bear with
23 me if I'm in error. I just happened to pull up the
24 design certification for another -- not the AP1000.

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1 I won't -- I'll let things lie.

2 They've proposed ten different
3 equipment classifications in this particular.
4 Seven of them, six of them are non-safety related.
5 One of them in particular is non-safety related,
6 but is determined to be risk significance, so it's
7 on the DRAP list. Uniformly, all of the non-safety
8 related stuff is either categorized as D Dog or not
9 applicable class.

10 That's not the distinctions, for
11 example, that we see in AP1000. So when the staff
12 reviews now AP1000 and their distribution of non-
13 safety related yet important to safety
14 categorization among B, C and D now, how does staff
15 determine that this categorization of D or N/A
16 uniformly for the same kind of stuff is
17 appropriate?

18 How do you -- how does the staff
19 determine? You said well, if the staff thinks that
20 a C would have been appropriate and they decided to
21 categorize it as B, you're not going to argue with
22 them. How does the staff determine that a C is
23 appropriate?

24 MR. LUPOLD: We follow the guidance

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1 that's used in Reg Guide 1.26.

2 MEMBER STETKAR: I'm sorry. The
3 guidance didn't, doesn't address the things that
4 I've been talking about.

5 MR. LUPOLD: Okay. I actually haven't
6 run across a system where I couldn't apply the
7 guidance of Reg Guide 1.26.

8 MEMBER STETKAR: A normal residual
9 heat removal system in the USAP, I'm sorry, AP1000,
10 how does the guidance in 1.26 tell me as a designer
11 or you as a staff reviewer which ought to be in B,
12 C or D?

13 MR. LUPOLD: Is that system required to
14 shut down the system in the event of an accident or
15 to mitigate the consequences of an accident?

16 MEMBER STETKAR: It is -- it is a --
17 if the entire system, aside for the reactor coolant
18 system pressure boundary isolation valves, the
19 entire system is non-safety related. The entire
20 system non-safety related.

21 MEMBER RAY: John, can I --

22 MEMBER STETKAR: As are the ancillary
23 diesel generators. They are non-safety related.
24 However, criteria have been applied in the US, I've

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1 got to be careful here, in the AP1000 to say that
2 here is a valve in that non-safety related system
3 that Quality Group B applies to that valve. Here's
4 another valve, Quality Group C applies to that
5 valve. Here's a heat exchanger, Quality Group C
6 applies to that.

7 Here's the motor for the pump, that's
8 D, but the pump itself, because it's apparently a
9 pressure boundary thing in a non-safety related
10 system, is C. And in their defense, AP1000 has
11 with reasonable clarity listed their criteria that
12 they use to populate those bins.

13 I'm looking at another submittal right
14 here that has a different categorization scheme,
15 and everything that's non-safety related is either
16 D and only D, or N/A completely. It's off the
17 list, despite the fact that it's important to
18 safety.

19 MEMBER RAY: John, can I add to your --
20 maybe bring a little different perspective. Having
21 gone through this again, as I said the AP1000,
22 look. Particularly with passive plants, and I'll
23 talk about active in a second, with a passive plant
24 is there anything active that is required to

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1 prevent or mitigate the consequences, blah blah
2 blah.

3 By definition, no, okay. Now for 45
4 years, it's always been a challenge to decide what
5 is needed to prevent or mitigate. In other words,
6 do we need to rely on active systems even for a
7 passive plant, and that's something that's always
8 needs to be challenged and addressed.

9 Are you accepting the passive
10 capability here because you have active systems
11 that are usually referred to as investment
12 protection or plant investment protection
13 equipment? So you want to be sure that no, I'm not
14 relying on those active systems even in the back
15 of my mind, when I accept the adequacy of the
16 passive systems for this plant.

17 So in passive, it always gets into a
18 dilemma and many times we talked about the active
19 systems that you would -- anybody in their right
20 mind would rather have prevent or mitigate the
21 consequence of an accident than the passive
22 systems, because they are a last resort in many
23 people's mind.

24 Okay. So that has to do with what's

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1 safety-related and what's not safety-related, and
2 as Dick has said before, there is a connection,
3 although the connection needs to be made not by
4 saying well, this is safety-related and therefore
5 or it's not and therefore. The quality groupings
6 stand on their own two feet.

7 Now in an active system, let's say I
8 need one system typically and I have two. Well by
9 God both of them are going to be safety-related.
10 Supposing I have three, supposing I have four,
11 supposing I have five. Is there some point at
12 which I can say that the active, even in active
13 systems, because I've got so many or they're so
14 diverse, that they're no longer safety-related?

15 Well that's a debate that can take
16 place. I don't think it affects this Reg Guide
17 personally. I think the quality group
18 classifications and the DRAP decision and all that
19 take place for or are most relevant to I guess I
20 would say the non-safety related stuff that you
21 want to have some reasonable assurances going to be
22 available and work when needed.

23 Whether it's for shutdown cooling, for
24 decay heat removal in the event of a loss of onsite

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1 power or a loss of normal cooling, whatever it
2 happens to be.

3 So what I've tried to say in all of
4 this is simply that it is getting more complicated,
5 and the examples that John is citing I think are a
6 challenge to all of us, if what we expect in the
7 end of the day is consistency and something
8 clarity, because after all we deal in an
9 environment where we need to be able to explain why
10 things are the way they are.

11 But it isn't going to be easy and what
12 John's asking for here is a real challenge for you
13 in my judgment, because at the end of the day,
14 you're talking about quality groups for stuff which
15 isn't required to prevent or mitigate, but which
16 serves nevertheless an important function as we
17 evaluate the plant's acceptability from a
18 probability standpoint, for example, which is
19 another lens at which things are looked at.

20 It's important to be able to say this
21 is more important, that's less important, even
22 though it isn't safety-related in both
23 circumstances. So I just want to say that, because
24 at times it seems like floundering here, and I

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1 think the way to at least simplify part of the
2 discussion is how I led off, by saying if it's not
3 required to prevent or mitigate, then we can talk
4 about what quality group we think it should be
5 assigned to.

6 But we may not be able to come up with
7 hard and fast rules. Maybe the reference to NEI
8 industry-derived classifications is one way to
9 approach it. But if it is required to prevent or
10 mitigate, the answer's easy to know what the
11 consequence of that is.

12 MR. LUPOLD: And if I could comment on
13 that, I believe that that -- that Reg Guide 1.26
14 was really written to identify the classification
15 for those components that are required to shut down
16 the reactor, maintain it in a safe condition. Now
17 you may have different systems that do that.

18 In your passive plants, your normal
19 heat removal system could be classified as non-
20 safety related, provided you have other systems
21 that could be used in order to shut down the plant
22 and remove decay heat removal, like your passive
23 heat removal system.

24 That could allow you to make your

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1 normal system non-safety related, and let me see,
2 where was I going to go? But the Reg Guide 1.26
3 really was never meant to tell you how you're going
4 to end up treating all those groups that fall into
5 Group D. But it's looking at what's A, B and C and
6 all that falls out that's not A, B and C is D, and
7 other areas, other requirements, other Reg Guides
8 would then come into play in how you're going to
9 treat those.

10 MEMBER RAY: But you began by pointing
11 out the difference in the reactor coolant pressure
12 boundary in the NuScale example that's on the
13 screen. We've always assumed that that reactor
14 coolant pressure boundary is necessary to prevent
15 or mitigate. But in a design it might be the case
16 that it's not. It wouldn't affect the quality
17 group classification here, right?

18 In other words, you could have
19 something that was even A, because it was a reactor
20 coolant pressure boundary but not safety-related,
21 at least in abstract theory, and so I just always
22 see the two things as distinctly separate.

23 The quality group classification
24 scheme, which is what we're here to talk about,

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1 it's not easy now that we have plants that have
2 multiple redundancies and passive systems to
3 prevent or mitigate.

4 That then takes the issue of safety-
5 related off the table and we're talking about
6 something else. Dick talked about the fact of how
7 long it's been since this Reg Guide's been revised.

8 I think it is worthwhile for us have
9 had this discussion because we do need to think
10 about it, and you're in the process of discussing
11 here how the -- how this applies logically going
12 forward. It's not easy it doesn't seem to us.

13 MR. LUPOLD: It does take thought. It
14 does take discussions.

15 CHAIRMAN SKILLMAN: Okay. Let's talk
16 for a minute about where we would like to go from
17 here. At least from what I've heard from my
18 colleagues is the critical topics are the
19 functional performance requirements, and the
20 functional performance requirements apply to a
21 plant that has active cooling or passive cooling.

22 The way the functional performance
23 requirements are supported may be different, based
24 on whether it's an active plant or a passive plant.

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1 So what we have right now on the table in this Reg
2 Guide, and it seems to be focused particularly on
3 Quality Group B, although it includes Quality
4 Groups B and C, is instead of looking at these
5 issues from a hardware perspective, rather to
6 identify them perhaps in the table as a functional
7 performance requirement.

8 A functional performance requirement is
9 retain or maintain the reactor coolant system
10 pressure boundary. That covers you out to two
11 valves. That's general design criteria 55 for
12 primary systems penetrating containment. That gets
13 to the issue you were talking about. It also
14 brings in 56 and 57 for open systems and closed
15 systems.

16 It gets to the RTNSS and it gets to the
17 DRAP that John's talking about, because we can
18 functionally remove decay heat with a Quality Group
19 D or lower, as long as we have the right treatment
20 of that equipment. That then begins to get to the
21 issue of having common principles as opposed to
22 common hardware or common Appendix B issues like
23 Harold was talking about. I agree with that.

24

So what brought us here today was the

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1 challenge, how does the emergent 1.26 apply to new
2 plants that have passive cooling, new plants like
3 SMRs that are quite candidly remarkable in their
4 ingenuity, to address nuclear functions using terms
5 that we've used since the industry was born, that
6 use those terms in a new fashion?

7 Containment inside a flash, in a pool.
8 That's a different deal, completely different deal.
9 If we -- if this document were to be oriented
10 toward the functions that the quality groups are
11 intended to apply to, I think we get very quickly
12 to a common set of rules that can be quite candidly
13 exploited for any design that might be thrown at
14 the Commission, whether it's an SMR, whether it's
15 actually a non-light water reactor, a reactor
16 cooled by a different coolant, because they
17 function to performance requirements as opposed to
18 hardware requirements.

19 So Tom, you're talking about adding
20 some paragraphs. I'm not sure adding a couple of
21 paragraphs and trying to hook the ENS requirement
22 and the safety levels and the quality assurance
23 levels and other pieces is going to do it for us.

24 I think we need to be talking about

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1 functions and how the functions get addressed,
2 either in terms of code or how the code is not
3 necessary if there's sufficient defense, which
4 quite candidly the regulatory guide does permit.

5 It says if you can find another way to
6 do this, you're going to have to justify it, but
7 we'll listen to you.

8 MR. LE: Is that SME OM code? Is it
9 adding the reference to that, to address the
10 functional requirements for the pump valve and
11 those things.

12 MR. SCARBROUGH: Well, we could look at
13 it and see if -- because when we first started
14 this process to update it, one of the -- one of the
15 concerns that was raised was we don't want to
16 confuse the current plants. We don't want to make
17 it look like we're backfitting them, you know.

18 They've already -- they have a
19 categorization system. They've used it for 10 or
20 20 years, and we don't want to look like we're
21 changing it. But we could look at it from like an
22 appendix of something where we might try to discuss
23 new reactors or sort of a different approach that
24 might be used for newer reactors, rather than

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1 trying to change the current table.

2 That would be one of my concerns. I
3 don't want to have people come back and say well,
4 you're changing our current plants in
5 categorization.

6 MEMBER STETKAR: It is a regulatory
7 guide. You know, you don't have to apply it to an
8 existing -- it's like any other regulatory guide.
9 Unless you want to make a change to the plant and
10 invoke, you know, Rev 5 of Reg Guide 1.26, it
11 doesn't affect you. So I'm not sure why you're
12 worried about that.

13 MR. SCARBROUGH: Well, just because
14 I've had those criticisms come in, even though I
15 agree with you exactly.

16 CHAIRMAN SKILLMAN: How about a passive
17 plant section?

18 MR. SCARBROUGH: Yea.

19 CHAIRMAN SKILLMAN: How about an SMR
20 section? How about a --

21 MEMBER STETKAR: No, no, no, Dick
22 please. From my perspective, don't try to do that.
23 You're going to pigeonhole things into something
24 that's intractable. How do you treat non-safety

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1 related stuff that's important to safety in this
2 construct? Is it by definition D and only D, or
3 are there attributes that you ought to think about
4 that could elevate it to B or C, and I think the A
5 is pretty clear.

6 The question that I've had is, and
7 where I see the differences is once I've determined
8 that something is in that big pot that's called
9 non-safety related but important to safety, I don't
10 care whether it's categorized as RTNSS for passive
11 plant or DRAP for an active plant or DRAP for a
12 passive plant, or whether I've got Joe's design or
13 Harry's design.

14 Once it's in their pot, are there basic
15 principles of saying well, here are the
16 characteristics that you need to think about, to
17 elevate something above D to C, above C to B. I
18 don't know, you know. I don't know, but I see
19 distinct differences in the philosophy that's being
20 applied.

21 Given that something's in that pot
22 already, in terms of how bits and pieces of those
23 non-safety systems are being classified, are being
24 categorized, all referring to this guidance.

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1 MR. SCARBROUGH: Yes, right, and
2 they've sort of used the sort of functional concept
3 to maybe move those up into a B or a C category,
4 but are certainly using the functional portion.

5 MEMBER STETKAR: Right, right. That's
6 what Dick is saying.

7 MR. SCARBROUGH: Yeah.

8 MEMBER STETKAR: But all I'm
9 cautioning is don't try to make it a passive plant,
10 new plant or an active new plant or an SMR, because
11 I don't even know what an SMR is. It's something
12 that isn't a BMR, which is a big modular reactor.
13 It's all of those.

14 MR. LUPOLD: I agree. This was never
15 really meant to be a prescriptive -- well, I
16 shouldn't say prescriptive. It was never a cook
17 book to say that, you know, if you have this system
18 it's this and then if it's designed to do this,
19 it's this. It was really meant for high level
20 guidance on how these systems.

21 Now I could say reactor coolant
22 pressure boundary is kind of an exception, because
23 the Code of Federal Regulations said if it's
24 reactor coolant pressure boundary, your design has

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1 to be Class A.

2 MEMBER STETKAR: But a lot of the
3 stuff that's listed in here by name, like the name
4 residual heat removal, or the name auxiliary
5 feedwater, are names that apply to things that are
6 currently operating.

7 Those kind of functions sort of exist
8 in new systems, in new plants, but in a lot of
9 them they're non-safety related, despite the fact
10 that they're designed for residual heat removal,
11 despite the fact that you have to run the RNS
12 system at the AP1000 when the plant is shut down.
13 That's the normal residual heat removal system. So
14 now how does that jibe with this whole concept?

15 MR. LUPOLD: Right. So we could go
16 back and take a look at the Quality Group D, and
17 see if we can come up with some guidance to address
18 how do you elevate things, you know.

19 MEMBER STETKAR: And it's okay. I
20 mean if the conclusion is that you don't need
21 guidance to elevate it further, make that pretty
22 clear so that the table that I'm looking at that
23 just says this entire system, despite the fact that
24 it's non-safety related and important to safety, is

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1 D. There's no distinction among valves and things
2 like that like the AP1000.

3 As long as it's clear that that's okay,
4 then people should understand that, and as you said
5 if they voluntarily want to raise it from D to B to
6 C or C, that's up to them.

7 MR. LUPOLD: Right.

8 MEMBER STETKAR: But if there is a
9 real expectation among the staff, if you look at it
10 and say oh yeah, there's certain attributes of
11 these systems that we really do want to be elevated
12 in -- to a higher category, specify those, so that
13 you know applicant, the one that I'm looking at
14 right now, sort of knows that that's the starting
15 point.

16 MR. LUPOLD: And I don't want to commit
17 to doing that for this revision.

18 MEMBER STETKAR: Okay. If you don't
19 do it for this revision, you're going to do it in
20 32 more years?

21 MR. LUPOLD: Hang on a second. Well,
22 it was last revised in 2007, okay. A couple of
23 other things. Aux feedwater typically was not a
24 safety-related system when these plants were built

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1 back in the 70's. A lot of them upgraded their aux
2 feedwater systems, so it was added. So these
3 things were revised over time.

4 But what I wanted to say is I put this
5 on the schedule to be revised again within five
6 years, all right, and I've asked for that, okay.

7 MEMBER STETKAR: Is that going to help
8 APR1400 and NuScale?

9 MR. LUPOLD: APR1400 is being reviewed
10 right now, and we are using Reg Guide 1.26 in order
11 to review their criteria, and it seems to be
12 working. You know, we've reviewed those sections,
13 3.2.2 and they seem to -- we have, I think, one
14 open question, where they've categorized a shell of
15 a heat exchanger as one category and a piping
16 system that comes up to it is a different category.

17 So our question is okay, you've got a
18 3, you've got a 2. There's no boundary separation
19 in between. So we have a question in on that with
20 that, and that's really the only open item we have
21 left. Nick, you're reviewing that section. Are
22 there any other open items, Nick Hanson. That's
23 it?

24 MR. HANSON: Yeah.

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1 MEMBER STETKAR: It's a little bit
2 easier for APR1400 and I'll give you that.

3 MR. LUPOLD: It is.

4 MEMBER STETKAR: It's an active plant.
5 It smells a lot like, you know, operating plants.
6 How does it help NuScale?

7 MR. LUPOLD: We're looking at NuScale
8 right now. We're looking at how they plan to apply
9 it. We haven't done the official review. From the
10 way I've seen they've applied it, it seems
11 relatively consistently. They're making the
12 penetration piping category group -- Quality Group
13 C for the penetration piping. They're making their
14 reactor coolant system piping and reactor vessel
15 Quality Group A.

16 They're treating their reactor -- their
17 containment vessel, it's a steel vessel, they could
18 have had some options there. There's a possibility
19 they could have designed it to ASME NE, which is a
20 metallic containment. They could design it as a
21 vessel as MB (phonetic). We'll see what their
22 final decision is when they come in in December on
23 that.

24 You know, and other things come into

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1 play on that. It's not always the straight this is
2 the classification as your guidance. NuScale has
3 told us that, you know, we want to entertain the
4 possibility of not doing a Type A test. Now that
5 comes into play if you're not going to do a Type A
6 test what your quality standards may be for
7 designing a vessel.

8 So you know, we're negotiating. We're
9 talking with them. We're trying to find out, you
10 know, will their decisions ensure the health and
11 safety of the public. That's the bottom line.

12 CHAIRMAN SKILLMAN: Well, isn't that
13 the primary reason why we're saying these functions
14 need to be established based on principles? What
15 you're talking about for that containment is one of
16 the major features in the gap analysis for NuScale,
17 and the one that you mentioned is one of five or
18 six that at least I think are extremely important,
19 at least in terms of our 40 or 50 years of history
20 and what has kept us safe, right.

21 And so the idea that some of those
22 cardinal design rules that we've maybe become
23 complacent with but they have served us well, that
24 those might be challenged or overturned, at least

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1 constitutes in my mind an alarming issue that needs
2 to be vetted very thoroughly.

3 We need to really understand what the
4 benefit is to what appears to be a reduction in
5 commitment for some of the things that we think are
6 highly important.

7 MR. LUPOLD: Well, from what I have
8 seen so far of the NuScale design, I haven't really
9 seen them challenge the overall principles that are
10 laid out in Reg Guide 1.26 at this point, because
11 they are making a reactor vessel, their reactor
12 coolant pressure boundary Quality Group A and
13 making their containment and the penetrations
14 Quality Group B or higher.

15 So -- and there's not a lot of Quality
16 Group C equipment with this particular reactor,
17 based on the way it's designed. They have an ECCS
18 system which appears to me as though they're
19 looking that to Quality Group B. That's a unique
20 ECCS system in the way they remove decay heat
21 removal.

22 But from what I've seen so far, the
23 proposals are consistent with the overriding
24 guidance, high level guidance that's in Reg Guide

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1 1.26.

2 CHAIRMAN SKILLMAN: Tim, you made a
3 statement about five minutes ago that you do not
4 want to revise what is the current draft 5 and that
5 you may consider revising it in five years. Is
6 that accurate?

7 MR. LUPOLD: That is correct. As a
8 matter of fact, I've given one of my staff the task
9 of looking at Reg Guide, I'm sorry, standard ANS
10 58.14. I like that standard.

11 I've looked at it, used it in a few
12 applications and I think we ought to go farther
13 than just reference it in Reg Guide 1.26, and I
14 think there's other things that are out there that
15 we can look at and actually endorse as guidance,
16 you know, for this.

17 So that's what I want to try and do in
18 five years, is look at some of these other
19 standards, review them within the NRC and vet it
20 within the NRC, find out if there are issues in
21 there that we either don't agree with or can't live
22 with, and then get that into the Reg Guide.

23 Now at the same time what we could do
24 is talk about these concepts that we've talked

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1 about here and incorporate that into the revision.

2 But to go back right now and put these in this

3 Revision 5, it's going to delay it immensely.

4 There's going to be a lot of
5 discussions that have to take place with a lot of
6 staff in the NRC before we're going to be able to
7 come to an agreement.

8 The mechanical guys could probably come
9 up with an agreement fairly quickly. But then we
10 start bringing in I&C, we start bringing in
11 electrical because we start looking at functions,
12 you know, of these other systems. This is a
13 mechanical. This is regarding how you design your
14 mechanical systems and your mechanical piping.

15 It was to get you to Quality Group A as
16 a Class 1 for the ASME. Quality Group B goes to
17 Class 2. Quality Group C goes to Class 3. It
18 really didn't get into IEEE standards in here to
19 any extent, things like that, and some of the
20 things we're talking about RTNSS kind of brings
21 that into play. I'm sorry I said that wrong. I
22 used that term.

23 CHAIRMAN SKILLMAN: Well then if what

24 you're saying is you have no intention of revising

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1 Rev 5 that we've reviewed and we're making our
2 comments on that Rev here, then it seems to me that
3 we on the ACRS have a -- we in the Subcommittee
4 have a task to recommend to the full Committee
5 whether we do or do not want to write a letter on
6 the existing Rev 5.

7 MR. LUPOLD: I would really like to
8 know -- I would really like to know the areas that
9 I need to focus on for the next revision. But to
10 do it right now, I think it would just interfere
11 with -- interfere is not a right word.

12 It would prolong the approval process
13 considerably, and I can -- I can start, you know,
14 with the next revision to incorporate those
15 concepts and that's -- that's what I had planned on
16 doing, is making a revision in about five years to
17 this, to incorporate some of that.

18 We haven't even talked about the high
19 temperature gas reactor. They weren't going to
20 classify anything. They were only going to have
21 safety-related and non-safety related systems and
22 we're going to classify them as ASME Class 1, 2 or
23 3. So somewhere along the line, we'll probably
24 have to -- we have to address that also.

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1 CHAIRMAN SKILLMAN: Colleagues, do you
2 have any comments at this point? Harold?

3 MEMBER RAY: No, I don't have anything
4 further. I would just say again it's a challenge
5 to address in the -- and I think not only do we
6 have the new reactor designs that are on the
7 immediate horizon, and some like gas reactors that
8 have been -- have come and gone in the past also,
9 but there's a tremendous potential for there to be
10 quite a few new concepts to have to be addressed
11 here in the next decade, so that this is a worth --
12 this area is worth devoting some time and attention
13 to certainly.

14 And it's complicated. With that, I'll
15 just leave it. The idea that maybe getting this
16 out but then later on trying to address the issues
17 that are still looming is something we can reflect
18 on. I don't have any opinion about that one way or
19 the other now.

20 In other words, whether it's too
21 abstract or what we need to do is like we've done
22 on the AP1000 and like we're doing on other
23 emergent passive or other new designs, just do it
24 and see how it comes out and whether we are

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1 comfortable with it, rather than trying to
2 speculate about what possibilities exist.

3 But I guess having said that, I'll
4 conclude by saying I think there are some
5 principles that we should be able to bring into
6 focus and reflect on the Reg Guide.

7 MEMBER STETKAR: Let me try something.
8 Dick, I unfortunately tried to do something in real
9 time here that I'm failing, so I'm failing twice.
10 You said well, you're kind of reluctant to tackle
11 the broader issues during this revision of the Reg
12 Guide. What's the forcing function that says we
13 have to revise this Reg Guide today?

14 In other words, who's going to use Reg
15 Guide 1.26? None of the operating plants are going
16 to use it; they've already used it. So it must be
17 intended for the new reactors. If we have problems
18 in terms of how it will be used for the new
19 reactors, what is the time pressure to put
20 something out on the street that we might be
21 concerned about?

22 In other words, why are we constrained
23 by the fact that well, if I tackle the big picture,
24 I can't get the revision out today?

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1 MR. LUPOLD: I don't know if I have a
2 good answer to your question. Obviously, we can
3 hold this up and let it go and take it back through
4 the review process within the staff, put it out for
5 public comment to the public and go through all the
6 steps. About two years minimum.

7 MEMBER STETKAR: But it might be
8 timely for the newer designs coming in in that two
9 to five year period, for example, or two to eight
10 year period or whatever.

11 MR. LUPOLD: It could be. Applicants
12 use that revision of the Reg Guides that are
13 approved six months prior to their submittal of
14 their application. So if I go back and revise
15 this, there's no way that -- unless NuScale really
16 changes their schedule for submitting their
17 application, that they would use this.

18 MEMBER STETKAR: But I'm thinking
19 beyond, you know, NuScale. I have no idea what's
20 going to happen if we're in a lull now, aside from
21 NuScale in terms of the bow wave of, you know,
22 another resurgence coming in. Isn't it time to
23 kind of clean this up now for the new people who
24 might come in? Being an optimist.

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1 MR. LUPOLD: Well, I honestly don't
2 believe I'll be that far ahead of the game if I go
3 and revise this now, then what I'll be if I were to
4 start working on another revision right after this.
5 I really don't think I'll be that far ahead. Maybe
6 a year or two, but --

7 MEMBER STETKAR: And that's a resource
8 issue. I'm just trying to find out, you know, what
9 is indeed the compelling need to issue this
10 revision today, in terms of its applicability
11 throughout the industry?

12 (Simultaneous speaking.)

13 MEMBER STETKAR: More adequately
14 toward staff reviews of things.

15 MR. LUPOLD: It's on a list. It's
16 being tracked. You know how things go when you --
17 when you start doing something and you track it and
18 people want to know is it done, etcetera. You've
19 all worked in industry. You've all had those lists
20 and you've all held people accountable for trying
21 to meet those dates. And but other than that no,
22 it could be deferred but --

23 MEMBER BALLINGER: To turn it around a
24 little bit, is there a compelling need that would

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1 prevent you from issuing it now and then just doing
2 the revision five years from now?

3 That's kind of another way to --
4 another way to look at it. Is there a fence that
5 we're seeing here that says uh-uh, we should not do
6 this. We should revise it, do another revision now
7 as opposed to waiting for five years? Is there
8 something that's that important that's going to
9 affect things?

10 MR. LUPOLD: There's nothing that would
11 prevent us from finalizing this and issuing it now.
12 When we entered into this, the whole idea for the
13 upgrade was just to bring it up to our current
14 format standards, add a couple of additional
15 guidances to make applicants aware are out there
16 that they could use.

17 Not that we've endorsed, but that they
18 are out there and they could use, you know, if they
19 make the justifications.

20 MEMBER BALLINGER: And let's say
21 NuScale does proceed on a schedule which requires
22 they use this, then you fight through the "we,"
23 everybody fights through the process of deciding
24 what's what and everything. Does that provide

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1 value for the next revision, or is it just empty
2 magnification?

3 MR. LUPOLD: Many of the concepts that
4 are in ANS 58.14 can be applied to the NuScale
5 reactor. I say that because I like ANS 58.14
6 because it actually tells you how to do
7 specification breaks, you know, where are you going
8 to make the changes in class, how you do that,
9 what's acceptable to have a break there. Reg Guide
10 1.26 doesn't talk about any of that.

11 So just knowing that that's in there
12 and that we've listed it as a possible alternative
13 to Reg Guide 1.26 tells licensees that we'd
14 entertain that, the use of that.

15 MEMBER BALLINGER: So there's no reason
16 to step back a little bit and do as you were
17 suggesting, is to make the ANS standard a little
18 bit more prominent in the Reg Guide?

19 MR. LUPOLD: Just delays, you know,
20 when we would get this revision out.

21 CHAIRMAN SKILLMAN: Well, it appears as
22 though the ANS standard was not referenced in Rev
23 4.

24 MR. LUPOLD: No, it was not.

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1 CHAIRMAN SKILLMAN: So by referencing
2 it in Rev 5, you're saying hey, there's a backup on
3 1.26 which is the ANS standard.

4 MR. LUPOLD: Right, and we've also
5 included an additional reference in there.

6 CHAIRMAN SKILLMAN: Well, you've got
7 the reference to --

8 MR. LUPOLD: To 230.

9 CHAIRMAN SKILLMAN: To the IAEA and to
10 the --

11 (Simultaneous speaking.)

12 CHAIRMAN SKILLMAN: And I standard.
13 Now if this is not -- if this document is not
14 brought to fruition and released, signed off and
15 approved, will industry not use those other three
16 references?

17 MR. LUPOLD: They can still use it --

18 CHAIRMAN SKILLMAN: They probably will.

19 MR. LUPOLD: --or propose it as an
20 alternative if it differs from Reg Guide 1.26.

21 CHAIRMAN SKILLMAN: So perhaps one way
22 to look at this is if we were to say hey, we prefer
23 this. Our counsel to you would be let's pull this
24 back and get this brought up to a standard that

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1 reflects the passive designs.

2 The existing industry initiatives that
3 would use the existing Rev 4 could conceivably pick
4 up these other documents with which you would be
5 comfortable, and we would probably end up in
6 approximately the same place.

7 Except that if you revise this to the
8 types of things that we're referring, then a year
9 or two from now or whenever the effort is
10 completed, there would be a document, a new 1.26
11 that really has embedded within it those principles
12 that would apply to DRAP and those types of
13 activities. Is that a benefit?

14 MR. LUPOLD: It could be a benefit.

15 CHAIRMAN SKILLMAN: I think it would be
16 a benefit.

17 MR. LUPOLD: I don't think it will
18 happen in less than two years. I think we'll be
19 very, very fortunate to try and get something on
20 the streets within two years with that scope of a
21 change. And I'm not going to stand here before the
22 Committee today and make the commitment that we're
23 going to do that without talking with my management
24 further.

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1 CHAIRMAN SKILLMAN: Okay.

2 MEMBER STETKAR: Also remember this is
3 a Subcommittee meeting. So anything you hear from
4 us individual babble. The ACRS only communicates
5 through our letters.

6 MR. LUPOLD: But it does -- it will
7 utilize a lot more staff resources than following
8 through with this. So I would have to go back and
9 discuss it with them and determine whether or not
10 that that is the approach that we would want to
11 take. My deputy director, Bob Caldwell, would like
12 to make a comment right now.

13 CHAIRMAN SKILLMAN: Okay, Bob.

14 MR. CALDWELL: Yeah. This is Bob
15 Caldwell. I'm Deputy Director of the DEIA. The
16 Reg Guides are something that's very -- being
17 looked at very closely with regards to Project Aim
18 and the resources that we have. So this would go
19 into a prioritization process for reg guides, and I
20 don't know how that would necessarily come out by
21 delaying it and then do additional work on it.

22 So the resource issue will always be a
23 significant issue, especially in the current
24 situation. So that's just a piece of the puzzle to

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1 enter into it.

2 CHAIRMAN SKILLMAN: Thank you, Bob.
3 Okay. Let's try to come to closure here. I had
4 intended to take a break, but I kept thinking we'll
5 be done here shortly, but it didn't turn out that
6 way. Do you have any more presentation material
7 that you would like to discuss with us?

8 MR. SCARBROUGH: I think our summary
9 slide.

10 MR. LE: Yeah. So let me summarize for
11 what we have today. So in summary, we have Reg
12 Guide 1.26 has been used and established to quality
13 classification for the NRC, for the operating and
14 new reactors applications. The Region V include a
15 classification for quality, the clarification for
16 the Quality Group A.

17 You know, this references the scopes of
18 the ASME OM Code. Also references the other
19 application such as ANS and IAEA for standards and
20 also reference the risk-informed approach for the
21 applicant (indiscernible) this type of
22 (indiscernible), addressing the 10 C.F.R. 50.69
23 regulation. That's all I have, thank you.

24 CHAIRMAN SKILLMAN: Thank you Tuan.

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1 Okay, thank you. Colleagues, before we go to the
2 phone line, do you have any comments please?

3 MEMBER MARCH-LEUBA: No, I don't.

4 CHAIRMAN SKILLMAN: Okay, John. Any
5 more?

6 MEMBER STETKAR: Nothing at all.

7 Thank you.

8 CHAIRMAN SKILLMAN: Ron? Harold?

9 MEMBER RAY: No.

10 CHAIRMAN SKILLMAN: Okay, okay. Would
11 you make sure the phone line is open, to see if
12 there's anyone? And while we're waiting, anybody
13 in the room want to make comment?

14 MR. WANG: It's open.

15 (No response.)

16 (Off mic comments.)

17 CHAIRMAN SKILLMAN: Okay. Let the
18 record show that the phone line's open and no one's
19 there. With that, let's speak of a matter of
20 business here among the members. The question that
21 was on the table is do we write a letter to the
22 full Committee, or does the full Committee write a
23 letter on this? Do we recommend to the full
24 Committee that we write a letter?

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1 MEMBER STETKAR: Do we recommend
2 bringing it to the full Committee? We don't
3 recommend the full Committee to write a letter.

4 CHAIRMAN SKILLMAN: That's right, thank
5 you.

6 MEMBER STETKAR: It's just do we bring
7 it to the full Committee?

8 CHAIRMAN SKILLMAN: Do we bring it to
9 the full Committee? That's the question.

10 MEMBER POWERS: The central debate is
11 to delay and make more comprehensive, or to go
12 ahead and issue and use this as a foundation for a
13 more comprehensive treatment; is that correct?

14 CHAIRMAN SKILLMAN: Yes.

15 MEMBER POWERS: That strikes me as a
16 debate that would be worthwhile for the full
17 Committee to engage in, especially if it could be
18 cast in that stark format. The details are not so
19 important for the rest of the Committee. It is
20 that question of is there -- I think John raised
21 the issue.

22 Is there an immediacy of need for this
23 revision, which has been a long time coming, that
24 mandates it immediately come out, or is there a

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1 challenge of formulating a more comprehensive
2 undertaking that requires some experiential
3 background?

4 Of course the third element that just
5 got raised is there the availability of resources
6 to act on either one of these options? Now that
7 one I don't think the Committee can get involved in
8 at all. That's what-not, but it doesn't hurt to
9 bear that in mind.

10 But I guess my feeling is that it's
11 somewhat off the mark of the Committee, but I think
12 it's an interesting one for the Committee to get
13 involved in because it impacts some of the other
14 regulatory guides we look at, where this question
15 of -- I can make it more comprehensive if I spend
16 more time on it, which is always true.

17 I can make it better, I can make it
18 more comprehensive, I can make it fancier if I
19 spend more time on it, versus the immediacy of
20 need, because things have fallen out of date and
21 things like that, and that in order to make it more
22 comprehensive, some experience with this interim
23 product is worthwhile.

24 I would suggest that that is an issue

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1 that probably arises with every single reg guide
2 that ever comes out, because I know that any reg
3 guide can always be made better or more
4 comprehensive if you spend more time on it.

5 MEMBER RAY: Dick, I guess I think on
6 your question, and it's not one that I have an easy
7 answer for, but because of the effort that's been
8 made to get to this point, I guess I don't think
9 taking this draft of the Reg Guide to the full
10 Committee and its limited scope of a change, let's
11 call it, I don't think taking it to the full
12 Committee would be the best use of everybody's time
13 and resource to implement.

14 The real question, I think that we're
15 laboring over here and Dana just referred to is do
16 we want to make input about the need for something
17 more as a full Committee, because we can't do that
18 as a subcommittee?

19 And my judgment is no, I think we're
20 dealing with something that's too abstract likely,
21 and if we want to do it, it ought to be in a
22 different context than we don't think this revision
23 to the Reg Guide is suitable or adequate or should
24 be issued, but it should be taken back and

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1 expanded.

2 I don't know if I'm being clear or not,
3 but I'm just really trying to ask the question
4 here, do we want to make input to the fate of this
5 revision to the Reg Guide as a full Committee, or
6 do we want to issue and some that remains on the
7 table in some other context?

8 Perhaps the next application that comes
9 along, NuScale presumably, and I'm just concerned
10 about the effort that's been made to get this to
11 where it is today with the issuance or public
12 comment on it and so on and so forth, and although
13 it's a modest change in the Reg Guide and it falls
14 short of what we would want to try and address, for
15 all the reasons that John has explained, for
16 example, to say no, we don't think it should be
17 issued this way; we ought to go back and work on
18 something more comprehensive maybe isn't where we
19 ought to go.

20 And so for that reason, I would say
21 although I don't like the idea of okay, this is it,
22 it's done and over with, because I do, as I've said
23 at too much length, believe there's a need to look
24 to the future and how this sort of thing gets done

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1 in the future, and I don't believe that this is a
2 complete -- it doesn't provide a complete guidance
3 or doesn't reflect all that the agency should be
4 saying to the stream of applicants that may show up
5 on our doorstep over the next few years.

6 On the subject, I just don't know that
7 this is, and I guess I'm coming down in the
8 position of saying no, I wouldn't go to the full
9 Committee with this revision to the Reg Guide. But
10 I would try and formulate some or anticipate some
11 way of grappling with the issues that are involved
12 here otherwise.

13 I tried to be clear. I hope I am but
14 that's the best way I can express it. I wouldn't
15 take this to the full Committee, but not because I
16 think it's fine and nothing more needs to be done.
17 It's just that I hate to not go forward and issue
18 what's been done here and say let's try again.

19 CHAIRMAN SKILLMAN: Okay, thank you
20 Harold. Thank you, Dana. Ron.

21 MEMBER BALLINGER: Now I'm confused. I
22 was pretty much thinking that this really should go
23 to the full Committee, just for the -- if for no
24 other reason than to have the same kind of

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1 discussion that the other members can hear. I guess
2 I'm still in favor of that happening. It doesn't
3 mean the full Committee decides whether they want
4 to write a letter or not.

5 But I think that on balance spending an
6 hour at full Committee or whatever the time needed
7 is, for the full Committee to hear the issue that
8 we've discussed is probably -- would probably be
9 valuable. So I think I would be still in favor of
10 having it go before the full Committee.

11 MEMBER MARCH-LEUBA: Hey Dick, I'd like
12 to change my vote. I'd like to support Harold's
13 position, that the way I see it, and I'm no expert
14 on this, this Rev 5 is really an editorial change
15 to the Reg Guide. We have just crossed the T's,
16 dotted the I's, put the right references up through
17 it.

18 So reviewing Rev 5 in the full
19 Committee doesn't add that much value to it. So
20 the question is how do we proceed? We feel very
21 strongly that the Reg Guide is a little bit
22 insufficient for new reactors.

23 So how do we proceed in encouraging the
24 staff? Maybe don't take five years, take only

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1 three to do the next one? But issue now Rev 5 as
2 is. I'm just making it for comment.

3 MEMBER POWERS: We don't decide between
4 three and five years. There's no mechanism for us
5 to make such decisions.

6 MEMBER MARCH-LEUBA: And even if we go
7 to full Committee, we will just complain in our
8 letter and it will be ignored essentially. So I'm
9 just giving you my novice opinion.

10 CHAIRMAN SKILLMAN: John.

11 MEMBER STETKAR: I'll be brief. Yes,
12 bring it to the full Committee.

13 MEMBER POWERS: To resolve what?

14 MEMBER STETKAR: To resolve the point
15 that you brought up, and that is is the current
16 version of the Reg Guide responsive to the
17 applicants and the staff who will use this Reg
18 Guide for evaluating new applicants. Because
19 that's the only reason it's going to be used. It
20 isn't a case of bringing the Reg Guide up to
21 criteria that apply for operating reactors like we
22 know new information about storms or stuff like
23 that.

24 It's this Reg Guide will be used by new

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1 applicants, and is it -- essentially is it fit for
2 that purpose. I think that's a useful discussion
3 for the full Committee to have.

4 MEMBER POWERS: I do.

5 MEMBER STETKAR: So I would bring it
6 up, and not reviewing this thing, but reviewing it
7 in the context that you started out your discussion
8 with.

9 CHAIRMAN SKILLMAN: Gentlemen, thank
10 you. My thought is that there is value in bringing
11 this to the full Committee so that the full
12 Committee has -- so the full Committee is
13 sensitized to the, if you will, the shifting sands
14 on which we are giving consideration to new plants.

15 Clearly, the environment has changed.
16 The AP1000 has handled this very thoroughly. But
17 as we look ahead, it seems, at least in my
18 judgment, that the topics of DRAP or RTNSS, of how
19 what had been accepted as cornerstones for design
20 have been changed and in some cases substantially.

21 That's worth a discussion with the full
22 Committee, and we've got a huge amount of talent on
23 the full Committee as we do on the Subcommittee,
24 and as the Subcommittee chairman for this small

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1 group, I will be more comfortable if the full
2 Committee weighs into this and makes a decision.

3 So my recommendation is going to be
4 let's bring it before the full Committee. Let's
5 have a presentation of the Regulatory Guide as it
6 is, and allow the full Committee to make a decision
7 of what the next step should be. That's what I
8 would propose that we do.

9 MEMBER STETKAR: I think Tom, when we
10 work that, I mean you've heard the discussion here
11 and the kind of concerns. So make sure you're
12 prepared to kind of address how these issues of
13 treatment of non-safety systems play out.

14 MR. SCARBROUGH: Yeah.

15 MEMBER STETKAR: You know what -- just
16 be prepared for that, and quite frankly a little
17 better prepared than you were today.

18 MR. SCARBROUGH: Well, I appreciate it.
19 Now I understand where you -- what your point was.
20 I didn't understand it fully before we got here.
21 Now I understand your point. So thank you very
22 much for that explanation.

23 CHAIRMAN SKILLMAN: And with that, if
24 there are no further comments --

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1 MR. LUPOLD: I'll make one comment.

2 CHAIRMAN SKILLMAN: Yes sir, Tim.

3 MR. LUPOLD: What I would propose is
4 actually we take this back and talk about it
5 internally. We talk about how we would want to
6 change it, whether it be in this revision or
7 whether it be in the next time we revise this, and
8 then we start having discussions about, you know,
9 with this Subcommittee about those proposed changes
10 and how we would expand this document beyond what
11 we did today.

12 We might meet a couple, you know, maybe
13 once a year over the next two-three years, if it
14 takes that long. You know, if we can't reach
15 agreement, you know. But we might be able to reach
16 agreement in the first meeting, and then we carry
17 it through there.

18 I would still recommend that this be
19 let go, but we have those discussions so that we
20 can really understand what it is and how we want to
21 expand this, because expansion was not the intent
22 with this revision.

23 MEMBER STETKAR: The only -- that's
24 fine. I mean, you know, logistics are logistics.

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1 This is, when all is said and done, simply a
2 subcommittee meeting and everything you've heard
3 today is, you know, obviously you've heard
4 different opinions even. So it's just a caution of
5 -- the full Committee might be perfectly happy with
6 letting this go, or might decide just to remain
7 silent.

8 So my only caution is don't necessarily
9 over-react to what you're hearing here. So take
10 into consideration. I'm sure you, you know, you've
11 been around long enough to know.

12 MR. LUPOLD: In all honestly, I think I
13 would take these actions regardless of what your
14 decision is, because I do like your input. I
15 actually very much enjoyed some of the, a lot of
16 the discussions that took place here today, and
17 each time I come these things, I learn more about
18 the history of the regulations and how they were
19 developed and how they came to be what they are.

20 MEMBER MARCH-LEUBA: I think that the
21 offer by the staff should be taken more seriously,
22 Tom. I mean you basically are saying that the
23 extensive period of issuing Rev 6 is all the public
24 comment, all the approvals, all go into those

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1 revisions.

2 But you within your division can come
3 up with some dry run of the regulation, that this
4 is the concerns of the members, and maybe instead
5 of a full Committee we have another subcommittee
6 within six months, a year, where we actually drive
7 the Reg Guide instead of just complaining about it.

8 CHAIRMAN SKILLMAN: Thank you Jose.
9 Any other comments? Colleagues?

10 (No response.)

11 CHAIRMAN SKILLMAN: With that, thank
12 you Tim, Tuan, Tom. Thank you. We are adjourned.

13 (Whereupon, the above-entitled matter
14 went off the record at 11:04 a.m.)

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ACRS Subcommittee Regulatory Guide 1.26, Revision 5

“Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants”

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August 16, 2016

Presentation Outline

The NRC staff provides this presentation with the updated information of RG 1.26 and to gain additional feedback from the ACRS subcommittee regarding the new Revision 5. The updates for Regulatory Guide 1.26 are presented in the following topics:

- Background
- Applicable Rules and Regulations
- Applications of RG 1.26
- Revision 5 to RG 1.26
 - I. Clarification of the definition of Quality Group A
 - II. Reference to the scope of the ASME OM Code
 - III. References to other quality classification approaches (ANS)
 - IV. Reference to a risk-informed alternative approach 10 CFR 50.69
- New Reactors
- Related Guidance
- Summary

Regulatory Guide (RG) 1.26 Background

- In March 1972, the NRC issued Safety Guide 26, “Quality Group Classification Standards,” to provide guidance on the quality classification system to satisfy General Design Criterion (GDC) 1 in 10 CFR Part 50, Appendix A.
- In September 1974, the NRC replaced Safety Guide 26 with RG 1.26.
- Since 2007, the staff has determined that additional information, such as clarification of the definition of Quality Group A, references of Codes and Standards, risk-informed process for categorizing and treating of SSCs that could be useful to new reactor applications should be included in Revision 5 to RG 1.26.

Applicable Rules and Regulations

- 10CFR 50, Appendix A, GDC 1, “Quality Standards and Records”
 - ❑ SSC designed, furnished, erected, and tested to quality standards commensurate with the importance to safety.
- 10 CFR 50.55a, “Codes and Standards”
 - ❑ Established criteria for piping systems
- 10 CFR 50.69, “Risk-informed categorization and treatment of structures, systems, and components [SSCs] for nuclear power reactors”
 - ❑ SSC categorization process using Probabilistic Risk Assessment (PRA)

Applications of RG 1.26

- RG 1.26 is applicable to operating reactors and new reactor designs (e.g., AP1000, ESBWR, APR1400, and NuScale small modular reactor)
- Applicants and licensees may voluntarily use the guidance in RG 1.26 to demonstrate compliance with the underlying NRC regulations.
- Methods or solutions that differ from those described in this RG may be deemed acceptable if sufficient basis and information is provided for the NRC staff to verify that the proposed alternative demonstrates compliance with the appropriate NRC regulations.
- Current licensees may continue to use their current licensing basis. This may deviate from the guidance in RG 1.26.

Revision 5 to RG 1.26

- Revision 5 includes:
 1. Clarification of the definition of Quality Group A
 2. Reference to the scope of the ASME Code for Operation and Maintenance of Nuclear Power Plants (OM Code)
 3. References to other quality classification approaches (ANS).
 4. Reference to a risk-informed alternative approach that may be used for categorizing and treating SSCs (10 CFR 50.69).
- Revision 5 does not impose new technical requirements.

I. Clarification of the definition of Quality Group A

- 1965 and 1968 Editions of the ASME Code, Section III, referred to Class A, B, and C vessels. With the 1971 Edition of the ASME Code, Section III, this changed to class 1, 2, and 3 components.
- RG 1.26 revisions have the classification system consists of four quality groups, A through D; methods for assigning components to those quality groups; and specific quality standards applied to each quality group.
- In the original RG 1.26, the introduction paragraph noted that 10 CFR Part 50 requires that components of the RCPB be designed, fabricated, erected, and tested in according with the requirements for Class A components of Section III of the ASME B&PV Code. The guide mentioned that the ASME Code 1971 Edition uses Class 1 in lieu of Class A.
- RG revisions reference the criteria in Section III of the ASME Code, ASME Class 1, 2 and 3 corresponds to the quality standards for Quality Groups A, B and C of the NRC classification system.

I. Clarification of the definition of Quality Group (cont'd)

- 10 CFR 50.55a requires that components of the reactor coolant pressure boundary (Class 1) meet the requirements of the ASME BPV Code Section III, with exceptions 10CFR50.55a(c)(1). This corresponds to the quality standards for Quality Group A of the NRC classification system.
- Original revisions to RG 1.26 referenced Quality Group A in the Discussion section. Only the original references Quality Group A. The revisions that followed reference group A in the footnote regarding ASME editions prior to 1971.
- Proposed Revision 5 to RG 1.26 provides clarification of Quality Group A in the Staff Regulatory Guidance section.

II. Reference to the scope of the ASME OM Code

- The ASME OM Code is incorporated by reference in the NRC's requirements in 10 CFR 50.55a.
- The ASME OM Code as accepted by the NRC describes the inservice testing program for pumps, valves, and dynamic restraints at nuclear power plants.
- A user of RG 1.26 should confirm that its classification process considers the scope of pumps, valves, and dynamic restraints specified in ASME OM Code.

III. References to other quality classification approaches (ANS)

- American National Standards Institute (ANSI) and American Nuclear Society (ANS), ANSI/ANS-58.14-2011, “Safety and Pressure Integrity Classification Criteria for Light Water Reactors”
- 10 CFR 50.69, “Risk-informed categorization and treatment of structures, systems, and components for nuclear power reactors”
- IAEA Specific Safety Guide SSG-30, “Safety Classification of Structures, Systems and Components in Nuclear Power Plants”

IV. Reference to a risk-informed alternative approach that may be used for categorizing and treating SSCs (10 CFR 50.69)

- 10 CFR 50.69 provides a voluntary risk-informed process for categorizing and treating (e.g., inspecting and testing) SSCs that may be used as an alternative to the process of classification. NRC approval is required.
- This alternative approach is described in RG 1.201, “Guidelines for Categorizing Structures, Systems, and Components in Nuclear Power Plants According to their Safety Significance,” that accepts Nuclear Industry Institute NEI 00-04, “10 CFR 50.69 SSC Categorization Guideline,” with regulatory positions.

New Reactors Use RG 1.26 in Classification Process

- RG 1.26 has been used in the SSC classification process for new reactor designs.
- AP1000 DCD Tier 2, Section 3.2.2, “AP1000 Classification System,” uses Equipment Classes A to D that are consistent with Quality Groups A to D in RG 1.26.
- AP1000 DCD Tier 2, Section 3.2.2.6, “Equipment Class D,” applies to nonsafety-related equipment with additional requirements for procurement, inspection, or monitoring.
- AP1000 DCD Tier 2, Table 3.2-3, “AP1000 Classification of Mechanical and Fluid Systems, Components, and Equipment,” specifies Class D for equipment within the scope of regulatory treatment of nonsafety systems (RTNSS), such as component cooling water pumps, chemical and volume control pumps, and normal residual heat removal pumps.
- The staff anticipates other passive reactor designs (such as small modular reactors) to follow a similar approach.

Related Guidance

- NUREG-0800, SRP Section 3.2.2 (Draft Revision 3 – August 2015), “System Quality Group Classification”
- NUREG-0800, SRP Section 17.5, “Quality Assurance Program Description – Design Certification, Early Site Permit, and New License Applicants”
- RG 1.143, “Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants”

Summary

RG 1.26 may be used to establish quality classification for SSCs in operating and new reactors.

Revision 5 includes clarification of Quality Group A, references the scope of the ASME OM Code, references other quality classification approaches (ANS), and references a risk-informed alternative approach for categorizing and treating SSCs (10 CFR 50.69).

Input/Feedback ?

Backup Slides

NuScale Classification Approach

- RG 1.26 is used for the quality group classifications of NuScale Design.
- SRP Section 3.2.2 “System Quality Group Classification” with referenced RG 1.26 to be used for DC and COLA applications.
- NuScale DC application is tentatively scheduled to be submitted by December 2016.

Some examples for classifications of NuScale Design:

- See Figure 1 on slide number 16
- Regulatory treatment of nonsafety systems (RTNSS) applies to SSCs that are nonsafety-related and are selected in accordance with the RTNSS criteria defined in the recently issued draft SRP, Section 19.3.

Backup Slides

NuScale Classification Approach

Figure 1

