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1 UNITED STATES OF AMERICA

2 NUCLEAR REGULATORY COMMISSION

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4 579TH MEETING

5 ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

6 (ACRS)

7 OPEN SESSION

8 + + + + +

9 THURSDAY,

10 JANUARY 13, 2011

11 + + + + +

12 ROCKVILLE, MARYLAND

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14 The Advisory Committee met at the Nuclear
15 Regulatory Commission, Two White Flint North, Room
16 T2B1, 11545 Rockville Pike, at 8:30 a.m., Said Abdel-
17 Khalik, Chairman, presiding.

18
19 COMMITTEE MEMBERS PRESENT:

| | |
|-------------------------|---------------|
| 20 SAID ABDEL-KHALIK | Chairman |
| 21 J. SAM ARMIJO | Vice Chairman |
| 22 SANJOY BANERJEE | Member |
| 23 DENNIS C. BLEY | Member |
| 24 MICHAEL L. CORRADINI | Member |
| 25 DANA A. POWERS | Member |

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COMMITTEE MEMBERS PRESENT (CONTINUED):

| | |
|------------------|--------|
| HAROLD B. RAY | Member |
| JOY REMPE | Member |
| MICHAEL T. RYAN | Member |
| WILLIAM J. SHACK | Member |
| JOHN D. SIEBER | Member |

ACRS STAFF PRESENT:

Frank Akstulewicz, NRO/DNRL
Mary Drouin, RES/DRA
Donnie Harrison, NRR
Don Helton, RES/DRA
Andrew Howe, NRR
Ravindra Joshi, NRO/DNRL
Christiana Lui, RES
Eileen McKenna, NRO/DNRC
Don Dube, NRO/DSRA
Robert Prato, NRO
Joseph Sebrosky, NRO
John Lai, Designated Federal Official
Weidong Wang, Designated Federal Official

ALSO PRESENT:

Amy Aughtman, Southern Nuclear Company

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Brad Carpenter, Westinghouse*

ALSO PRESENT:

Ed Cummins, Westinghouse

Paula Gotsch, Grandmothers, Mothers and

More for Energy Safety*

Eddie R. Grant, NuStart

Pete Ivey, Southern Nuclear Company

Donald P. Moore, Southern Nuclear Company*

Mary Olson, Nuclear Information and Resource

Service*

Thomas J. Ray, Westinghouse

Jason Redd, Southern Nuclear Company

Wes Sparkman, Southern Nuclear Company

Lee Tunon-Sanjur, Westinghouse*

James W. Winters, Westinghouse*

*present via telephone

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P R O C E E D I N G S

(8:30 a.m.)

CHAIRMAN ABDEL-KHALIK: The meeting will now come to order.

This is the first day of the 579th meeting of the Advisory Committee on Reactor Safeguards. During today's meeting, the committee will consider the following:

One, Aircraft Impact Assessment for the Revised AP1000 Design;

Two, Final Safety Evaluation Report Associated with the Vogtle Units 3 and 4 Combined License Application;

Three, Draft Final Revision 2 to Reg Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," and Draft Final Revision 1 to RG 1.17, "An Approach for Plant-specific, Risk-Informed Decisionmaking: Technical Specifications"; and

Four, Preparation of ACRS Reports.

This meeting is being conducted with the

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1 accordance with the provisions of the Federal Advisory
2 Committee Act. Mr. Weidong Wang is the Designated
3 Federal Official for the initial portion of the
4 meeting.

5 Portions of the sessions dealing with the
6 aircraft impact assessment for the AP1000 design and
7 the final safety evaluation report associated with
8 Vogtle Units 3 and 4 combined license application may
9 be closed to protect unclassified safeguards
10 information and information designated as proprietary
11 by Westinghouse.

12 We have received two requests for time to
13 make oral statement regarding the final safety
14 evaluation report associated with the Vogtle Units 3
15 and 4 combined license application: Ms. Mary Olson
16 from the Nuclear Information and Resource Service, and
17 Ms. Paula Gotsch, from Grandmothers, Mothers and More
18 for Energy Safety.

19 There will be a phone bridge line. To
20 preclude interruption of the meeting, the phone will
21 be placed in a listen-only mode during the
22 presentations and committee discussion. At the
23 appropriate time, the phone line will be opened to
24 allow members of the public to provide their comments
25 to the committee.

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1 A transcript of portions of the meeting is
2 being kept and it is requested that the speakers use
3 one of the microphones, identify themselves, and speak
4 with sufficient clarity and volume so that they can be
5 readily heard.

6 At this time, we will proceed to the first
7 item on the agenda, Aircraft Impact Assessment of the
8 Revised AP1000 Design. And Mr. Harold Ray will lead
9 us through that discussion.

10 Harold?

11 MEMBER RAY: Thank you, Mr. Chairman.

12 As you indicated in your opening remarks,
13 we will be, at the commencement here, closing the
14 meeting for the reasons that although we don't expect
15 to go beyond what I'm told are security-related
16 informations during this discussion, that could occur.

17 And if it does, we'll have to, again, make sure that
18 we have only the right folks listening in or in the
19 room.

20 But because of the fact that we have a
21 telephone connection that will be used during part of
22 this presentation, we expect that it will be limited
23 to the security-related level of classification as
24 well as proprietary information.

25 So at this point in time, I would ask that

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1 the responsible persons from the staff and the
2 applicant and contractors validate that we have
3 present on those who are qualified for propriety or
4 security-related information. And we do have a
5 telephone line open which is cleared for that access
6 as well.

7 Any exceptions to that statement then?

8 (No response.)

9 MEMBER RAY: If not, we'll proceed. And I
10 will ask staff, Frank or Eileen, if they have anything
11 they'd like to state to start.

12 MEMBER CORRADINI: Are you sure we're
13 closed?

14 MR. AKSTULEWICZ: Good morning. Thank
15 you, Harold.

16 My name is Frank Akstulewicz.

17 MEMBER CORRADINI: Are we sure we're
18 closed.

19 MEMBER RAY: Not yet, all right. I'm
20 sorry. I --

21 MR. AKSTULEWICZ: These remarks can be
22 public --

23 MEMBER RAY: -- looked around and thought
24 that --

25 MR. AKSTULEWICZ: -- while we're doing

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1 that in the interest of time.

2 MEMBER RAY: All right.

3 MR. AKSTULEWICZ: But what I'd like to do
4 -- this is Frank Akstulewicz. I'm the Deputy Director
5 for Licensing Operations Division of New Reactor
6 Licensing.

7 What I'd just like to do is take 30
8 seconds to report on what has transpired since the
9 last meeting of the full committee on the AP1000.
10 Since that meeting, we have since issued the rule
11 package for the AP1000 to the Commission. It went up
12 roughly January 3rd.

13 We then met with the Commissioners' TAs to
14 discuss the contents of that package. We discussed
15 some of the technical issues that were included in the
16 review process. We discussed the nonconcurrences that
17 were identified in that paper as attachments. And we
18 also discussed the two ACRS letters that were issued
19 since then.

20 The result was a thank you on the part of
21 the Commission's staff in terms of bringing the issues
22 to their attention that we believe were important.
23 And they are in the process of reading that package.

24 The one takeaway was that they are
25 awaiting the third letter on aircraft to complete

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1 their deliberative process. And so the staff would
2 request them only to expedite it to the extent
3 possible any aircraft letter that the committee is
4 going to be drafting.

5 Thank you.

6 MEMBER RAY: Okay.

7 Eileen, did you have anything?

8 MS. McKENNA: No other opening remarks.

9 MEMBER RAY: All right.

10 And in response to Frank, I would affirm
11 that we are planning at this full committee meeting
12 for the subcommittee to recommend a letter to the full
13 committee for its consideration. The subcommittee did
14 hold meetings on aircraft impact November 2nd and 3rd,
15 November 17th through the 19th, and December 15th and
16 16th. And at the first of those meetings, the
17 applicant made available to us here the assessment for
18 inspection and review.

19 (Whereupon, the foregoing matter went off the record
20 at 8:37 a.m. to begin the closed session
21 and went back on the record at 10:14 a.m.
22 to resume the open session.)

23 CHAIRMAN ABDEL-KHALIK: At this time, we
24 will move to item number three on the agenda, Final
25 Safety Evaluation Report Associated with the Vogtle

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1 Units 3 and 4 Combined License Application.

2 Again, Harold Ray will lead us through the
3 presentation. However, before I hand the gavel to
4 Harold, I'd like to state that I have a conflict with
5 the Vogtle COL applicant and will, therefore, not
6 participate in the discussion related to this matter.

7 Also, since the Vice Chairman and I may
8 have to leave before the end of this presentation, I'm
9 transferring the gavel to Mr. Ray to chair the meeting
10 through the end of today's morning session.

11 Harold?

12 MEMBER RAY: Thank you, Mr. Chairman.
13 Emphasis on the again part of your statement, this is
14 the second matter that the subcommittee is bringing to
15 the full committee and as with the first item on our
16 agenda, that is the aircraft impact, in this case as
17 well, the subcommittee plans to present to the full
18 committee a letter.

19 So this presentation is in advance of
20 that. We have, as I think the Chairman indicated at
21 the beginning of this session, also a request, which
22 we will accommodate, by opening the line, which is
23 listen-only at this time, for members of the public
24 who have requested time to make a statement to do so.

25 The subcommittee committee held four

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1 meetings on the COL application for Vogtle. Those
2 were in June and July and then in September and
3 October of 2010. I think it is important to note that
4 Vogtle does have an early site permit as well as two
5 limited work authorizations. And, therefore, the
6 scope of our discussion today will be take that fact
7 into account.

8 Vogtle is prepared with a presentation
9 that they feel will best inform the full committee of
10 those things which the subcommittee has discussed. At
11 this point in time, the subcommittee I believe is
12 prepared to recommend that the -- with a few comments
13 that we will include in our letter, that the
14 application is ready to move forward.

15 So with that, let me ask Frank if staff
16 has anything they'd like to say.

17 MR. AKSTULEWICZ: No, thank you, Harold.
18 The staff has no comments.

19 MEMBER RAY: All right.

20 Then with that, we turn to the applicant.

21 MS. AUGHTMAN: Okay. Good morning. My
22 name is Any Aughtman and I'm the AP1000 Supervisor for
23 Nuclear Development in Licensing. And here with us
24 today are Pete Ivey, Was Sparkman, Jason Redd, Eddie
25 Grant and several others from NuStart as well as

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1 Westinghouse and Bechtel.

2 And to start off with, I'd like to ask
3 Pete Ivey, who is our Senior Vice President of Nuclear
4 Development and Support, to say a few words.

5 MR. IVEY: Thank you, Amy.

6 I had some prepared remarks but after
7 meeting and speaking with a few of you coming in the
8 door, I'm going to change my comments just a bit and
9 generally just speak from the heart.

10 My presence here today really only has one
11 purpose. And that is to express appreciation to this
12 committee. There has been, as evidenced by the work
13 that I've observed with the NuStart members and our
14 own staff in preparing this application and working
15 with both the committee and the NRC staff, the
16 tremendous amount of work that has gone into this
17 application, both for the AP1000 design certification
18 as well as for the combined license application.

19 So I want to recognize that there has been
20 a significant amount of effort that the subcommittee
21 members and the committee members have put on this,
22 that there generally have been sacrifices that a lot
23 of individuals have made in order to maintain the
24 schedule in terms of doing that review.

25 So from the heart, thank you very much for

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1 the efforts that this committee has put in. On behalf
2 of Southern Company, on behalf of our project co-
3 owners and the NuStart Group, we want to express
4 appreciation for the diligence, the rigor, the
5 attention that's been placed on doing a thorough
6 review.

7 We do believe that the AP1000 subcommittee
8 has done a very thorough review. And we hope that
9 they prepared our team today to respond to any of the
10 committee's questions and concerns that may remain.
11 As the Reference COL for the AP1000 technology, this
12 particular proceeding has special meaning both to
13 Southern Nuclear and to NuStart in demonstrating the
14 Part 52 process.

15 So thank you for what you do, for the time
16 that you've invested in this effort. And I hope that
17 the team will be able to respond appropriately to your
18 questions and concerns to allow you to proceed with
19 the next step in this process. So thank you.

20 MEMBER RAY: Thank you. And I would just
21 add that both Southern and NuStart and all those who
22 support you have been very responsive to us as well.

23 MR. IVEY: Thank you for that.

24 MS. AUGHTMAN: Okay. So as Pete just
25 reminded everyone, this application is serving as the

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1 Reference COL application for the AP1000 design
2 center. And I just want to quickly recap what that
3 really means, you know. So I want to talk about the
4 approach that was used in development of the
5 application and the review.

6 So we did take a design-centered review
7 approach is how it was labeled as by the NRC staff.
8 And what that means is there was one issue for each
9 item and one review and one position. And so as that
10 translates into design-centered space, that review and
11 position gets applied to the Reference COLA and as
12 well as all these subsequent COLAs that come behind
13 this using the AP1000 technology, provided they offer
14 the same material that the Reference COLA contained.

15 We have the list of DCWG members here on
16 the slide. And then they also show up at the bottom
17 of every slide, just as a reminder. And so this -- we
18 worked together with each of these members and they
19 provided input on the development of the application
20 as well as supporting the review.

21 Also in the DCWG is Westinghouse, you
22 know, a key member there. And they helped provide
23 coordination for the content between the DOL and the
24 DCD.

25 So with that, Wes is going to take us

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1 through the concepts of the application.

2 MR. SPARKMAN: Good morning.

3 CHAIRMAN ABDEL-KHALIK: Good morning.

4 MR. SPARKMAN: My name is Wes Sparkman and
5 I'm the COL licensing supervisor for Vogtle.

6 I would like to talk to you a little bit
7 about the process and some of the details of the -- a
8 brief overview of the submittal. It is a combined
9 license application for two units. These two units
10 will be co-located with the Units 1 and 2 on the
11 Vogtle site.

12 It is Part 52, subpart C, combined license
13 application. As Amy and Pete both have said, we are
14 the referenced plant for the AP1000. And we are
15 referencing the AP1000 design certification in our
16 application.

17 The NRC guidance utilized to develop this
18 application is Reg Guide 1.206 and NUREG-0800, along
19 with interim staff guidance for COLs. We do
20 incorporate, by reference, a number of documents, the
21 major ones being the AP1000 design control document,
22 various NEI templates, and the early site permit for
23 Vogtle.

24 Just to give you an overview. The
25 application was submitted with Rev. 0 of the FSAR on

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1 March 28th, 2008. Again, we have IBRD the AP1000 DCD
2 and the early site permit. The early site permit, at
3 the point we submitted, was at Revision 4. That was
4 the application. It was revised again in a later
5 submittal and eventually, on August 26th, 2009, the
6 ESP and the LWA-A were both granted to Southern
7 Nuclear, which allowed us to begin some initial
8 limited work at the site.

9 The VEGP became the Reference COLA for
10 AP1000 plants in 2009, following up on TVA. TVA was
11 the original reference plant. And then due to various
12 reasons within the industry, Vogtle became the
13 reference plant for NuStart and for the other
14 subsequent COLAs for the AP1000. We also submitted a
15 bravo LWA, a second limited-work authorization request
16 on October 6th, 2009.

17 Just to give you a brief reminder, the
18 location of the site, as I said before, is co-located
19 with Vogtle Units 1 and 2. It is just across the
20 river from the Savannah River Site. It is south of
21 August, I believe about 26 miles, and east of
22 Waynesboro in Georgia.

23 Next slide. The application is divided up
24 into 11 parts. These parts are listed here for you to
25 see. And in general, the subsequent COLAs will follow

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1 the same process. There are some subsequent COLAs, I
2 believe, for example, in Part 11, we have included a
3 number of documents. Some other SCOLAs may have
4 separate parts for those additional documents. But
5 other than that, they should follow this same process.

6 So what you've see with the Vogtle
7 Reference COL application would be very similar to
8 what you would see with the subsequent COLA
9 applications as well.

10 Next slide. The DCD identified COL
11 information items. We have a table in our FSAR, Table
12 1.8-201, which lists those. And those are addressed
13 throughout the FSAR. There are some items which were
14 identified in the DCD that cannot be completed until
15 after we receive our license.

16 And those are on hold, in a sense, until
17 such time as the conditions are such that we can
18 actually complete those. Those are listed in a
19 Proposed License Condition in Part 10 of the
20 application.

21 In addition, we have supplemental
22 information that is included in our application. That
23 supplemental information is included for various
24 reasons. Some would be to address Reg Guide 1.206
25 items or new 0800 items.

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1 And then also what's not listed on the
2 slide is that as a result of the review process, when
3 the NRC would ask RAIs of Vogtle, there would be some
4 instances where we would add supplemental information
5 during that time. And those, again, are addressed
6 throughout the FSAR.

7 MEMBER RAY: Wes?

8 MR. SPARKMAN: Yes?

9 MEMBER RAY: Some of this terminology
10 sometimes escapes us. Give us an example of a holder
11 item.

12 MR. SPARKMAN: An example would be the
13 cybersecurity plan has been and submitted to the NRC
14 but a program has not been developed as a result of
15 that. And that program can't be developed until such
16 time that you have the systems in place and know what
17 the program is going to look like. So that would be
18 an example.

19 MEMBER RAY: A good, pertinent example.
20 Thank you.

21 MR. SPARKMAN: Okay.

22 Departures from the AP1000 DCD, one of the
23 parts in our submittal talks about departures,
24 variances, and exemptions. Departures from AP1000
25 DCD, we have four currently.

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1 The first one is FSAR organization.
2 Again, I said that Reg Guide 1.206 has some
3 requirements that were not shown in the DCD in terms
4 of numbering. And so we have a numbering departure.
5 And there is also an exemption for that same reason.
6 Because of the fact that the DCD is certified and is
7 part of the regulations, there are cases where you
8 have not only a departure but an exemption.

9 A standard departure, which would be
10 applicable to this SCOLAs as well, is the voltage
11 regulating transformer design, which we have placed
12 that departure in now. If in the future if the DCD
13 were to be changed such that that departure was not
14 required, then we would remove it. But at this point,
15 it is included. Because of the description in the
16 DCD, we wanted to add some information to clarify the
17 design of the transformer.

18 VEGP 9.2-1, potable water system
19 filtration, there's a requirement in the DCD to have
20 filtration. But since our supply for potable water is
21 from wells, the purity of the water is such that we do
22 not need filtration, so we have a departure for that.

23 And then the emergency facility locations,
24 the TSC for Vogtle, not consistent with the AP1000
25 standard design, we have a TSC that is going to be co-

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1 located in between Units 2 and 3 that will serve all
2 four units. So instead of having a separate TSC for
3 each unit, we have a single TSC that serves all four.

4 And that is a departure.

5 And then the last exemption, which I have
6 not covered, is Special Nuclear Material Control and
7 Accounting Program. The regulations are such that
8 there are some allowances for Part 50 licensees that
9 when the regulations were put in place, Part 52
10 licensees were not included in those allowances. And
11 so we have an exemption which basically makes us the
12 same as the Part 50 licensees.

13 MEMBER RAY: Question?

14 MEMBER SIEBER: You have a combined TSC.
15 Is the operation support facility the same as the DCD
16 contemplate?

17 MR. SPARKMAN: The same in the sense that
18 we have one but not in the same location, correct?

19 MS. AUGHTMAN: Right. Well, it's actually
20 also part of the departure itself, too. So the
21 departure covers both the TSC and the OSC.

22 MEMBER SIEBER: Okay. Thank you.

23 MR. SPARKMAN: Any?

24 MS. AUGHTMAN: Okay. So then we just
25 wanted to also show you how we've addressed some of

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1 the leftovers, I'll call it, from the early site
2 permit.

3 We had some COL items from the ESP. Those
4 I treat them similarly to the DCD COL items. So these
5 were items that the staff wanted to ensure were
6 addressed at the COL phase:

7 Hydrazine for CR habitability, site
8 specific chemicals for -- also how those were effected
9 or how those impacted the control room.

10 If we had an ultimate heat sink cooling
11 tower that would need to be used, we had to address
12 that. We do not. So there's just a simple statement
13 to say we do not have that.

14 There was a concern about the use of
15 chelating agents in regards to the accidental release
16 transport evaluation. And then the access control for
17 the rail spur from a security perspective. And that
18 got addressed in our physical security plan.

19 We also had early site permit conditions
20 that we addressed. The ones that we've addressed here
21 are the removal and replacement of the topsoils,
22 development of Emergency Action Levels, those are
23 actually going to be carried through as a COL license
24 condition.

25 We have resolved the location of the

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1 Technical Support Center --

2 MEMBER RAY: Is that because they are
3 reactor-specific, Amy? Or what? What's the reason.

4 MS. AUGHTMAN: Yes, there are addition
5 design details that are needed in order to develop
6 those. And so we will be working to have those
7 developed -- the milestone ideas some time period just
8 prior to fuel load. But we would also need them in
9 order to support the first exercise.

10 So the departure that we just described
11 also discusses the resolution of the location of the
12 Technical Support Center. And there was also a
13 condition to ensure that we showed the comparison of
14 the DCD site-specific -- DCD parameters for dispersion
15 factors with our site-specific dispersion factors.

16 So also keying off our early site permit
17 application, we have a few variances from our Site
18 Safety Analysis Report. Much of it has to do with the
19 evolution of information since the ESP phase. We have
20 an updated site layout. As you may know, the early
21 site permit was based on DCD revision 15 that was in
22 effect at the time.

23 And through the course of the amendment
24 process and review and the fact that the COL is now
25 incorporating by reference, the current version of the

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1 DCD, we have had to update certain information as it
2 was updated in the DCD.

3 And additionally, the on-site chemicals
4 information, the chemicals that we had listed at the
5 time of the ESP, we've made some additional different
6 selections. And so we acknowledged that through the
7 variance.

8 And then finally we have addressed all of
9 the open items and RAIs that came throughout the
10 review. And those have been addressed and closed
11 through the staff in its final SER.

12 Another application highlight we wanted to
13 point out is the plant-specific ITAAC and those are
14 differentiated from the DCD ITAAC by calling them as
15 plant-specific. Many, in fact, are standard. But the
16 plant-specific just helps to differentiate between the
17 DCD ITAAC.

18 The DCD ITAAC will be incorporated by
19 reference so that all of the ones listed here are
20 standard, with the exceptions of those that are shown
21 as Vogtle and actually from the early site permit.

22 So -- and the emergency planning ITAAC, we
23 did have an addition at the COL phase. But by and
24 large, the majority of the ITAAC related to emergency
25 planning carried through from the early site permit.

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1 So another important element in the COL
2 application is the comparison of our site
3 characteristics to the DCD site parameters. Most of
4 the site characteristics were determined and specified
5 in the early site permit application. So the main
6 thing we did here at the COL phase is just present
7 those as a comparison table. And those are located in
8 Chapter 2, the Section 2.0.

9 And for any of the site parameters that an
10 applicant may not meet, there's -- you would then
11 provide a justification as to why, if you weren't
12 bounded, you know why that's acceptable. In our case,
13 we are bounded in all the DCD site parameters.

14 MEMBER RAY: Now does that include
15 seismic? Because, of course, we have talked about
16 that nuance.

17 MS. AUGHTMAN: Right. So the DCD adjusted
18 the site parameters slightly to allow for
19 justification of any exceedances --

20 MEMBER RAY: right.

21 MS. AUGHTMAN: -- and --

22 MR. SPARKMAN: There were some minor
23 exceedances at very low frequencies associated
24 primarily with tank sloshing. And there was a change
25 to the DCD envelope. But there were still those minor

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1 exceedances.

2 As was discussed in the subcommittee
3 meeting, those exceedances are almost imperceptible
4 they're so small. And there is a process through the
5 DCD that allows, if you have exceedances, how to
6 address them. And we have addressed those. And they
7 are acceptable.

8 MS. AUGHTMAN: Okay. And then finally,
9 the other major feature of our application provides
10 program descriptions for operational-type aspects.
11 And so we've just selected a few examples to show you
12 here. And, again, this is another benefit of having
13 worked together with the design cert working group is
14 many of these are standard.

15 The one that is listed here that's not is
16 emergency planning. But even the first item,
17 radiation protection, that actually was developed
18 through coordination with the Nuclear Energy Institute
19 on templates that they worked on and submitted to the
20 NRC for review and approval.

21 And the rest were all coordinated with the
22 DCWG and Westinghouse and reflect the standard content
23 we put together.

24 So with that, that is the highlights and
25 overview of the application that we wanted to give.

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1 And we were -- this next set of slides is moving into
2 specific topics that the subcommittee felt the full
3 committee should hear about. So if we're good to move
4 on to that --

5 MEMBER RAY: Yes, that's certainly fine.
6 We can circle back to -- other things may prompt
7 questions later but let's do go through these three
8 items and --

9 MS. AUGHTMAN: Okay.

10 MEMBER POWERS: I have to say I'm
11 disappointed. I wanted to see the dirt removal and
12 the backfill. From where you're standing --

13 (Laughter.)

14 MS. AUGHTMAN: Well, that's on slide two.
15 We can go back.

16 MEMBER ARMIJO: They got a good picture
17 there.

18 MS. AUGHTMAN: So that is progress as of
19 November of last year.

20 MEMBER POWERS: Now you're showing me the
21 endpoints. I wanted to see the hole.

22 MS. AUGHTMAN: Well, I took a special trip
23 just to get to see the hole myself in February of last
24 year.

25 MEMBER BANERJEE: Did you take a

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1 photograph?

2 MS. AUGHTMAN: I did not but we do have
3 pictures. There is one picture with me in the
4 background.

5 MEMBER BANERJEE: A big hole.

6 MEMBER POWERS: It is a big hole.

7 MS. AUGHTMAN: Yes.

8 MEMBER POWERS: They have those in New
9 York though.

10 MEMBER BANERJEE: They're called potholes.

11 (Laughter.)

12 MEMBER POWERS: But see these guys fill
13 them back in.

14 MS. AUGHTMAN: Okay. So the first topic
15 of interest that we wanted to touch on is containment
16 cleanliness as it relates to the capability to
17 maintain long-term core cooling. And so we addressed
18 that through the cleanliness program that we've
19 described in our application.

20 And we've listed some of the major program
21 elements in the FSAR. So we'll have controls to
22 account for the quantities and types of materials that
23 go in and out of containment. There are certain
24 materials that will be excluded. We'll have controls
25 for loose items and parts. Housekeeping procedures

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1 play a large role in this. And all of that is done to
2 address how we will meet the design bases that are
3 described in the DCD.

4 This next slide addresses the sampling
5 program aspects. And we are going to follow the
6 guidance that is in the Nuclear Energy Institute 04-07
7 report, as supplemented by the NRC SER. We have -- we
8 are in the process of developing a standard program to
9 implement across all the AP1000 utilities that will
10 take advantage of operation experience and best
11 practices from current operating fleet plants.

12 The sampling will be conducted after
13 containment exit cleanliness inspections are performed
14 to confirm that the latent debris design bases are
15 met. The results of those sample collections,
16 however, would be obtained after startup. And any
17 nonconforming results would be addressed through the
18 corrective action program.

19 As we make progress and get some
20 experience under our belts, we'll have the flexibility
21 to look at the sampling frequency and scope and adjust
22 it based on the information we obtain from the
23 results.

24 MEMBER RAY: Let me just say that before
25 you go to coating, that, of course, the full committee

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1 recalls in its last meeting the long-term core cooling
2 letter that was written. And the great importance
3 that was assigned to ensuring that the limits that
4 this cleanliness program must maintain are not changed
5 without further analysis and evaluation because of the
6 fact that those limits are quite challenging. And
7 naturally if one thought there was a basis for some
8 change in them, that might be a strong motivation to
9 do it.

10 But the upshot of it is that Southern, I
11 believe from what I understand, were committed to
12 ensure that those limits are met until and unless
13 adequate analysis is done to show that any changes are
14 possible. So we've had a lot of discussion about
15 that. And we will affirm that once again in a letter
16 that we write on this COL.

17 MS. AUGHTMAN: Okay. If there's anything
18 else --

19 MEMBER POWERS: It always struck me that
20 in any water system when you're first building it, the
21 debris that is most frustrating is transparent plastic
22 bags. You can't see them. Do you take any special
23 caution on -- I mean things get put in plastic all the
24 time, screws, bolts, pieces of hardware.

25 MEMBER CORRADINI: You mean like something

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1 like demanding -- forbidding anything transparent into
2 containment? Only things that are colored so you can
3 actually identify them?

4 MEMBER POWERS: So they can actually see
5 them.

6 MS. AUGHTMAN: Is there a question in
7 that?

8 MEMBER POWERS: Well, I just wondered if
9 you -- do you worry about that sort of thing? Or just
10 debris in general? What do you do about that?

11 MS. AUGHTMAN: Yes, I believe so. Do you
12 want to -- Jason Redd?

13 MR. REDD: Mr. Powers, as part of our
14 general housekeeping and material procedures for
15 inside containment, at our plants it is a policy, as
16 part of plant process and procedures, not to bring in
17 transparent materials for the reasons that you
18 identified.

19 There have been events in the industry
20 where clear plastic bags, and especially in water-
21 filled vessels. For that reason, bags that are
22 brought into containment typically are colored cloth
23 bags. If there are any plastic bags, typically those
24 bags are marked by bright-colored stripe on them which
25 will permit identification of that bag and heighten

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1 its visual awareness in case it was lost or it entered
2 a vessel to allow retrieval.

3 MEMBER POWERS: Very good. I'm glad I'm
4 not the only one that worries about these things. We
5 almost lost HIPER over a sandwich bag.

6 MS. AUGHTMAN: Okay. So then the next
7 topic we are planning to present are the containment
8 vessel coating inspections. And Jason Redd will do
9 that.

10 MR. REDD: Mr. Chairman and members of the
11 committee, it's a pleasure to address you again.

12 We'd like to briefly speak about the
13 coatings applied to the AP1000 containment vessel.
14 The AP1000 containment vessel, as you know, is a free-
15 standing steel containment.

16 This containment vessel is coated with an
17 inorganic zinc coating on both the interior and
18 exterior surfaces. The lower portions of the interior
19 surface of the containment vessel are coated with an
20 epoxy topcoat, which allows for improved aesthetics,
21 lighting, easier decontamination.

22 The application --

23 Mr. Powers?

24 MEMBER POWERS: Have you gone so far as to
25 pick what epoxy you will use?

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1 MR. REDD: Are you asking have we selected
2 the particular brand -- product manufacturer?

3 MEMBER POWERS: Well, not so much that but
4 I mean there are a lot of different epoxies out there.

5 MR. REDD: Yes, sir. The designer,
6 Westinghouse, has a coating specification which
7 identifies coatings systems that are acceptable that
8 meet the requirements of that specification. And the
9 specification contains performance data that can be
10 used to evaluate other coating systems throughout the
11 life of the plant.

12 Does that answer your question, Mr.
13 Powers?

14 MEMBER POWERS: Don't know. I've got to
15 go look up something.

16 MR. REDD: The selection, application, and
17 inspection of these coatings is performed in
18 accordance with Regulatory Guide 1.54 and the ASTM
19 standards which are endorsed by that standard as well
20 as through the Vogtle COLA application.

21 During the course of each refueling
22 outage, 100 percent of the readily accessible
23 containment coatings are visually examined through a
24 walkdown of the containment vessel, both interior and
25 exterior surfaces that are readily accessible.

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1 In addition, detailed examinations are
2 performed in each refueling outage in which the
3 coatings are examined in an organized preplanned
4 method where areas of the containment vessel are
5 identified on maps and planned out as part of outage
6 activities to perform a more detailed examination.
7 These examinations focus on areas that could have a
8 greater impact to the containment vessel's structural
9 integrity and the safety functions that the
10 containment vessel performs.

11 We also look at areas that could have a
12 higher likelihood of coatings degradation as evidenced
13 by their geometry, their service conditions, or
14 industry operating experience, which we have
15 incorporated into our coatings program.

16 If we identify any deficiencies in the
17 course of the general walkdown or the detailed coating
18 inspection, those deficiencies are documented and then
19 evaluated in an organized process there the effects of
20 that degradation -- where the effects and extent of
21 that coating degradation are evaluated by our coatings
22 experts.

23 If a deficiency is noted in the coating or
24 in the substrate, that will be entered into our
25 corrective action program under Appendix B controls

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1 and addressed in accordance with the plant corrective
2 action program to ensure that documentation and
3 resolution of these deficiencies are completed in a
4 prompt and controlled manner.

5 MEMBER POWERS: You have no instrumental
6 capability to look at degradation of the epoxy
7 coating?

8 MR. REDD: I'm sorry, Mr. Powers, I didn't
9 -- I couldn't hear you, sir.

10 MEMBER POWERS: You have no instrumental
11 capability to detect degradation of the epoxy coating?

12 MR. REDD: The inspection of the epoxy
13 coating is primarily a visual inspection. However,
14 there are tools such as dry film thickness monitors,
15 pull-off gauges, and other tools and instruments that
16 are used by the industry, which are described by ASTM
17 standards that will allow us to conduct testing in
18 accordance with ASTM industry standards that would
19 allow a further, more detailed investigation of the
20 epoxy topcoat if we suspected a degradation.

21 MEMBER POWERS: I know that -- I mean
22 everything you mentioned, ASTM, that's a destructive
23 test. I know that the French have been looking at
24 infrared -- a carboxyl signal -- a carboxyl peak in
25 the infrared is indicative of aging of paint.

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1 MR. REDD: I have been present for a
2 presentation by the French team that's working on
3 that. At the time, I am not aware of any broad U.S.
4 consensus on the use of that system. And I'm unaware
5 of any regulatory guidance that we would implement as
6 a licensee. But I aware that that research is
7 continuing.

8 And I would like to note that as the
9 industry progresses, as techniques become available, I
10 would expect over the course of the plant life that
11 those techniques, as they are approved in the
12 industry, as they are endorsed by consensus body or
13 the regulatory agency, that we would incorporate those
14 tools into our array of tools that we use for
15 evaluating coatings.

16 MEMBER RAY: Of course the epoxy is -- oh,
17 I'm sorry, Jack.

18 MEMBER SIEBER: Go ahead.

19 MEMBER RAY: Epoxy is very important on
20 the inside to the performance of long-term core
21 cooling. We've also focused a lot more attention than
22 normal on the coating on the exterior for a different
23 reason, which is the environment there is different
24 than any other plant, constant airflow and so on, too.

25 And a lot of this speaks to that to ensure

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1 that corrosion doesn't go undetected and unrepaired.
2 And that's not an easy thing to do given the
3 complexity of the exterior surface. But they
4 presented quite a bit of information to us that we
5 found satisfied the concern that the exterior coating,
6 which, of course, doesn't use epoxy, is going to
7 provide the protection required.

8 MEMBER SIEBER: The -- my question relates
9 to this -- to Harold's discussion. As I recall, the
10 clearance between the divider plate that lies in
11 between the shield building and the containment is
12 pretty small.

13 MR. REDD: Yes, sir. It's approximately
14 one foot.

15 MEMBER SIEBER: And so if you were to
16 visually inspect and/or repair the coating on the
17 outside, you would have to have an individual thinner
18 than one foot, right?

19 MR. REDD: Fortunately the AP1000 design
20 containment is very accessible. In the annulus region
21 between the containment vessel shell and the interior
22 diameter of the shield building is approximately four
23 feet.

24 Within that area, there are two man
25 baskets that are suspended from an overhead rail that

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1 has 360-degree access all the way around, in which men
2 can be placed in this basket, lowered to the
3 appropriate elevation. That particular plate of the
4 air baffle is designed to be removable in a safe and
5 engineered fashion, which provides immediate and
6 direct access to the coated surface of the exterior of
7 the vessel to allow coating inspection or repair.

8 MEMBER SIEBER: In the area where that
9 opening exists.

10 MR. REDD: Yes, sir.

11 MEMBER SIEBER: On the other hand, if you
12 had general corrosion, accessibility would be
13 difficult.

14 MR. REDD: Yes, sir. It is a challenge.
15 However, there are inspection techniques that are used
16 in the industry today that have been used for doing
17 remote visual inspections of those areas.

18 MEMBER SIEBER: Okay. I would conclude
19 from that that inspection is not impossible but it
20 would be very difficult. And I'm sure that you have
21 planned already as to how to accomplish that. Is that
22 correct?

23 MR. REDD: The exact examination
24 techniques will be developed as we get closer to
25 operation. However, there are remote and robotic

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1 visual inspection techniques that are used in the
2 industry today that we can employ. However, we have
3 not selected a particular machine or a particular
4 vendor to provide that service.

5 MEMBER SIEBER: I think the inspection is
6 easier than a repair.

7 MR. REDD: Oh, certainly. Absolutely,
8 sir.

9 MEMBER SIEBER: Okay.

10 MEMBER ARMIJO: It was my understanding
11 that the baffles could be removed 360 degrees around
12 the containment. Is that correct?

13 MR. REDD: Yes, sir.

14 MEMBER ARMIJO: So even though you won't
15 necessarily do it at every outage, you do maybe
16 selected ones.

17 MR. REDD: Yes.

18 MEMBER ARMIJO: You could do the whole
19 circumference if you wanted to.

20 MR. REDD: Yes, sir, the AP1000 air baffle
21 is designed so that each piece is removable. So
22 wherever on the shell we need to access, we could
23 remove the plate that covers that particular area and
24 all of the plates that make up the air baffle are
25 individually removable. So that access is provided

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1 for.

2 MEMBER ARMIJO: So at worst it would be
3 time consuming but not something that you are not
4 prepared to do.

5 MR. REDD: Right. The AP1000 design
6 includes mechanisms and tooling to make that
7 removable, to lower the plates down, and to provide
8 that access.

9 MEMBER SIEBER: Okay.

10 MR. REDD: Again, time consuming but
11 certainly a designed-for design aspect of the plant.

12 MEMBER SIEBER: Thank you.

13 MR. REDD: Next slide. The AP1000 upper
14 head and the areas behind and below the air baffle are
15 considered accessible. Even though they are not
16 readily apparent when you walk up to the vessel, they
17 are considered accessible by the licensee.

18 The visual examinations that are conducted
19 of the interior and exterior shell of the containment
20 may be performed directly as a man walking directly up
21 to the surface at a walkway or platform elevation or
22 remotely through binoculars, telescopes, robotics or
23 other devices. All of these tools and methods are
24 used extensively throughout the industry and have a
25 proven track record of success.

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1 One hundred percent of the accessible
2 areas of the containment vessel will be examined every
3 three to four years. This examination frequency is
4 driven by ASME Section XI - IWE requirements for a
5 visual inspection of the containment vessel shell. As
6 we will be accessing the shell on this frequency to
7 perform the containment vessel integrity inspections,
8 we'll also be looking at the coatings. I would like
9 to note that ASME, Section XI, subsection IWE for fuel
10 containment vessel specifically identifies the coating
11 as a aspect of the vessel to look at.

12 MEMBER RAY: I think it is worth noting,
13 of course, that experiences with corrosion that have
14 been problematic recently have been from a surface of
15 a liner generally that hasn't been able to be
16 inspected, in this case, of course, that surface --
17 both surfaces inside and outside --

18 MR. REDD: Yes, sir, that's correct, Mr.
19 Ray. And continuing with your train of thought, I
20 would like to highlight the AP1000's use of operating
21 experience. As Mr. Ray indicated, most of the major
22 corrosion issues lately have been initiated from the
23 outside of the vessel in. The AP1000 is accessible on
24 both sides.

25 Or corrosion has occurred at the area

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1 where the concrete vessel and a steel interface
2 exists. On the AP1000, these interfaces are very
3 readily accessible. You can walk right up to them.

4 And there are design aspects of the AP1000
5 which have identified that this is a corrosion-likely
6 location and have taken design steps to ensure that
7 water does not reach this area. And that an effective
8 seal is maintained between the vessel and the concrete
9 to exclude any water. Again, the coatings program
10 takes such operating experience wholeheartedly into
11 account.

12 Acceptance criteria for these inspections
13 is based on the guidance of EPRI 1003102, as endorsed
14 by Reg Guide 1.54. Acceptance criteria is determined
15 by the licensee but we will follow the guidance of the
16 endorsed EPRI guidance here.

17 We also want to highlight how many
18 complementary programs there are to the containment
19 coatings program. The containment vessel is subject
20 to inspection by a number of different and diverse
21 programs, in addition to the coatings program, most
22 notably the ASME, Section XI, inservice inspection
23 program of the containment vessel.

24 10 CFR 50, Appendix J, which is the
25 containment leak rate testing program, implements two

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1 inspections of the containment vessel inside and
2 outside between each integrated leak rate test as well
3 as 10 CFR 50.65, more commonly known as the
4 maintenance rule, which looks at both structures and
5 continued functioning -- or continued ability to
6 perform the structure safety functions, as well as
7 safety systems such as the capacity to contain the
8 cooling water system, which would also be looking at
9 the containment vessel to provide multiple independent
10 and redundant sets of inspections and eyes through
11 diverse methods and means and personnel to insure that
12 the exterior and interior of the containment vessel is
13 maintained in the condition that satisfies the safety
14 requirements.

15 With that, I will turn it over to Ms.
16 Aughtman.

17 MR. SPARKMAN: Actually, me.

18 MR. REDD: Or Mr. Sparkman.

19 (Laughter.)

20 MR. SPARKMAN: One last item that was of
21 interest to the ACRS subcommittee we wanted to cover
22 in the full committee has to do with squib valve
23 inservice testing. During the review of the inservice
24 testing program, the NRC requested information
25 addressing the development of surveillance activities

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1 for the squib valves.

2 Currently the code requires testing of the
3 squib valves charges but not the valves themselves.
4 And this is the first application of squib valves in
5 such a large scope in terms of the size of the valve.

6 These valves, in some cases, are upwards of 9,000
7 pounds.

8 And so one of the things that the NRC
9 requested that we included in our application in
10 revision 3 was a commitment that we, the industry,
11 Southern Nuclear and the DCWG would work with
12 Westinghouse to develop IST surveillance activities
13 for squib valves based on the final design of the
14 squib valves, which is still being developed, and
15 lessons learned from the qualification process.

16 COL 3.9-4 was added to the FSAR. And FSAR
17 3.9.6.2.2 currently addresses this commitment.

18 MEMBER RAY: And again we had a lot of
19 discussion about this. It's not entirely obvious how
20 to do what this requires. But nevertheless, we'll
21 look forward to the result.

22 The -- well, I'm sorry, Bill, did you --

23 MEMBER SHACK: What is the form of that
24 commitment? Is it an ITAAC? A license condition?

25 MR. SPARKMAN: It is a COL item in the

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1 FSAR.

2 MEMBER SHACK: Okay.

3 MEMBER CORRADINI: So but it's -- can you
4 go back a slide? But it is as vague as I read it?

5 MR. SPARKMAN: Well, what it actually says
6 is industry and regulatory guidance is considered in
7 development of the IST program for squib valves. In
8 addition, the IST program for squib valves
9 incorporates lessons learned from the design and
10 qualification process for these valves such that
11 surveillance activities provide reasonable assurance
12 that the operational readiness of squib valves to
13 perform their safety functions.

14 MEMBER CORRADINI: Well, maybe this is the
15 wrong venue. Harold, you stop me if it is. But I
16 thought -- well, I remember in reading that you are
17 going through a check of the charge. You have various
18 testing of these on a two-year basis. If any one of
19 these fails testing, you remove that lot.

20 So this is above and beyond --

21 MR. SPARKMAN: Yes, it is above and
22 beyond. That's correct.

23 MEMBER CORRADINI: Okay.

24 MEMBER RAY: Yes, Mike, it really goes
25 beyond the charge which you speak to --

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1 MEMBER CORRADINI: Right.

2 MEMBER RAY: -- with the issues of those -
3 -

4 MEMBER CORRADINI: The mechanical --

5 MEMBER RAY: -- mechanical parts of the
6 valve which also need to function, how do you assure
7 that that functionality, operability is maintained.
8 We're thinking of things like corrosion and stuff like
9 that. Because the charge just initiates the --

10 MEMBER CORRADINI: I understand that but
11 I'm trying to --

12 MEMBER RAY: -- sequence of events.

13 MEMBER SIEBER: The difficulty is it is
14 similar to testing fire sprinkler heads, for example.
15 Once you test it --

16 MEMBER CORRADINI: Big ones, these are big
17 ones.

18 MEMBER SIEBER: They're more expensive
19 than the ordinary fire sprinkler heads.

20 MR. SPARKMAN: Yes.

21 MEMBER SIEBER: But once you test it, it's
22 no longer functional. And so --

23 MEMBER CORRADINI: And has to be replaced.

24 MEMBER SIEBER: Right. And so what do you
25 do with the next one? Do you test it also and just

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1 keep doing that forever or --

2 MEMBER CORRADINI: Well, I think that we -

3 -

4 MEMBER RAY: Excuse me, Mike.

5 MEMBER CORRADINI: That's all right.

6 MEMBER RAY: You keep using the term
7 inservice testing program. And that, in fact, is what
8 is currently described.

9 We're envisioning, perhaps something that
10 involves inservice inspection --

11 MR. SPARKMAN: That's correct.

12 MEMBER RAY: -- to demonstrate
13 operability. Therefore, we're looking for something
14 that assures --

15 MEMBER CORRADINI: I understand.

16 MEMBER RAY: -- conditions have
17 deteriorated.

18 MEMBER CORRADINI: So the reason I'm --
19 well, I have a number of reasons why I'm asking the
20 question but so -- so what you're saying is the
21 industry -- you have committed to go forth and be
22 novel in a vague way?

23 MR. SPARKMAN: Novel?

24 MEMBER CORRADINI: Novel, innovative on
25 how one does this because I don't see how one does

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1 this. That's what I'm --

2 MR. SPARKMAN: That is accurate.

3 MEMBER CORRADINI: -- that's what I'm
4 hearing you say.

5 MR. SPARKMAN: The NRC and the ACRS
6 subcommittee expressed or asked questions regarding
7 this. And as Harold has said, we do not have a
8 specific inspection protocol that we would have at
9 this moment. But as a result of --

10 MEMBER CORRADINI: But you're committed to
11 develop one.

12 MR. SPARKMAN: Exactly.

13 MEMBER CORRADINI: Is this only for the
14 AP1000?

15 MR. SPARKMAN: I would anticipate --
16 Eddie, correct me if I'm wrong, but I would anticipate
17 that this would become a code case and we would follow
18 through within the industry.

19 MR. GRANT: We would work with the
20 industry. Currently, I believe, these valves are only
21 in the AP1000. And so they'll start out as AP1000-
22 specific valves.

23 MEMBER CORRADINI: I'm looking because I
24 have another design in my head that says these are
25 similar to other things that other designs have. So

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1 that's why I'm asking.

2 If you are going to go through all this --
3 I know engineers innovate so to the extent that you
4 innovate such as this, I would hope it would spread
5 beyond just this design in terms of an inspection or a
6 testing protocol. So is that the intent?

7 MR. GRANT: Yes.

8 MR. SPARKMAN: Yes, it is.

9 MEMBER CORRADINI: Is that the intent of
10 the staff? Staff, hello?

11 MEMBER RAY: Well, in fact, that's where
12 it came from.

13 MEMBER CORRADINI: That's all right. If
14 you're going to address this later, that's fine.

15 MR. JOSHI: Well, no, we don't have a
16 plan.

17 MEMBER RAY: I think at this point in
18 time, you're asking what the consequences --

19 MEMBER CORRADINI: That's kind of what I'm
20 asking.

21 MEMBER RAY: -- what are the consequences
22 of --

23 MEMBER CORRADINI: Yes, indeed.

24 MEMBER RAY: -- doing this might be, right
25 now, I'm, at least, just focused on trying to make

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1 damned sure -- I'm sorry, shouldn't say that -- make
2 very sure --

3 MEMBER CORRADINI: You can say whatever
4 you want. It's on the record, no problem.

5 (Laughter.)

6 MEMBER RAY: -- that the commitment is
7 clear. And I know --

8 MEMBER CORRADINI: That's fine. That
9 helps.

10 MEMBER RAY: -- it's intended to carry it
11 out.

12 MEMBER CORRADINI: That helps. Thank you,
13 Harold.

14 MR. GRANT: The original RAI, in fact,
15 came from the staff's understanding of what was going
16 on in the industry. And asked what we were going to
17 do to follow up on that.

18 MEMBER CORRADINI: Okay. Thank you.
19 Thank you.

20 MR. SPARKMAN: Okay. Next slide. So this
21 --

22 MEMBER RAY: You can expect, therefore,
23 just for closure -- it sounds like you agree -- that
24 we will want to make sure this is an inservice
25 inspection envelope that we're looking at, not just

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1 inservice testing because --

2 MR. SPARKMAN: That is correct.

3 MEMBER RAY: -- it's easy enough to say
4 well, I've tested all I can test. But it seems
5 inevitable that some kind of inspection is going to be
6 called for.

7 MEMBER SIEBER: Right. And it is an
8 industry issue, not just an AP1000 issue.

9 MEMBER RAY: Yes. Okay.

10 MR. SPARKMAN: So in summary, we're
11 restating the fact that we, in fact, our COLA and that
12 as you approve the standard content for Vogtle, you
13 are, in fact, approving the standard content for the
14 subsequent COLAs that will come after us. We do
15 incorporate the DCD amendment by reference and also
16 the early site permit, which was given to us in 2009.

17 As a result of all of the review by the
18 staff and the ACRS subcommittee and now the full
19 committee and the answer we've generated in terms of
20 requests for additional information and addressing
21 open items in the initial SER, we believe that we have
22 provided reasonable assurance the two AP1000 units can
23 safely be constructed and operated at the VEGP site.

24 And just as a final note, there is in the
25 presentation in front of you, there is a list of

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1 acronyms at the very end of the presentation for
2 acronyms that were used during the presentation.

3 MEMBER RAY: Okay. Well, we've got time.
4 And I think that you would find that as compared with
5 the things that you have chosen to talk about, all of
6 which are pertinent, our letter likely will reflect a
7 good bit more than you have on the reconciliation, I
8 will call it, between the site response picture and
9 the certified design. And what you did as a result of
10 the differences or exceedances that exist there.

11 It was more than saying oh, these are just
12 tiny. And I think it may be well, Wes, to say a few
13 words about the fact that the DCD provides for
14 resolution of such exceedances. And what, in fact,
15 was done.

16 Could you speak further to that? Or is
17 there somebody here who can? Because I think it's
18 important the subcommittee understand that.

19 PARTICIPANT: The full committee.

20 MR. SPARKMAN: There was. If Don Moore is
21 on the phone or you can call and see if you can get
22 him on.

23 MEMBER RAY: Can we get him on?

24 MS. AUGHTMAN: Yes, can we make sure the
25 phone line is open for people to speak?

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1 MEMBER RAY: Yes, Weidong, can we put him
2 on?

3 MR. MOORE: This is Don Moore, Southern
4 Nuclear.

5 And if I understand the question, it was
6 we did have some exceedances and how these were
7 addressed. Is that correct?

8 MEMBER RAY: Yes, that's right. I mean it
9 was something I learned anyway that the DCD, the
10 certification anticipates that sites may need to
11 reconcile these things. And what you do in order to
12 achieve that reconciliation. I think it's worth
13 spending a minute to summarize at least.

14 MR. MOORE: Thank you. I understand the
15 question.

16 As we develop what we call our GMRS, it's
17 our site ground motion, and showed -- and compared
18 that to the certified design ground motion, we had
19 exceedances. At Part 1, we were allowed to do the
20 site-specific analysis and so that is what we did.

21 And in that site-specific analysis, we
22 developed the response -- the site-specific response
23 of the nuclear island to our site-specific ground
24 motion, considering our site-specific sole properties
25 at the site and then compare that to the certified

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1 design full response spectra.

2 MEMBER RAY: And that comparison was done
3 in structure, right? At six points in the plant?

4 MR. MOORE: Yes. There were six key
5 points, six key locations that were defined to perform
6 this comparison. We did that comparison, I believe,
7 and developed a 3-D and provided the NRC the
8 comparisons in, I think, the early part of 2009.

9 And we had some exceedances. And we
10 provided engineering justification for these
11 exceedances. They were very limited and we provided
12 through Westinghouse, defined that these exceedances
13 would have no effect on the design of the nuclear
14 island nor would it have any effect on the design of
15 subsystems at the locations where we had the
16 exceedances. These are very narrow frequency ranges.

17 Subsequent to that, Westinghouse modified
18 or made changes to the shield building. There were
19 some changes made to their seismic NI-20 model. The
20 NRC asked us to reconcile those changes. We went back
21 and redid our 3-D analysis, site-specific analysis,
22 including the changes to the shield building. And
23 developed a new set of site-specific in-structure
24 response spectra.

25 But during that time, Westinghouse had, in

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1 their reanalysis, they redid their seismic analysis
2 for their generic sites. They had hard rock and then
3 five soft rock to soft soil profiles, redid those
4 analyses and they came up with a slightly different
5 design envelope.

6 When we compared our new in-structure
7 response spectra to their new revised design envelope
8 at the six key locations, we had almost no exceedances
9 except at a very, very low frequency. And it was at
10 around .5 hertz. And they -- it was, I think at the
11 last subcommittee meeting, it was mentioned that this
12 was almost within a design tolerance. It's something
13 of less than ten percent or so or less.

14 But this was justified by Westinghouse in
15 saying that the only mode that could be effected by
16 the .5 hertz exceedance, which was very small, would
17 be a sloshing mode of water in a tank. And that the
18 tanks -- the sloshing modes for the tanks of the
19 AP1000 were outside the range of this slight
20 exceedance. And, therefore, it was concluded that the
21 AP1000 design is acceptable for the Vogtle site. And
22 it was based on a site-specific sole structure
23 interaction analysis.

24 MEMBER RAY: And you also did a margin --
25 you looked at the margin analysis?

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1 MR. MOORE: Yes, we did. And we had an
2 RAI on Chapter 19, where we described in regards to
3 the nuclear island, that the margin that is defined or
4 that is developed for the standard design would not be
5 challenged by our site-specific responses. And so
6 that was our response in that regard.

7 MEMBER RAY: Okay. Well, I thought Bill
8 Hanse looked at that for the committee, provided input
9 on it. And that presently is reflected in our draft
10 letter. So I wanted to have some discussion of it
11 here.

12 Any other questions for the applicant
13 before we turn to the staff?

14 (No response.)

15 MEMBER RAY: If not, then we'll ask Joshi
16 to -- Ravi to pick up for the staff.

17 Well, before you proceed for a second
18 here, I was just reminded by Sanjoy, we have had --

19 MR. JOSHI: Sorry.

20 MEMBER RAY: I said before you start, I
21 was just reminded while we were waiting something I
22 should mention now in case Southern wants to carry it
23 any further, as Wes knows, we've met very recently on
24 the calorimetric matter, which is a responsibility of
25 the COL licensee. And I take it that you guys don't

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1 wish to speak to it any further in this full committee
2 meeting here now.

3 MR. SPARKMAN: We had not intended to
4 unless --

5 MEMBER RAY: Okay. And the question then
6 would be whether the staff wishes to comment on it.
7 Do you --

8 MR. JOSHI: We have decided not to
9 specifically provide any comments on that issue.

10 MEMBER RAY: All right. But for the full
11 committee's benefit, we presently have a comment
12 drafted which I'll ask Sanjoy to elaborate on.

13 MEMBER BANERJEE: It doesn't have to be
14 done now.

15 MEMBER RAY: Well, it doesn't have to be.
16 But why not since we don't want to come back to it.
17 Just give us a few words on where we stand and what it
18 is we anticipate.

19 MEMBER BANERJEE: So there is an ITAAC and
20 a license condition proposed by the applicant with
21 regard to this one percent fuel measurement
22 uncertainty -- rather one percent power measurement
23 uncertainty.

24 The main issue there is how accurately you
25 can measure feedwater flow because they use a

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1 calorimetric measure. They're using a device -- by
2 the way, it's not specified in the DCD what device has
3 to be used or how this one percent has to be achieved.

4 The DCD simply says that this is left up
5 to -- essentially up to the COLA to do. And the
6 reasons it's important is that if you can change this
7 one percent uncertainty, you can then do your local
8 analysis. And, therefore, you can operate your plant
9 at 99 percent of licensed power. I think I've got
10 that right, instead of 98 percent, which is the
11 uncertainty that you -- the two percent you formally
12 take with a venturi meter.

13 The reason you take the two percent with
14 the venturi meter is that you get fouling or erosion
15 in the throat over a period of time. And, therefore,
16 you know, even though the venturi when it is new is
17 very, very accurate, its performance over a long
18 period of time is not so clear.

19 This ultrasonic flow meter that is being
20 installed has been installed before. The staff has
21 looked at it. It essentially contains several sensors
22 which are transmitters/receivers if you wish.

23 And if you look at the pipe which is say a
24 horizontal pipe, just for the sake of discussion, a
25 sensor is put on one wall and somewhere downstream on

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1 -- let's say one is put on the bottom wall somewhere
2 downstream, a second sensor is put on the upper wall.

3 The ultrasonic beams go back and forth.
4 And if you go with the flow, then the speed of it is
5 the speed of sound plus the speed of the fluid. If
6 you go back, it is the speed of sound minus the speed
7 of the fluid. So if you add the two, you get an
8 average over the flow path -- or subtract the two,
9 sorry, of twice the velocity of the -- average
10 velocity of the fluid.

11 And you do this for several cords. And
12 you try to reconstruct the velocity profile out of
13 these caudal measurements. This check velocity device
14 has a series of three or four of these oriented so
15 there are several of these at the bottom, several at
16 the top on two sides.

17 So you've got essentially a cross set of
18 beams. I'm not very good at explaining these things
19 but you've got the idea.

20 Now they have to be calibrated at some
21 sort of research facility, in Alden Research Labs,
22 which is certified to be able to do these calibrations
23 because they collect the water, and measure how much
24 measure comes through it and they get the velocity
25 that way.

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1 Now the problem, of course, with all these
2 devices is that if they are installed where the
3 velocity profile is not fully developed and you don't
4 know what it is, then you've got a problem because you
5 have to reconstruct the velocity profile from these
6 caudal measurements.

7 MEMBER RAY: Right.

8 MEMBER BANERJEE: Okay. The ACRS
9 considered this matter in the past and I've looked
10 over our transcripts. And there were concerns about
11 what happens to the velocity profile, for example,
12 when you and open close feedwater valves and things
13 like that because you now have a complicated shape
14 coming out. And does the sort of calibration hold?
15 And there's all sorts of issues. I don't want to go
16 over that.

17 In any case, the ACRS did not write a
18 letter, as far as I can see on the matter, but this
19 was approved. There is an SER which approves this.

20 And the SER has several conditions, four
21 of these for application of the device. Two of them
22 relate to measurement, uncertainty, recovery if you
23 wish or uprate in existing plants. So two of the sort
24 of criterion for acceptance of this are not applicable
25 to a new plant. Two of them, however, are.

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1 The first of these have to do with
2 administrative controls to make sure that they are
3 properly installed and operated and so on --
4 maintained. The fourth of these has a requirement
5 actually that these devices be pre-calibrated and in a
6 geometry consistent with the geometry -- I don't know
7 exactly what the word consistent means but consistent
8 with the geometry that obtains in the plant.

9 And that after it is installed, because
10 the experiments to calibrate it cannot be conducted at
11 the full Reynolds number, that there be some in situ
12 validation. So there are two requirements.

13 They do have an exception, which is for
14 operating plants that if for reasons of outages one of
15 these devices is installed, before it can be pre-
16 calibrated, the staff will accept the pre-calibration
17 with a device, which is not the one installed. In
18 other words, it can be tested in parallel in order
19 that the schedule is not effected.

20 Now the upshot of all of this is that you
21 install it at the licensee's own risk because if it
22 doesn't work, you can't use it, okay? And that's sort
23 of the essence of this point. So what we want to
24 ensure here is that the requirements for -- that are
25 specified in the SER, whether we agree with the SER or

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1 not, it's there, are at least met.

2 And what is not clear from the license
3 condition, the ITAAC, and the response to the RAI that
4 we have received S&C is that these are, indeed met.
5 At least in my reading of it, and I think Harold's and
6 everybody else's, it was not clear. The wording in
7 the commitment did not seem to be completely
8 consistent with the requirements of the SER.

9 Therefore, in our letter, we will simply
10 state that we want to see that these requirements,
11 which are there in the criterion, are met -- which
12 relates to the pre-calibration and the post-
13 installation testing and validation.

14 Now with regard to the post-installation
15 testing and calibration, the SER is vague. It does
16 not specify exactly what it has to be. With regard to
17 the pre-calibration, it does. It says consistent with
18 the geometry and so on.

19 I'm trying to meet with somebody from the
20 staff to find out -- somebody who knows these matters
21 -- what has been done in the past about this post-
22 calibration testing. The obvious way to do it would
23 be to compare it with what you find from the venturi,
24 which is brand new.

25 At that point, then we can expect to be

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1 reasonably accurate. And I think that would
2 constitute a reasonable set of tests if you'd word it
3 differently -- flowrates or whatever. But I think --

4 MEMBER RAY: Relating to that opening.

5 MEMBER BANERJEE: Yes, I don't know what
6 the staff requires. So we need to find this out. And
7 somebody is going to turn up at 11:45 to discuss the
8 matter. So that's where we stand right now.

9 MEMBER RAY: Pending this disappearing, it
10 will be an appropriate comment in our letter. So I
11 thought we ought to see if anybody wants to talk about
12 it.

13 MEMBER BANERJEE: So this is what is going
14 into the letter --

15 MEMBER RAY: If not, then let's let Sanjoy
16 talk about it.

17 MEMBER BANERJEE: -- unless this changes,
18 yes.

19 MEMBER RAY: Thank you, Sanjoy.

20 All right. With that, we'll pick up now
21 with the staff presentation.

22 MR. JOSHI: All right. Okay. My name is
23 Ravi Joshi. I'm the lead PM, Project Manager, for the
24 COL. To my left is Joseph Sebrosky. He's the lead PM
25 for summer.

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1 We are going to have two presentations.
2 One is going to be talking about the Vogtle COL
3 application. And there's a couple of slides related
4 to summer. So he's going to do that one.

5 As the applicant indicated, they provided
6 application on March 28th and a subsequent COL. At
7 that particular time, Bellefonte was the RCOLA. Staff
8 completed their acceptance review on April 24th, 2008.

9 And we continued to review Bellefonte as the RCOLA
10 from that point until about April of 2009 at which
11 time NuStart designated Vogtle as the RCOLA.

12 Just to give an idea about what's
13 happening during this time frame, we'll actually go
14 into the Bellefonte review and writing the actual SER
15 for Bellefonte chapters. So at that particular time
16 frame, the staff, working with the applicant, NuStart,
17 decided that we will continue to write the SER for
18 Bellefonte and complete what we call ACR with open
19 items.

20 And then any items related to standard
21 content, they could addressed by the Vogtle SER COLA.

22 So I just wanted to give you a background on how that
23 transition took place.

24 Both ACR with open items were presented to
25 the subcommittee during the 2009 and early 2010. I

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1 just want to give you the background for how that
2 transition took place. Also on August 26, 2009, NRC
3 issued ESP and first LWA also.

4 On October 2009, we actually received the
5 second LWA. And that particular LWA request is
6 actually reviewed by the staff as a part of the Vogtle
7 COL. And the review of that particular LWA is
8 actually included in the SER, Section 3.8.5. So there
9 is no separate ESP. So what subcommittee looked at it
10 as a total COL percentage of LWA for also together.

11 As of today, we have completed Phase 1
12 through 4. When I say Phase 4, which is the advanced
13 SER with no open items. Those were presented to the
14 ACRS sub during the month of December, on 15 and 16.

15 Today we have the full committee meeting
16 and the last stage of the Phase 6 is the completion of
17 the final SER. That will require us to go back and
18 resolve the confirmatory items from the SER and then
19 complete the process. The current schedule is about
20 June of 2011.

21 Any questions?

22 (No response.)

23 MR. JOSHI: I just want to give you the
24 background about the current COL application. The
25 Vogtle COL application, as applicant indicated, that

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1 includes and incorporates the ESP site-specific as
2 well as incorporated by reference the Westinghouse
3 design certification rule as well the DCD amendment.

4 As I mentioned before, on August 26th, the
5 ESP LWA was granted. And also I mentioned about the
6 second LWA request also was received on August 6th,
7 2009.

8 Next slide. The application actually, as
9 I mentioned about it, consists of three different
10 things. One is what I call the material incorporated
11 by reference. And these are actually reviewed by the
12 staff in the following SERs. One is related to the
13 ESP, which is the NUREG-1923. And the design
14 certification is the NUREG-1793 and DCD amendment,
15 which was also provided to the committee back in
16 December.

17 The standard content material is also
18 being reviewed by the staff. That's the second part
19 of the overall review. And that content material
20 actually includes the resolution of the open items
21 that are related to standard content. And those open
22 items actually came from Bellefonte SER. So I just
23 wanted to give you the connection between from
24 Bellefonte ACRS to the Vogtle ACRS.

25 It also influenced the plant-specific

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1 information also. So there are three parts in our
2 SER. One is the IBR portion, standard content, and
3 our third party plant-specific information. So while
4 the ACRS looked at it specifically, the IBR and
5 standard content will not be repeated as a part of the
6 future SCOLA applications.

7 When we actually completed the advanced
8 ASERs with no open items, we actually put together, on
9 a chapter-by-chapter, and was issued to the committee
10 on a chapter-by-chapter basis. I just want to make a
11 note of that is all open items on standard content and
12 plant-specific issues on the Vogtle application were
13 resolved by the issuance of the chapter.

14 However, I want to make a note saying that
15 some of the confirmatory items remains open. And
16 those will be closed as a part of the Phase 6 review.

17 There were four meetings that were
18 completed, as I indicated on the slide, is June 25 and
19 25, July 21-22, September 20-21, and December 15 and
20 16. And those were completed and all the chapters
21 were presented at those meetings.

22 This particular slide actually provides
23 the different parts of the application. And the
24 staff's review, where it is located. There are about
25 11 different parts. And each part, staff has reviewed

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1 it and provided ACR in different parts of section.

2 For example, Part 1 includes the general
3 and administrative information. It also includes the
4 financial information. And that particular review is
5 included in SER Section 1.5-1.

6 Part number 2 is the final safety analysis
7 report. And that actual review is being included in
8 the appropriate chapters of the SER. Normally the
9 report is not a part of the safety review but is a
10 part of the final environmental impact statement,
11 FEIS.

12 The tech specs, which is also included in
13 Chapter 16 of the SER, emergency plan is included in
14 Chapter 13 of the SER.

15 The LWA, as I mentioned before, is
16 included as a part of the Section 3.8.5 of the SER.

17 The departure reports are included, as
18 well as exemptions, are included in the appropriate
19 sections of the SER.

20 The security plan, which is the cyber
21 information, is included in Section 13.6, was
22 represented for the staff. And the cybersecurity plan
23 as well as the LOLA were included in the part of
24 Section 13.6 and 19A accordingly.

25 The QA program, which is included in Part

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1 11, was included in Chapter 17.

2 And Part 10 is actually the proposed
3 licensed conditions which were reviewed and
4 appropriately included in the appropriate section of
5 the SER.

6 With that one, I will turn it over to Joe
7 to talk about the --

8 MR. SEBROSKY: Yes, this ends the Vogle
9 portion of the presentation.

10 My name is Joe Sebrosky. I'm the lead
11 project manager for Summer. We have two backup slides
12 that we can go through if you would like.

13 MEMBER RAY: Let me introduced the
14 subject, Joe.

15 When we were nearing the end of our
16 review, it became clear that we needed to take
17 cognizance of the fact that we were looking at the COL
18 in terms of its referring to an earlier revision of
19 the DCD than was addressed in the letter that we wrote
20 in December because these two things are proceeding in
21 parallel.

22 And so the question arose as to how the
23 COL will, in fact, be conformed with the revision of
24 the DCD, which is the subject of rulemaking, and how
25 issues that may appear, for example in the letter that

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1 we'll consider at this meeting, would get included in
2 the development of the final COL and the SER
3 supporting it.

4 So with that -- and I should say Charlie
5 had a couple of specific examples where we had been
6 able to resolve concerns. But they had not yet gotten
7 to a point where we were confident they were captured
8 in the final documents. So the question was how does
9 that happen.

10 And based on that concern, Joe presented
11 to us, I think, a very good demonstration of the
12 process issues that we have to work through whenever
13 this happens that we have two related applications
14 that are being reviewed in parallel. And somehow all
15 of that has to be reconciled at the end.

16 So he's got it up on the screen there now.

17 And I'll ask him to address it. He did a good job
18 the other day. He's made a couple of refinements in
19 it. And particularly focus on what I just mentioned,
20 which is shown by those two boxes at the top and
21 bottom on the right called staff response to ACRS
22 letter as well as the final revision of the design
23 certification.

24 So, Joe, go ahead.

25 MR. SEBROSKY: Yes, again, my name is Joe

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1 Sebrosky. And the question that we were trying to
2 address when we were having the subcommittee meeting
3 on Summer earlier this week is the concern that you
4 just heard from Mr. Ray.

5 And the reason that we had the issue is
6 typically when we come to the ACRS subcommittee and
7 the full committee, we're dealing with safety
8 evaluations that have a minimal number of confirmatory
9 items. That was not the case because of schedule
10 pressures with the AP1000.

11 So the simple question that was asked is
12 we understand your review is based on DCD Rev 17 and
13 that there will be a DCD Rev 18. How do we assure
14 ourselves -- how is the staff assuring themselves that
15 the confirmatory items are being addressed and staff?

16 How do we have assurance from you that the
17 items that we're going to put in the ACRS letter
18 report that are in the ACRS letter report for the
19 Westinghouse and potentially items that would be in
20 the ACRS letter report on Vogtle are going to be
21 addressed and reflected in the documents that support
22 the final safety evaluation?

23 So this is the presentation, the refined
24 presentation that we gave to the subcommittee on
25 Tuesday. And essentially if you look at this middle

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1 part, this middle part was meant to reflect the design
2 cert. This part down here, the long part is meant to
3 reflect the impact that the design cert and the design
4 cert review done by the staff has on the COL.

5 The other thing that we did is we tried to
6 color code this to make it a little easier. Anything
7 -- if it is a Westinghouse or COL applicant product,
8 it's light blue. If it's an NRC staff product, it's
9 green.

10 So what we started out with is, as the
11 subcommittee is well aware, on the DCD, we started
12 with DCD Rev 17. We provided to the subcommittee our
13 safety evaluation with open items, based on DCD Rev
14 17.

15 Those open items needed to be closed.
16 That required a revision to the DCD. And subsequent
17 to that revision, the safety evaluation with
18 confirmatory items -- I'm sorry when I say revision,
19 it required commitments from Westinghouse on how they
20 were going to close those open items. Our safety
21 evaluation, with confirmatory items, was based on how
22 Westinghouse committed to close those open items in
23 its letter.

24 These are staff-initiated changes.
25 Independent of that, Westinghouse identified changes

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1 that it needed to make to bring to the staff's
2 attention in accordance with ISG-11. ISG-11 is
3 essentially a process that says at some point, you
4 have to freeze the design for the staff to finalize
5 its review.

6 But it also recognizes that you may
7 identify, after you freeze the design, there's some
8 issues that you have to bring to the staff's attention
9 that when you look at that -- when you look at that
10 particular design change that you think needs to be
11 implemented, it needs to be implemented because the,
12 for example, the design, as proposed, will not meet
13 regulatory requirements. As you do the detailed
14 design, you find that you need a change.

15 So these are Westinghouse-initiated design
16 changes. There was a separate safety evaluation that
17 was presented to the subcommittee and full committee.

18 It was Chapter 23 that was provided.

19 These two documents -- these two documents
20 were the basis for the ACRS letter report. These
21 documents and these documents influenced the change to
22 the COL. There are examples of changes that were made
23 that were proposed in this design change package that
24 created new COL information items.

25 Those new COL information items, as you

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1 can see by that line, we got a commitment from the
2 applicant to make changes to the COL based on these
3 changes.

4 Similarly, you see with this line, you see
5 as we resolve these open items -- and an example that
6 Dr. Banerjee was talking about was the one percent
7 flow measurement system, that was originally proposed
8 to be addressed here. It was moved to a COL
9 information item and we had to address it.

10 So the product that is before the
11 subcommittee and the full committee is the safety
12 evaluation with confirmatory items. That's what the
13 staff is requesting a letter be written or considered
14 for.

15 And if you go back to the original
16 question we had is the ACRS letter report is going to,
17 we suspect as we document in our response, our formal
18 response to the letter report, is going to require
19 changes to DCD Rev 18. We think -- and I'm looking to
20 Eileen -- we think most of those changes are in DCD
21 Rev 18.

22 We've done a check. The staff has done a
23 check to make sure that the items that are in this
24 letter report that require a change to DCD Rev 18 are
25 in there, are in that revision. And it is envisioned

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1 in this letter report that -- the response to the
2 letter report, that we would communicate that back.

3 MEMBER RAY: Even though the DCD 18 came
4 in December 1st and we wrote our letter December 13th,
5 they were prescient enough to have done all of that.

6 MR. SEBROSKY: Based on the multiple
7 subcommittee meetings that we had.

8 MS. McKENNA: As you recall, Mr. Ray, we
9 had a subcommittee meeting on like the 2nd --

10 MEMBER RAY: I was being facetious,
11 Eileen.

12 MS. McKENNA: Yes. So -- yes, exactly.
13 Very timely in their incorporation.

14 MEMBER ARMIJO: Joe, were the changes that
15 resulted from the notice of violation on the aircraft
16 impact, you know steel doors, things like that, are
17 they in the Rev 18?

18 MS. McKENNA: Yes, they are.

19 MEMBER ARMIJO: They are already in the
20 Rev 18?

21 MS. McKENNA: Yes, because again, the
22 response to the notice of violation was in November.

23 MEMBER ARMIJO: Yes.

24 MS. McKENNA: And we then got a revised
25 RAI response to say here is the proposed markup to go

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1 into the DCD. And then it came in in Rev 18.

2 MEMBER RAY: Okay. So I'm still -- what
3 sort of things would go into a potential Rev 19.

4 MS. McKENNA: Well, I think it's really a
5 matter of if found that -- you know, well, we thought
6 we had agreed on language to go in 18, when it came
7 in, it wasn't exactly what we expected. Or because of
8 other circumstances, you know -- for example, we had
9 the Chapter 23 that touched on various chapters. And
10 we had confirmatory items in those chapters
11 themselves.

12 And perhaps when you put the two together
13 and line up this DCD markup with this DCD markup, we
14 see that they don't quite fit and we'd ask them to
15 make an adjustment. And we found a handful of things
16 like that in 18 where we said well, you know, you
17 didn't quite get it the way we want it.

18 So that's why we're suggesting the Rev 19.

19 MEMBER RAY: Okay.

20 MS. McKENNA: But they're not major
21 changes. They are more in consistency --

22 MEMBER RAY: Clarification.

23 MS. McKENNA: -- you know, clarifications,
24 that kind of thing, yes.

25 MEMBER RAY: Okay, Joe, go to the bottom

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1 of the picture now.

2 MR. SEBROSKY: So DCD Rev 18 and DCD Rev
3 19, obviously if it's needed, that would require a COL
4 revision. We already know we have a COL revision
5 that's needed because of DCD Rev 18. This line is a
6 given whether or not we have 19 or not.

7 This COL revision will incorporate by
8 reference DCD Rev 18, which should address the ACRS
9 letter issues. Independent of that, there's another
10 way that the ACRS can influence the COL revision is if
11 there is something in the letter report that we're
12 requesting requires the COL to change, and that's why
13 this is as necessary, that would be reflected in this
14 revision and it would also be confirmed and reflected
15 back to the full committee in the staff's response.

16 So the basis for the staff's final safety
17 evaluation report is this COL revision, as influenced
18 by the ACRS letter report. The ACRS letter report, in
19 both cases as I'm sure you are aware, ends up in the
20 SER. It's referenced in the SER for posterity.

21 And the only other point here is this is a
22 dotted line. We will not issue the final safety
23 evaluation report on the COL until a final safety
24 evaluation report is issued on the design cert.
25 That's similar to the philosophy that we used in the

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1 subcommittee meetings because of the potential that
2 there may be something in the safety evaluation report
3 that needs to be in the design cert that needs to be
4 addressed in the COL.

5 MEMBER RAY: All right. Any questions for
6 Joe? I mean I think this helps us. Some people would
7 have imagined you couldn't have drawn that picture.
8 But, in fact, you did.

9 (Laughter.)

10 MEMBER ARMIJO: I think it is a really
11 good job of explaining how this thing works.

12 (Chorus of agreement.)

13 MR. SEBROSKY: Thank you.

14 MEMBER RAY: Now you had one other slide
15 in which you talked about future interactions. If
16 you'd like, you can certainly do that now.

17 MR. SEBROSKY: The reason that we put this
18 as a backup slide is it goes back to what Amy Aughtman
19 was saying earlier. The SCOLs take advantage of the
20 design-centered review approach. And we presented to
21 the subcommittee on the 10th and the 11th information
22 on Summer.

23 And our approach, consistent with the
24 designed-centered working group approach, is that we
25 concentrated on the site-specific items. And not the

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1 information that was considered as standard.

2 Once you get outside of Chapter 2, which
3 is the site evaluation and the emergency plan, which
4 is documented in 13-3, there is a limited set of site-
5 specific information. And so --

6 MEMBER RAY: What we should point out is
7 that Summer, of course, doesn't have an EPS.

8 MR. SEBROSKY: That's correct.

9 MEMBER RAY: Whereas Vogtle did. And,
10 therefore, right off the bat there's a difference.
11 But go ahead.

12 MR. SEBROSKY: So if you go back and look
13 at the subcommittee presentations, we made two of them
14 -- one, last year in July, and, again, following
15 January 10th and 11th. The majority of the
16 presentation, when following the site-specific
17 philosophy, was in Chapter 2 and also in 13-3.

18 Right now, there isn't anything that we
19 have scheduled. We don't have another subcommittee
20 meeting scheduled right now. The plan is for Summer,
21 unless we hear different from Mr. Ray, is to go to the
22 full committee meeting in February.

23 We're still working on the items that we
24 would present. But it would be mainly Chapter 2 and
25 13-3, an overview of the application, and I listed two

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1 site-specific topics of interest that came up in the
2 discussion on Tuesday.

3 But the reason that we presented this
4 slide was to reinforce that we are using that design-
5 centered review approach. We're taking advantage of
6 it. We already have taken advantage of it. And
7 that's why, we believe from the staff's perspective,
8 was can have a full committee meeting so shortly
9 behind -- on Summer so shortly behind the full
10 committee meeting on Vogtle.

11 And that ends our presentation.

12 MEMBER RAY: All right. Thank you.

13 Any questions for staff?

14 Yes, Joy?

15 MEMBER REMPE: If you go back to this
16 drawing of the flowchart, the last letter we issued or
17 in the discussion for that letter, there was some
18 section about materials testing with respect to the
19 reactor coolant pump.

20 How would that issue be addressed in this
21 process? Would it have been completed before the
22 final SER is issued for the design certification? Or
23 how would that fit in because I would think that would
24 be -- is that a longer-term effort or how would that
25 work?

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1 MR. AKSTULEWICZ: This is Frank from the
2 staff.

3 MEMBER RAY: Just one second.

4 MR. AKSTULEWICZ: As we discussed, the
5 actual process for capturing that specific commitment
6 would be described in the staff's letter back to the
7 committee that would identify the process we would use
8 to make sure that that information got forwarded to
9 the committee for their examination when it actually
10 was finished, right?

11 We're still in the process of working with
12 Westinghouse on the details of what that would be and
13 when that material might become available.

14 MEMBER REMPE: But we don't know the
15 timing?

16 MR. AKSTULEWICZ: Right. And then we
17 would -- I'm going to speculate here so don't hold me
18 to it -- but I would suspect that we would probably
19 report out on the progress of that as we show up for
20 the subsequent AP1000 COLs, you know, as a recurring
21 issue. I mean we can talk about progress on other
22 issues that may surface on other plants as well at
23 that time.

24 MEMBER REMPE: Okay.

25 MEMBER POWERS: Do I understand it

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1 correctly, Harold, that for Summer, we're going to do
2 what amounts to an ESP and a COLA in one committee
3 meeting?

4 MEMBER RAY: Well, yes, except I would
5 refine what you said, Dana, to say it is an SCOL
6 rather than an RCOL, which we do here, of course.
7 And, therefore, it would be a very, very short
8 meeting, if we didn't count the absence of the EPS
9 which causes, of course, then to talk about the things
10 that we would talk about in an ESP if there had been
11 one. So it will be a fulsome meeting but easily
12 something we can accommodate in a half-day like this.

13 MEMBER POWERS: I would think that the
14 site geology and the seismology would be enough to
15 occupy us fully.

16 MEMBER RAY: Well, that may well be. And
17 as always, we will spend whatever time is needed. But
18 I believe it is ripe from the subcommittee's point of
19 view to come to the full committee.

20 The SCOL items are so few that --

21 MEMBER POWERS: There is nothing few about
22 the seismology and the --

23 MEMBER RAY: No, no. I'm distinguishing
24 them --

25 MEMBER POWERS: -- geology of the site.

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1 And the hydrology itself is a --

2 MEMBER RAY: Right.

3 MEMBER POWERS: I mean those are non-
4 trivial things.

5 MEMBER RAY: And we've reviewed them at
6 subcommittee. And, as I say, I believe they're ready
7 to come to the full committee. I think you're raising
8 the question is it practical to do both the site
9 things and the non-site things required for an SCOLA
10 at one meeting. Do I have it correct?

11 MEMBER POWERS: That is correct.

12 MEMBER RAY: All right. Well, we'll take
13 that into account. But at this time, at least, that's
14 our judgment is that we can do that just because the
15 non-site-related items are few enough that they would
16 not add materially to the length of the meeting. But
17 your comment is understood. But, I mean we can
18 discuss it further.

19 MEMBER POWERS: It's been a struggle to do
20 even the seismology.

21 MEMBER RAY: Well, and it was not
22 something we didn't spend time on in the subcommittee.
23 So I understand.

24 Anything else for staff or applicant?

25 (No response.)

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1 MEMBER RAY: Now we do have two members of
2 public.

3 Weidong, where are you? I need -- I'm
4 looking for staff help here to make sure we --

5 MEMBER BLEY: They're online. You just
6 have to turn --

7 MEMBER RAY: Well, I know, I just want to
8 make sure -- yes, sir, that was untimely, wasn't it?

9 Okay. What I'm trying to do is make sure
10 that the folks on the line can speak because they've
11 been taken off of listen only. And yes, are we open?
12 Off listen only?

13 MR. AKSTULEWICZ: I think we're --

14 MEMBER RAY: And we have two parties. And
15 I don't even know if they're in the same place. But
16 we'll try and take them in the order in which they
17 asked to be heard.

18 The first one, as I have it here on the
19 list, is by a person by the name of Mary Olson. Mary,
20 are you able to respond to me?

21 MS. OLSON: I can hear you.

22 MEMBER RAY: Very good. Well, we can hear
23 you just fine. I won't -- can you give me just an
24 idea how long you would expect your comments would
25 take? We don't have any limit on them, I just would

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1 like to know for planning.

2 MS. OLSON: Three to five minutes.

3 MEMBER RAY: That will be just fine. All
4 right. You may certainly proceed.

5 MS. OLSON: Thank you.

6 My name is Mary Olson. And I am the
7 Southeast Regional Coordinator for Nuclear Information
8 and Resource Service. I'm located in Asheville, North
9 Carolina. But the organization is national.

10 We are the lead intervenor on an AP1000
11 being proposed by Progress Energy Florida in Levy
12 County, Florida. But I'm also calling really as a
13 mom.

14 My son was born at home, 20 miles from
15 what you're calling the RCOLA, the Vogtle site 20
16 miles from Waynesboro. And I'm really calling this
17 committee to implore that you not let NRC proceed to
18 the certification of the AP1000 without first really
19 addressing directly the issues raised by the AP1000
20 oversight group and Arnie Gundersen.

21 I find the containment issues extremely
22 important when thinking about the prospect that my now
23 26-year-old son might move home to have his children,
24 and therefore my grandchildren, so close to the Vogtle
25 site. We, as a family, look at the Vogtle reactors

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1 and not terribly comfortable with them. But see the
2 AP1000 as an enormous step backwards.

3 Far from being passively safe, the
4 containment system appears, at least by the record of
5 the existing fleet for capacity for passive failure of
6 a containment, meaning the corrosion or cracking that
7 could happen to the AP1000 single-shell containment,
8 that turns the shield building into what could be a
9 very effective distribution method for radioactivity,
10 not containment. And we really think this needs to be
11 looked at, especially when I look at my family's
12 future.

13 I think it is especially important
14 because, you know, the shield building was really
15 designed as a Chernobyl-style pre-installed
16 sarcophagus. And being pressed into duty as a
17 quote/unquote cooling tower. It's obviously designed
18 to channel air and distribute it outward.

19 And there is additional radioactivity in
20 that space due to, we agree, the word passive applies
21 but it applies to the undetected passive failure of
22 the containment that might have already occurred. And
23 then combined with the conditions of an accident
24 results in a lot more exposure to people in that area.

25 So I truly am taking the time today to

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1 speak to you on behalf of all my membership but
2 particularly on the behalf of my own future
3 grandchildren because I hear there are some in the
4 Administration who are attributing a zero percent
5 chance of failure to the AP1000 single-shell
6 containment.

7 And I've been in this field now
8 professionally for 20 years. And I have to say to
9 ACRS, you know, part of why engineers love nuclear
10 energy is because it has problems and engineers are
11 great problem solvers. So please embrace this problem
12 and solve it.

13 Because otherwise you are going to be in
14 the category of saying something on the order of
15 thermal lag doesn't burn. Vessel head inspection is
16 always 100 percent perfect for corrosion. No reactor
17 could possibly contaminate the groundwater on the
18 site. And Inconel 600 will perform perfectly.

19 We know from history that those
20 statements, not a single one of them, is founded in
21 reality. So I'm calling today to ask, on the record,
22 that ACRS really institute a new piece of the AP1000
23 consideration prior to verification that will address
24 the containment system issues that have been raised.

25 And finally I just want to add a little

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1 teeny personal note in addition, that I'm a special
2 kind of mom. I'm a third parent that appeared as my
3 son hit puberty. And I can tell you that I changed
4 the trajectory of his life and the outcome of him as a
5 young adult now.

6 And that's because of additional resource,
7 because of additional attention, because I took the
8 time. So I'm really asking you, as a mom, as a
9 perspective grandmom, to give the attention, to take
10 the time, to institute a redirection of this process
11 so that these issues will be addressed.

12 Thank you.

13 MEMBER RAY: Well, thank you. And let me
14 assure you your comments have been heard and are a
15 part of the record and will be part of our
16 deliberations. So thank you for calling and giving us
17 such a well-stated input.

18 MS. OLSON: Thank you.

19 MEMBER RAY: Now, I don't before me have
20 the name of the person from the second -- representing
21 the second group. So I'm going to ask is there a
22 second person? And would you please identify
23 yourself?

24 MS. GOTSCH: My name is Paula Gotsch. Can
25 you hear me?

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1 MEMBER RAY: Yes, indeed, we can, Paula.
2 Please go ahead.

3 MS. GOTTSCH: Okay. I'm representing
4 Grandmothers, Mothers and More for Energy Safety. And
5 I'm calling in to second what Mary said about the
6 Arnie Gundersen information about the lack of the
7 extra containment on the AP1000.

8 I also am a little bit taken aback by what
9 was referred to -- and I think honestly, thank
10 goodness, by one of the staff, about the schedule
11 pressures with the AP1000. And I'm thinking about an
12 incident in the Gulf where schedule pressures led to a
13 lot of shortcuts and led to a lot of mistakes.

14 And I'm hearing about pre-calibrated
15 valves, feedwater valves, and a one percent, you know,
16 problem with that system. And something about squib
17 valves. I mean it is kind of funny listening to your
18 meeting because it's got so much jargon in it we kind
19 of flounder. But evidently there is a problem with
20 squib valves that hasn't been settled yet.

21 And it comes across that the AP1000 feels
22 like a not-ready-for-primetime reactor. That's an
23 entertainment reference but it certainly doesn't sound
24 like it is ready for primetime.

25 I tuned an -- I'll only be another minute

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1 -- I tuned in maybe about an hour and a half ago so I
2 don't know if you did deal with Arnie's concern --
3 Arnie Gundersen's concerns. I also had read in the
4 materials that one of the NRC staff had concerns.

5 I think in terms of your mandate, you
6 could listen very carefully to what the committee
7 reported -- just put in the report last week about
8 what happened in the Gulf. And one of the things that
9 they recommended is that there be a separation from
10 the people who represent the industry's concerns and
11 those that are doing the safety and representing the
12 public because they felt one of the concerns was that
13 the regulating agencies were bowing more and more to
14 the pressure of the industry.

15 Which is what I think your staff member
16 was talking about when he said -- and I don't want to
17 put words in his mouth, I'm just going to say what he
18 said, the schedule pressures with the AP1000. I don't
19 think any schedule pressures should put the public in
20 jeopardy.

21 I'd like to -- I am concerned about
22 corrosion. I am concerned about the lack of secondary
23 containment on the AP1000, and all these other items
24 that seem to be not closed yet.

25 Thank you for your time. And good luck

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1 with this.

2 I would be going -- as my daughter once
3 said at an NRC meeting, you guys are running with
4 scissors. So you have to be very careful. Thanks.
5 Bye.

6 MEMBER RAY: Your very welcome. And,
7 again, I want to thank you for a clear and concise
8 statement of your concern.

9 We have, of course, met with Mr.
10 Gundersen. So we're familiar with the issues that he
11 brings to the table.

12 With that, let me ask if there are any
13 other persons on the line who would like to make
14 comments similar to Mary and Paula.

15 (No response.)

16 MEMBER RAY: Or is there anyone here in
17 the audience that would like to do so?

18 (No response.)

19 MEMBER RAY: Hearing none then, we will
20 recess until the afternoon session, which is scheduled
21 to start at two o'clock. Thank you all.

22 (Whereupon, the foregoing matter went off the record
23 at 12:03 p.m. to be reconvened in the
24 afternoon.)

25

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A-F-T-E-R-N-O-O-N S-E-S-S-I-O-N

1:59 p.m.

CHAIRMAN ABDEL-KHALIK: We're back in session. At this time, we will go to item number four on the agenda, Draft Final Revision 2 to Reg Guide 1.174 and Draft Final Revision 1 to RG 1.177. Dr. Bley will lead through that discussion.

MEMBER BLEY: Thank you, Mr. Chairman.

So just a little background before I turn it over to you folks. ACRS has been writing letters on this topic since at least March of '97. We've written five letters that I could find generally in support of the development of this work. And our last one was almost ten years ago for Rev 1.

We made two substantive recommendations in that letter. And I'm pleased to say that both of those have been carried out over the last eight years.

And led to Reg Guide 1.200 and also picked up in Reg Guide 1.177, which you are going to talk about today.

So we look forward to your presentation today. And I think for some of us, it might be the first time really going through this and for others, they've been following it for a very long time.

Who is taking over? Don?

MR. HELTON: That would be me.

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1 First of all, I want to thank you for the
2 opportunity to brief you on this topic. My name is
3 Don Helton. I work in the Office of Nuclear
4 Regulatory Research, Division of Risk Analysis. And
5 with me I have Andrew Howe from the Office of Nuclear
6 Reactor Regulation, Division of Risk Assessment, and
7 Mary Drouin, who also, like me, is from the Office of
8 Nuclear Regulatory Research's Division of Risk
9 Analysis.

10 The topic today, as Dr. Bley just said, is
11 the revisions, proposed final revisions to Regulatory
12 Guides 1.174 and 1.177. The second slide just
13 provides some acronyms. So we'll jump straight to the
14 third.

15 So what are we going to cover? Like Dr.
16 Bley said, it's been a while since this particular
17 topic has been in front of the committee. So the
18 first thing that we wanted to do is just provide a
19 quick refresher of the two guides in question and talk
20 about their relationship to the other guidance
21 documents like Regulatory Guide 1.200, that was
22 mentioned, talk about the reason for updated the
23 regulatory guides, the changes that we made prior to
24 public comment, talk about the public comments we
25 received and the dispositioning of those, mention a

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1 few items that have been deferred, and then talk about
2 the path forward.

3 So first, Regulatory Guide 1.174 is the
4 regulatory guide that handles risk-informed changes to
5 the licensing basis. It was last issued in 2002. It
6 describes the method that licensees and staff will use
7 in assessing licensing basis changes when the licensee
8 uses risk information or is requested by the staff to
9 support the application with risk information.

10 It lays out five key principles. The
11 first is did the change meet the current regulations.

12 Second is is that the change be consistent with
13 defense in depth. The third is that it maintain
14 sufficient safety margins. The fourth is that changes
15 in CDF or risk be small. And finally, that the change
16 be monitored using performance measurement strategies.

17 This is just one of the figures in
18 Regulatory Guide 1.174, which lays out the risk-
19 informed, plant-specific decisionmaking process. This
20 specifically lays out four steps. The first is to
21 define the change, followed by the performance of
22 engineering analyses that includes both traditional
23 analyses as well as PRA analyses, then the definition
24 of the implementation/monitoring program, and finally
25 the submission and documentation of the change.

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1 These two figures receive a lot of play in
2 the risk-informed world. They are the acceptance
3 guideline figures that are laid out in Regulatory
4 Guide 1.174. And they describe three regions in terms
5 of the delta CDF and the baseline CDF and the delta
6 LERF and the baseline LERF.

7 The first region is one where no change is
8 allowed due to either the delta CDF, delta LERF, or
9 baseline CDF and LERF being too large or a combination
10 of those two things being the case.

11 The second region, it defines where small
12 changes will be reviewed.

13 And the third region deals with very small
14 changes and there's greater flexibility in Region III
15 than in Region II, owing to the fact that the risk is
16 lower. And in both Region II and Region III, tracking
17 of cumulative impacts is required.

18 MEMBER POWERS: I'm dying to know what
19 more flexibility means. It means you don't review it?
20 Or you don't care? Or --

21 MR. HELTON: Well -- and I'll let the
22 others jump in if they want to -- an example would be
23 that basically when the regulatory guide itself is
24 defining Region III, it talks about the fact that
25 unless there is reason to believe that the baseline

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1 CDF might be approaching or surpassing ten to the
2 negative fourth, then the baseline CDF is not part of
3 the decision. It's more of a focus on that change
4 because the change itself is so small.

5 Does that answer your question?

6 MEMBER POWERS: Well enough.

7 MR. HELTON: Well enough. Wow, that's a
8 glowing endorsement.

9 (Laughter.)

10 MEMBER ARMIJO: If you could, could you
11 explain that figure where you go from Region I to
12 Region II to Region III, Region I being -- it looks
13 like the most restrictive, no changes allowed.

14 MR. HELTON: Right.

15 MEMBER ARMIJO: But then Region II allowed
16 small changes. And then Region III, even though delta
17 CDF is the smallest, is only very small changes. It
18 seems reversed.

19 MR. HELTON: I'm sorry, the small changes
20 is referring to -- that's what the -- the change
21 that's being proposed is prompting a small change in
22 the risk.

23 MEMBER ARMIJO: Oh, okay. Okay. All
24 right.

25 MR. HELTON: And in Region III, the change

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1 that is being proposed has a very small change in risk
2 associated with it.

3 MEMBER ARMIJO: Got it. That makes it
4 clear.

5 MR. HELTON: Okay. Next slide.

6 All right. Let's switch gears and talk
7 for a minute about Regulatory Guide 1.177, which deals
8 with risk-informed technical specification changes.
9 It was issued in its only form to date in 1998. And
10 it provides a method for utilizing risk information to
11 evaluate changes to completion times and surveillance
12 frequencies.

13 The reg guide is related to the 1993
14 Commission policy statement on technical specification
15 improvements, 10 CFR 50.36, technical specifications,
16 and also 10 CFR 50.65, which is the maintenance rule.

17 Regulatory Guide 1.177 echoes the four-
18 step decisionmaking process that we talked about
19 earlier from 1.174. And then it lays out three tiers
20 for completion time change evaluations. Tier 1 is to
21 assess the impact of the change in terms of delta CDF
22 and delta LERF, like Reg Guide 1.174, but then also
23 adding in the concepts of ICCDP, incremental
24 conditional core damage probability, and ICLERP,
25 incremental conditional large early release

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1 probability.

2 Tier 2 is the identification of high-risk
3 configurations that could be created by concurrent
4 testing or simultaneous equipment outage.

5 And then Tier 3 discusses the
6 establishment of an overall risk configuration
7 management program.

8 1.177 goes on to discuss the acceptance
9 guidelines associated with these three tiers. 1.177,
10 first of all to understand, it brings in the
11 acceptance guidelines from 1.174 and then adds to
12 those.

13 And so for Tier 1, it provides
14 quantitative criteria for ICCDP and ICLERP.

15 For Tier 2, it talks about appropriate
16 restrictions to dominant risk-significant
17 configurations.

18 And for Tier 3, it again brings in the
19 concept of a risk-informed configuration management
20 program.

21 Now that we've got a little background on
22 the two individual documents, let's just try to place
23 these in the broader scope of risk-informed guidance.

24 This is a figure out of Regulatory Guide 1.200, which
25 shows that we have Regulatory Guide 1.200 on PRA

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1 quality as well as the ASME and ANS PRA standard.
2 Those feed in to the application-specific regulatory
3 guides, like the two that we're talking about today.
4 And those, in turn, feed into the specific
5 applications or the specific risk-informed
6 applications.

7 In the case that is up here, 1.177 isn't
8 explicitly called out here but it plays a role just
9 like 1.201 and 205 in this view of the world.

10 MEMBER BLEY: I'm just -- I don't
11 remember. When did 177 first come out?

12 MR. HELTON: It's 1998.

13 MEMBER BLEY: '98, okay. So it's the same
14 -- almost concurrent with 1.174.

15 MR. HELTON: Right.

16 MEMBER POWERS: First of all, it's a long
17 and parallel process.

18 MEMBER BLEY: Okay. I didn't realize it
19 came out that soon.

20 MEMBER POWERS: Yes. There were three or
21 four of them all together.

22 MR. HELTON: And then 174 was revised in
23 2002 whereas 177 has not yet been revised.

24 Okay. So why are we updating these
25 Regulatory Guides? The first reason is there has ben

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1 significant changes in the PRA standards since 1998
2 and 2002. In addition, since that time, there's been
3 the issuance of Regulatory Guide 1.200 and two
4 revisions of that regulatory guide.

5 There has also been the issuance of NUREG-
6 1855, which deals with the treatment of uncertainty in
7 the decisionmaking process.

8 And finally, there has been a continued
9 evolution in the risk-informed application process and
10 the review of those applications.

11 So to address those changes or -- sorry,
12 to address those evolutions, the changes that were
13 made prior to public comment were consistency in
14 terminology and usage with Regulatory Guide 1.200 and
15 the ASME/ANS PRA Standard, incorporation, primarily by
16 reference, of the information from NUREG-1855 on
17 uncertainty, addition of a paragraph to address
18 changes that are not well captured by CDF and LERF --

19 MEMBER SIEBER: Can you give us an example
20 of that please?

21 MR. HELTON: Basically the idea that the
22 paragraph tried to get across was just the fact that
23 there could be changes that would effect, for
24 instance, light containment performance, that wouldn't
25 be explicitly picked up by CDF and LERF.

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1 MEMBER SIEBER: Okay.

2 MEMBER BLEY: Just -- you don't have a
3 viewgraph with just that paragraph. I was hoping you
4 were going to --

5 MR. HOWE: It might be a good time to
6 mention -- and I'll be going to that in my slides --
7 that that paragraph was commented on as a new
8 regulatory position without good guidance. And the
9 decision was made to withdraw it and not put it in
10 this revision if that makes a difference to your
11 question.

12 MEMBER BLEY: It has been withdrawn?

13 MR. HOWE: It's been withdrawn, yes.

14 MEMBER CORRADINI: Can you say it again?
15 I'm sorry, excuse me.

16 MR. HOWE: The change that was identified
17 here as adding this paragraph, in the final after-
18 comment version, in response to comments it was
19 eliminated from it and gone back to the original
20 wording, which didn't address these things. So it is
21 not being addressed in this revision of Reg Guide
22 1.174.

23 MEMBER BLEY: If it's possible later on,
24 if we can go into that in some detail because I was
25 curious about it when I saw it. So --

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1 MR. HOWE: Okay, yes, we have a slide.

2 MEMBER BLEY: But it's disappeared so
3 maybe you can talk a little bit --

4 MR. HOWE: I don't know how much detail
5 I'm going to go into.

6 MEMBER BLEY: -- about -- more about what
7 it was intended to do and how you deal with that given
8 you've removed the paragraph.

9 MR. HOWE: Right. Would it also make a
10 difference to say the person who proposed it has left
11 the Agency and retired?

12 (Laughter.)

13 MEMBER SHACK: The ACRS recommended such a
14 criterion in our first letter on 5046 and we're still
15 here.

16 MR. HOWE: I knew there was a reason they
17 stuck me with that slide.

18 MR. HELTON: Yes, there is a slide later
19 where we're going to --

20 MEMBER BLEY: So we'll come back to it
21 then.

22 MR. HELTON: Yes, there is a slide later.

23 MEMBER BLEY: Good.

24 MR. HELTON: We're going to go through a
25 couple more sort of introductory or setting-the-stage

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1 things. And then we're going to talk about six
2 particular public comments that we received. And
3 that's going to be one of them.

4 MEMBER BLEY: Okay. Thank you.

5 MR. HELTON: That will give Andy a chance
6 to slip out now, now that he's gotten fair warning.

7 MR. HOWE: I'm trying to figure out what
8 I'm going to say.

9 MR. HELTON: Okay. So with that, we also
10 removed outdated discussion obviously. And then
11 another change is with Regulatory Guide 1.177, that
12 has always had the quantitative guidelines that I
13 talked about earlier for permanent technical
14 specification changes. We've now added other
15 guidance, related guidance for one-time-only changes.
16 And then just other minor changes just for clarify.

17 Next slide. Okay. So the two draft
18 guides were issued for public comment in August of
19 2009. We received about 50 comments after
20 consolidation on each reg guide. And the comments
21 were received from NEI, which included input from the
22 BWR owners groups, as well as comments from the PWR
23 owners group, and from Exelon.

24 A large number of the comments dealt with
25 the consistency issues between Regulatory Guide 1.174,

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1 Regulatory Guide 1.200, the PRA standard, and NUREG-
2 1855. There were a number of comments that revisited
3 issues that were not changes in the current revisions
4 but issues that have -- in other words text that has
5 been unchanged since the current active versions.

6 So then how did we deal with this? When
7 you do the pure numbers game, about 70 percent of the
8 public comments were dispositioned either in part or
9 in full or the staff agreed with them and made changes
10 either in part or in full.

11 And then one other thing I wanted to
12 mention before we go into the specific comments is
13 that we did agree with one of the comments, which was
14 that the language in the 1998 version of Regulatory
15 Guide 1.177 does not match the terminology used in the
16 standard technical specifications in terms of one uses
17 allowed outage time and surveillance test interval.
18 The other one uses completion times and surveillance
19 frequency.

20 It's something we had batted around
21 changing before we want out for public comment. We
22 didn't end up doing that. We got public comments on
23 it. And now the final versions do have that
24 translation. So now the terminology is consistent
25 between the two.

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1 MEMBER BLEY: Don, on your first one --
2 and I assume you've either worked toward consistency
3 or maybe removed some language from -- is there a lot
4 of repeated language? Was that what led to the first
5 that's not quite repeated exactly the same?

6 MR. HELTON: There were cases where we
7 would -- we were trying to get across the same
8 concepts. And I think in general we did a good job of
9 using the same very consistent language. But there
10 were just some points where in trying to get across
11 the same concept, we had used slightly different
12 terminology from the standard or from Regulatory Guide
13 1.200.

14 And so in some cases we went in -- and,
15 you know, after we looked at it we said, you know,
16 that's right, that's not exactly consistent, or in
17 several cases it was just apparent inconsistency,
18 whenever possible, we tried to go in and either make
19 the words identical or else incorporate by reference.

20 MS. DROUIN: One example is the use of the
21 terminology source of uncertainty. And those
22 particular words, there has been such debate of what
23 is the definition of that. And it has been highly
24 debated.

25 It finally came to a consensus through the

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1 SDO. And every single word in that definition -- and,
2 Dennis, you know, you've been there, it was very much
3 debated -- so a consensus was -- so we used those
4 exact same words in 1.200 and those exact same words
5 are now in 1.174.

6 MEMBER BLEY: Okay.

7 MS. DROUIN: You know we don't want to
8 reopen that whole debate of what is the definition of
9 a source of uncertainty.

10 MEMBER BLEY: Thanks. All right.

11 MR. HELTON: So with that, we're basically
12 -- we've basically picked out a handful of issues that
13 were raised from the public comments that we felt were
14 more significant and would be good to discuss here.
15 And so we're going to go through each of those.

16 Andrew will go through a handful first.
17 And then Mary is going to go through some.

18 So with that, I'll hand it off to Andrew.

19 MR. HOWE: Yes. And, again, these are not
20 a comment but typically like a group of comments that
21 were on the same theme by different reviewers.

22 The first I'm going to go over is what we
23 call perception by the reviewers that the reg guide
24 was somehow changing the position on it being
25 acceptable to use qualitative risk arguments or

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1 bounding quantitative risk arguments in order to
2 demonstrate that the risk from a particular hazard
3 group not in the scope of the PRA was significantly
4 small or didn't effect the decision. And could,
5 therefore -- would not require a quantitative PRA
6 treatment.

7 In fact, we are not intending to change
8 that position. Qualitative arguments or bounding
9 quantitative arguments are still a valid way to
10 demonstrate, for example, that seismic risk is not
11 important for an AOT change or something along those
12 lines. And you don't need a seismic PRA
13 notwithstanding the fact that the Reg Guide 1.200 now
14 does endorse those standards.

15 So the flip side to that, which is being
16 effectively -- it's not really a change in policy, it
17 is an implementation of the Commission's phased
18 approach to PRA quality, which is at this point in
19 time when we endorse a standard, if you're making a
20 change where that source of risk is significant to the
21 decision, it needs to be handled by a quantitative PRA
22 that meets that standard.

23 So it is more restrictive in that respect.

24 But for the -- if it can be demonstrated that it
25 really doesn't effect this particular application and

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1 decision, those qualitative or bounding arguments are
2 still valid. And we did make some changes then to
3 address the commenters and make sure that that was
4 still clear that that was the intent. And that's all
5 I want to say about that first group of comments.

6 MS. DROUIN: Can I just add something
7 here?

8 MR. HOWE: Sure.

9 MS. DROUIN: Part of this discussion from
10 the public, and one of the things that they had a
11 concern with and we still seem to have an ongoing
12 debate, is the definition of the term PRA. You know
13 when you talk about what is a PRA.

14 And in our mind, it's very simple. It's a
15 probabilistic -- you know, it's that key word in front
16 of risk assessment. And if it is not an assessment of
17 risk in a probabilistic manner, you can't call it a
18 PRA. You may be able to call it a risk analysis. But
19 it's not a probabilistic.

20 And in the last version of Reg Guide
21 1.200, that was, in my mind, one of the significant
22 changes because we have always taken exception to the
23 standard because they don't want to define PRA that
24 way, which boggles me because they write a standard
25 for what a PRA is, which includes all of that, but

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1 then when you go to their glossary and you look at the
2 definition, it doesn't match the actual requirements
3 for what you need to do for a PRA.

4 We did add a definition in 1.200. That
5 same definition is showing up in 1.174. And this is
6 one of the areas in this where they keep saying that
7 they should be allowed to have more -- I think the
8 term was more flexibility in the definition. And, you
9 know, it's not that we're saying you can't use a
10 qualitative or you can't use a bounding analysis. But
11 you can't call it a PRA.

12 I know we've raised this issue to the ACRS
13 in the past. We've received your support. And so
14 hopefully we still receive your support that you can't
15 call these other things probabilistic analyses.

16 MEMBER POWERS: Fair enough.

17 MR. HOWE: Thanks, Mary.

18 MEMBER POWERS: Since we got you excited
19 on something, let me ask you about mean values.

20 MEMBER BLEY: Is that a question?

21 MEMBER ARMIJO: The answer is to go ahead.

22 MEMBER POWERS: Your guideline says use
23 mean values. Nobody does. They use point values.

24 MS. DROUIN: I don't know that I would
25 agree with that.

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1 MEMBER POWERS: Oh, okay. You don't have
2 to. It's not required.

3 (Laughter.)

4 MEMBER SHACK: Which part of it don't you
5 agree with.

6 MS. DROUIN: That people use point values.
7 I mean I can't speak for every utility out there but
8 I know at least the ones I have looked, they are using
9 mean values. And, you know, if we were having this
10 conversation, you know, 20 years ago, where the codes
11 were very different, but the codes all do this now
12 automatically, you know, if you input the data.

13 But, you know, it used to at one time be a
14 software issue. It's no longer. So I really -- I
15 don't know where you are getting your information.
16 And I would challenge j--

17 MEMBER POWERS: I get my information from
18 you, Mary.

19 MS. DROUIN: Then okay, I will correct --

20 MEMBER BLEY: It's time for an update.

21 (Laughter.)

22 MEMBER POWERS: So you think that they are
23 in good shape on using mean values because they're
24 putting in good distributions for all the --

25 MEMBER SIEBER: It has to be a normal

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1 distribution to be mean values.

2 MEMBER POWERS: Input probabilities and
3 running the software as it was intended to be run.

4 MS. DROUIN: I wouldn't categorically say
5 every single --

6 MEMBER POWERS: Didn't ask you to -- in
7 large part.

8 MS. DROUIN: I think so.

9 MEMBER POWERS: That's good enough for me,
10 Mary. If you say it's so, I'm going to believe you.

11 MS. DROUIN: Wow, I'll remember that.

12 MEMBER CORRADINI: That's just for today.
13 That expires in --

14 MS. DROUIN: Oh, it's already expired?

15 MEMBER POWERS: I mean I will take your
16 assurances on that.

17 MS. DROUIN: Oh, wow, okay.

18 MEMBER BLEY: That's consistent with what
19 I've seen, too. I mean not everyone but more people,
20 they might do first runs with point estimates but by
21 the time they finish their --

22 MS. DROUIN: Yes.

23 MEMBER BLEY: -- analysis, they've done
24 the analysis and calculated the means that they report
25 rather than assuming the point estimates out of the

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1 first calculation.

2 MEMBER POWERS: I have to admit I
3 absolutely believe every word that Mary tells me
4 because she has not lied to me up to this point. I
5 have yet to have people come in here and show me a
6 distribution and show me what they did, how they got
7 their means.

8 Now I haven't been diligent in asking for
9 it either. But -- because I've kind of given up on
10 it. I figured it was never going to happen. But I
11 have never seen a distribution of values for, you
12 know, CDF and delta CDF.

13 MEMBER BLEY: Well, if the last time you
14 asked was ten years ago, I think that's fair. But I
15 think since that time --

16 MEMBER SHACK: How about the last two NFPA
17 805 pilots?

18 MEMBER POWERS: Well, that's a little
19 unfair because the fire PRA is a little bit -- in fact
20 we routinely have people coming in here -- very few
21 people coming in and asking for license changes based
22 on risk. But most people will come in and they'll say
23 well, we calculated the CDF and here's the value.

24 And when you ask them is that a mean value
25 or a point value and they, after a great -- they

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1 initially say it's mean and then so you hammer on them
2 a little and then they say no, no, it's really a point
3 value.

4 MEMBER BLEY: And I suspect if they
5 haven't done a risk-informed application, that's
6 probably all they did.

7 MS. DROUIN: But you have to understand
8 when you look at the standard, you know, these crazy
9 capability categories, under capability category 1,
10 they're only required to do a point estimate.

11 MEMBER POWERS: Yes.

12 MS. DROUIN: Capability category 2, they
13 are required to do a mean but only for the significant
14 events. And then if it is capability category 3, they
15 have to do the mean for all of the events.

16 Now they aren't required in the standard
17 to document the uncertainty distribution for
18 capability category 2.

19 MEMBER POWERS: Someday.

20 MS. DROUIN: So unless the application --
21 part of the application requires it, I would not be
22 surprised that you would not see the distribution.

23 MEMBER POWERS: Someday if you ever get a
24 capability category 3, CDF distribution, zip it off to
25 me.

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1 MS. DROUIN: I would probably --

2 MEMBER POWERS: I'd like to see one. I've
3 never actually seen one.

4 MS. DROUIN: I don't think you ever will.

5 MEMBER POWERS: Oh, okay. That answers
6 the question. I mean I can get somebody to run one
7 off for me, I suppose. But I would just like to see
8 one.

9 MR. HOWE: I'm glad Mary is here to take
10 the fun questions so I can just take it easy for once.

11 The second set of public comments were
12 really focused on the acceptability of the existing
13 configuration risk management program, which is
14 required under 50.65(a)(4), the maintenance rule, to
15 assess the risk before doing maintenance activities of
16 the configuration.

17 And basically, the comments were leaning
18 towards why don't you just come out and say that that
19 is what you mean by Tier 3 in Reg Guide 1.177. That's
20 what we do, that's good enough.

21 In fact, the staff couldn't really accept
22 that comment because that isn't what we do although in
23 the majority of cases that we deal with on AOT
24 extensions and the requirement of Reg Guide 177, Tier
25 3, to have a CRMP, what their doing in maintenance

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1 rule does cover the risk evaluations acceptably.

2 That's not always universally the case.
3 For example, if you were doing a change in a
4 containment isolation valve AOT where LERF was the
5 main driver, the maintenance (a)(4) guidance documents
6 which we have endorsed allow them to use only level
7 one PRAs to assess that risk.

8 Well, obviously the risk of a containment
9 isolation valve won't be captured by a level one PRA.

10 So that CRMP wouldn't be adequate. There would be
11 something more potentially required.

12 Similarly now that we've endorsed
13 standards on fire and seismic risks and other external
14 events, if an application has significant sources of
15 risk that effect the decision in those areas, again
16 the (a)(4) is allowed to use the level one internal
17 events PRA model so those sources of risk, again,
18 wouldn't be captured in the (a)(4) program for
19 maintenance rule. So something additional might be
20 required for CRMP.

21 And finally, with regards to the relevance
22 of Regulatory Guide 1.200 to the CRMP, that was also a
23 part of these comments. Regulatory Guide 1.177 is
24 vague on this and deliberately so. It is an
25 application-specific decision we make on how much

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1 quality we need in that CRMP.

2 And the example I've been asked to convey
3 to you is for a risk-informed tech spec, initiative
4 (4) (b), for example, which is the flexible AOT
5 program, your CRMP obviously has to be very high
6 quality, nearly full scope, and meet capability
7 category 2 of Regulatory Guide 1.200. On the other
8 hand, single AOT extensions and very low risk, you
9 know, again the maintenance rule (a) (4) would be
10 acceptable and Reg Guide 1.200 doesn't apply or
11 doesn't necessarily have to be applied to those PRA
12 models.

13 So it is something to consider on a case-
14 by-case basis. And we didn't feel like we needed to
15 specifically address that in Regulatory Guide 1.177.
16 So this is one comment we effectively did not agree
17 with and didn't make changes.

18 Now the fun one apparently. The third and
19 final comment that I wanted to discuss was the
20 paragraph that was put in that we discussed earlier
21 about the impact of non-LERF changes in risk, like
22 equipment failures, small equipment failures, et
23 cetera, basically the containment performance.

24 Industry's comments were that the changes
25 were effectively putting in a new requirement that

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1 didn't really have any supporting guidance. So they
2 really didn't know exactly what they were supposed to
3 do, how we were going to judge this, how was it going
4 to factor into the acceptability of a change. And
5 basically it confused the issues of risk assessment
6 with defense-in-depth and safety margins, which is
7 where traditionally those things would be addressed if
8 it were necessary for an application.

9 This was something which Dr. Gareth Parry,
10 who used to work in NRR and DRA SLS, it was his
11 paragraph that he felt was, you know, placed in there
12 and he had retired --

13 (Laughter.)

14 MR. HOWE: -- so he wasn't around to
15 defend his work, which probably wasn't a factor.

16 We did give some serious consideration to
17 this. And really industry was right. At this point
18 in time, to write those words in and make it a
19 requirement, as a reviewer, I wouldn't know what to do
20 with what they told me unless it was oh, everything is
21 fine and, you know, it's not an issue. I could handle
22 that.

23 But if they had identified some element of
24 risk related to non-LERF containment failures, if I
25 have no acceptance criteria, I have no guidance, I

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1 really wouldn't know exactly what to do with it. So
2 really the issue isn't -- I'm not sure if the word
3 ripe, if you will, for consideration in the reg guide
4 at this time, more consideration needs to be made.

5 MEMBER BLEY: Aren't you -- as you said,
6 aren't you effectively doing that anyway in the
7 consideration of defense-in-depth and safety margins?

8 MR. HOWE: Well, what I'm saying is that
9 if an application --

10 MEMBER BLEY: I'm a little confused about
11 why this is.

12 MR. HOWE: -- if an application came in
13 where late containment failures or some other
14 containment failure mode other than LERF was directly
15 effected by it and significant, that is where it would
16 be addressed. I know I can't personally think of
17 anything I've done at the Agency in six years in
18 reviewing these types of applications where that was
19 the case. I'm not saying they don't exist it's just
20 that I have not seen them.

21 MEMBER POWERS: If you changed the ceiling
22 material on a BWR containment head seal to a more
23 radiation-sensitive material than what is there now,
24 that could give you a late containment failure that
25 would not show up in LERF.

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1 MR. HOWE: Right. But the thing is though
2 a change like that, if it was submitted, it probably
3 wouldn't be a risk-informed application because if it
4 doesn't effect LERF or CDF --

5 MEMBER POWERS: It might be done as
6 another part of something. I don't know. Cut down on
7 the iodine chemistry or something like that.

8 MR. HOWE: No, I know they exist. I don't
9 deny. It's just that -- I think typically, if there
10 are changes like that, they are not risk informed.
11 They don't come under Reg Guide 1.177.

12 MEMBER POWERS: So you don't see a lot of
13 risk-informed changes in this.

14 MEMBER CORRADINI: I'm not an expert in
15 this. So I guess I was also caught by the fact you
16 took this all out. So explain to me one more time the
17 logic. Is that it is going to be caught by an
18 analysis somewhere else and would it be reported if it
19 became important? I'm just trying to understand the
20 logic.

21 MR. HOWE: The way we -- this is the way
22 we rationalized what they were saying and deciding
23 what should we do is if you had a risk-informed
24 application in front of you where this source of risk
25 was effected, we don't do risk-based changes to the

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1 tech specs or the license we risk-inform. So you have
2 a risk basis but then you also have how does it effect
3 defense-in-depth and safety margin. Does it meet
4 current regulations?

5 The aspects of the change, it would be
6 effecting late containment failures or other aspects
7 of containment would be properly addressed under those
8 areas -- defense-in-depth, safety margin regulations
9 as opposed to risk.

10 MR. HELTON: Can we just quickly go back
11 to slide 4?

12 MR. HOWE: Slide 4?

13 MR. HELTON: Yes.

14 MR. HOWE: You mean number four?

15 MR. HELTON: Slide number 4, yes.

16 MR. HOWE: Okay.

17 MR. HELTON: Just to refresh your memory,
18 1.174 does set out these five key principles. And one
19 of them relates to maintaining defense-in-depth. And
20 another one relates to maintaining safety margins. So
21 we're not talking about a, you know, an abstract thing
22 here. And these are things that are specifically
23 spelled out as considerations in the Regulatory Guide
24 already --

25 MEMBER CORRADINI: Okay.

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1 MR. HELTON: -- in the current active
2 revision and the new revision.

3 MEMBER CORRADINI: But the way I heard the
4 explanation was is that this would be caught and
5 reported as some sort of reduction as a defense-in-
6 depth. In other words, if I make a change that I'm
7 going to have it be risk informed, so I follow this
8 process --

9 MR. HOWE: Right.

10 MEMBER CORRADINI: -- and it doesn't
11 effect delta LERF significantly --

12 MR. HOWE: Right.

13 MEMBER CORRADINI: -- but it effect the
14 late containment failure, you'd see it somewhere. And
15 then you would have to evaluate it on that basis.
16 That's what I thought you told me.

17 What I guess I'm trying to understand is
18 if it didn't effect early-time containment failure but
19 it effected late-time containment failure, will you be
20 able to find it in the analysis?

21 MR. HOWE: Well, that's where I wanted to
22 go. When you say we'll catch it --

23 MEMBER CORRADINI: Yes.

24 MR. HOWE: -- if the licensee has done a
25 proper risk-informed application to properly address

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1 defense-in-depth, safety margins, and regulations, he
2 should identify to us that hey, this failure mode,
3 even though it doesn't effect LERF or this application
4 doesn't effect LERF, it does introduce an increase in
5 late containment failures. Here's how it happens,
6 here's why, and here's how we are still consistent
7 with regulations. And here's how we maintain defense-
8 in-depth. So --

9 MEMBER CORRADINI: Okay. So then let me
10 reverse the question.

11 MR. HOWE: Okay.

12 MEMBER CORRADINI: If he didn't tell you,
13 would you ask?

14 MR. HOWE: If we're able to discover based
15 on the information they presented and our knowledge
16 that late containment failures were effected, I
17 certainly would, as a reviewer, how is defense-in-
18 depth effected.

19 MEMBER CORRADINI: Okay.

20 MR. HOWE: I guess I'm trying to presume a
21 certain level of knowledge of the reviewer and a
22 certain quality of the application, which has to
23 happen for this to work.

24 MEMBER CORRADINI: No, I understand. I
25 understand.

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1 I mean -- but I guess the way I read -- I
2 don't have -- I have the PDF somewhere in here -- the
3 way I read the comment was gee, this is pretty novel.

4 You're asking us to do things where there is no
5 review mechanism. We don't know what to do. Please --
6 -- it fits under this other category.

7 And so your answer back was yes, it does
8 fit into that category. But you are assuming a fairly
9 robust analysis so that you can say ahh, something
10 doesn't look right here. Or they report that because
11 of something, six days into the postulated event, now
12 I have an effect. That's why I'm --

13 MR. HOWE: I wish we had this in front of
14 us because maybe it would be helpful but the comment
15 was really more not that we're asking them to do
16 something they wouldn't already do. I don't think the
17 comments was saying we don't have to address that.

18 MEMBER CORRADINI: Well, I think their
19 comment was that it somehow is included in defense-in
20 --

21 MR. HOWE: Well, that's our response.
22 That's not really --

23 MR. HELTON: And my sense is the commenter
24 agreed that it is in defense-in-depth and safety
25 margins. What they were saying was they were

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1 concerned that it was actually adding an additional
2 requirement under number four, which translates to the
3 -- in part to the acceptance guidelines that we talked
4 about on slide six, which is the evaluation of CDF and
5 LERF.

6 And what we're saying is is that --

7 MEMBER CORRADINI: Well, there were three
8 comments. There was the NEI comment, the Exelon
9 comment, and the PWROG comment. And your comment back
10 was -- the paragraph in question was deleted because
11 concern was attempting to address an already-covered
12 defense-in-depth paragraph itself causes confusion.

13 MR. HOWE: Right.

14 MEMBER CORRADINI: Okay. But they had
15 three different arguments. The first one was however,
16 there was no information on the expectation that for
17 such assessments, the statement should be removed.
18 The second one -- but, I mean there was a series of
19 these. And none of them were very convincing to me.
20 So that's why I was interested in your --

21 MR. HOWE: Well, as I recall, the
22 paragraph that we put in was saying that these aspects
23 of containment failure not addressed by LERF should be
24 addressed by a qualitative risk evaluation. That was
25 the flavor of the paragraph.

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1 MEMBER CORRADINI: That was there?

2 MR. HOWE: That we put in. That was
3 implying that something under the fourth key principle
4 of changes in risk should be low, that needed to be
5 qualitatively assessed even though it didn't effect
6 LERF, which is the --

7 PARTICIPANT: quantitative measure.

8 MR. HOWE: -- right, the quantitative
9 measure that we use, the surrogate measure that we
10 use.

11 MEMBER CORRADINI: Right.

12 MR. HOWE: And then really it came into
13 question, I don't know if it was from the comments or
14 just from our internal discussions, that well isn't
15 that part of what we're doing on defense-in-depth. If
16 it is something that effects containment, which is one
17 of the few fission product barriers which are
18 specifically addressed under defense-in-depth in the
19 two regulatory guides.

20 MEMBER SHACK: But the question is with
21 your statement you forced the applicant to explicitly
22 consider that and make an argument.

23 MEMBER CORRADINI: Versus asking the
24 applicant have you looked outside of LERF? What do
25 you see? That's what I -- you know versus you being

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1 insightful enough to see that there is a problem
2 developing.

3 MR. HOWE: I can't disagree with that
4 statement. I think you're right.

5 Anybody else want to jump in? Mary, do
6 you have anything?

7 MEMBER BLEY: They're not going to say it
8 until later.

9 MR. HOWE: I know.

10 MEMBER SHACK: I mean the original CRS
11 recommendation was for a quantitative metric for late
12 containment failure.

13 MR. HOWE: Yes, well that's probably where
14 some of the industry comments were coming from because
15 they are aware of that obviously. We're putting this
16 in here on qualitative without the quantitative. And
17 they're like are you trying to get ahead of where
18 we're going?

19 So I really don't have anything further to
20 offer. I don't know whether --

21 MEMBER CORRADINI: No, I just wanted to
22 understand. That helps me understand.

23 MR. HOWE: Okay. All right. That's the
24 only three I was going to go over. So the next one
25 would be four. Let's see. That would be Mary.

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1 MS. DROUIN: In Reg Guide 1.174 was
2 originally written, at that time, you know, the
3 concept of these new reactors coming along and
4 everything did not exist. And it was written with a
5 bias for light-water reactors.

6 You know, since -- and, of course, we have
7 all these new reactors. And we certainly have
8 received a tremendous indication that these applicants
9 are going to come in and do 1.174-type of applications
10 right away. So in preparing for that, in Reg Guide
11 1.174 and in 1.200, we've put the appropriate caveat
12 statements that, you know, these things may have to be
13 modified when we start thinking about these new
14 advanced LWRs.

15 So we don't think that this placeholder is
16 premature. And that's what industry came back. They
17 don't like us having these, you know, caveat
18 statements in there. Things are still decisional.

19 And all we've done is put some cautionary
20 notes because we don't know. You know the timing of
21 it, you know, when we're going to have 1.174 really
22 change to support new reactors, you know it may be out
23 of sync. We may be getting these applications in
24 ahead of time.

25 And so we don't want them to just take

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1 1.174 the way it is. And just think it is going to
2 apply across the board.

3 You know we are going to have to do some
4 thinking. And there may be changes that may be needed
5 to support new reactors. So we've put in the
6 appropriate caveat there.

7 MEMBER BLEY: Was this a widely-voiced
8 concern? I guess if it comes from --

9 MS. DROUIN: I mean it came from NEI.

10 MEMBER BLEY: -- NEI so that is broad-
11 based.

12 MS. DROUIN: You don't -- you never know.

13 MEMBER BLEY: Essentially.

14 MS. DROUIN: You never know if that's a
15 single licensee that said that to them or all of them.

16 MEMBER SIEBER: Could you ever envision
17 establishing two separate safety standards? In other
18 words, two sets of these, one for current reactors and
19 another one for advanced reactors?

20 MS. DROUIN: Those are all the things that
21 need to be decided.

22 MEMBER SIEBER: Yes.

23 MS. DROUIN: So, you know, there have been
24 no decisions what's going to happen. So those
25 discussions are ongoing.

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1 MEMBER BLEY: Is there any kind of project
2 looking at that at this time? Or is it just
3 discussions?

4 MS. DROUIN: I don't know, Don, if you
5 want to --

6 MR. DUBE: Don Dube, Office of New
7 Reactors.

8 Well, right now we're in a holding
9 pattern. You know we had the Commission paper, SECY
10 10-0121 on risk-informed regulatory guidance for new
11 reactors. The Commission is now deliberating and
12 we're expecting a Staff Requirements Memorandum I hope
13 shortly, which will provide us some direction, whether
14 we need -- whether they direct us to status quo, make
15 changes, or dramatic changes such as, you know, all
16 together new numerical metrics. So right now we're in
17 a holding pattern.

18 MEMBER BLEY: Okay. Thanks.

19 MS. DROUIN: Next slide please.

20 This one has to do with one of the things
21 we did in 1.174 was when it references Reg Guide
22 1.200, it doesn't say what revision. And the reason
23 for that is because it's always going to be the
24 current revision.

25 The standards -- it all goes back to the

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1 standards. The standards aren't stable yet. You know
2 there are still standards that are being written. And
3 then the current standards are undergoing changes.
4 There's still some technical issues that are being
5 resolved.

6 So there is going to be another edition to
7 several editions deal coming down the pike for these
8 standards. You know we still got low-power shutdown.

9 There's issues on internal fire. That's going to
10 make changes to the standard, issues on internal --
11 sorry, external hazards. We've got level two coming
12 out. Level three is under ballot. We have a standard
13 that is going to be coming out to support the new
14 advanced LWRs.

15 So, you know, we've got these standards
16 and as these standards come out, you know, we revised
17 Reg Guide 1.200 to endorse it. And that is going on
18 quite frequently.

19 And if we put in a revision number in
20 1.174 or 1.177, then we would constantly have to
21 update them, too. And there's no need to do that if
22 we just reference the reg guide and make it clear that
23 it is whatever the current revision is.

24 MEMBER SIEBER: So the effect of that then
25 is every time the reg guide would change, that's a de

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1 facto change in the regulation.

2 MEMBER BLEY: No, in the other reg guide.

3 MS. DROUIN: To the reg guide. Not the
4 regulation.

5 MEMBER SIEBER: Well, the regulation
6 endorses whatever is in effect at the time, right?

7 MS. DROUIN: Reg Guide 1.174, you know,
8 has a discussion --

9 MEMBER SIEBER: Right.

10 MS. DROUIN: -- on PRE technical quality.

11 MEMBER SIEBER: If the standard changes,
12 the reg guide changes then, too, because it doesn't
13 endorse a specific version of a standard.

14 MEMBER BLEY: I think there is some
15 confusion here, Jack. They're not -- they do need --
16 let me say this and see if I'm right.

17 If the standard, the ANS --

18 MS. DROUIN: ASME.

19 MEMBER BLEY: -- ASME joint standard
20 changes, then they do have to update Reg Guide 1.200
21 to endorse -- to support it.

22 MEMBER SIEBER: Yes.

23 MEMBER BLEY: But this is just the
24 internal documents. If Reg Guide 1.200 changes, they
25 don't want to have to update Reg Guide 1.174 and Reg

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1 Guide 1.177.

2 MS. DROUIN: Et cetera. There is quite a
3 few.

4 MEMBER BLEY: Is there? Oh, internal
5 references, that's what you're saying to us.

6 MS. DROUIN: That's what we're saying.
7 You know we don't want to have to go --

8 MEMBER BLEY: But for any external
9 reference, you do reference the specific revision.

10 MS. DROUIN: Yes. Yes.

11 MEMBER SIEBER: I'll have to think about
12 it.

13 MS. DROUIN: If you go back to, for
14 example, the figure that shows the relationship, maybe
15 that's an easier way to see it. And if you look
16 across that second row, there's all these regulatory
17 guides. And 1.177 is not there because this is a
18 figure taken out of 1.200.

19 But there are a lot of regulatory guides
20 that reference 1.200 because they deal with PRA
21 quality. And they send you to 1.200 in answering the
22 question of PRA quality.

23 Now every time we revise 1.200, if in
24 referencing 1.200 in those regulatory guides, if we
25 actually referenced a revision number, then we'd have

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1 to constantly update those regulatory guides. So by
2 just referencing 1.200, then that allows us to change
3 -- we don't have to change all those regulatory guides
4 every time we revise 1.200.

5 Now does that answer your question?

6 MEMBER SIEBER: Well, I understand what's
7 going on, yes.

8 MS. DROUIN: Okay.

9 MR. HARRISON: This is Donnie Harrison
10 from NRR. So it's another Don.

11 So you also have to keep this in
12 perspective of the action plan for the phased approach
13 to PRA quality. We recognize that the standards are
14 going to evolve, therefore our endorsement is going to
15 change and evolve over time. And all the regulatory
16 structure on the reg guides that then call on that
17 would then change with it.

18 We wrote a regulatory issue summary. I
19 think it is 2000-06 -- I hope that's the right number
20 -- that said here is how we're going to implement Reg
21 Guide 1.200 when we change it. And, again, this is
22 where the one slide talked about having a grace
23 period.

24 So the intent here is if we get into
25 another revision of Regulatory Guide 1.200, a Rev 3 or

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1 a Rev 4, the industry knows how that is going to play
2 out with the grace period and how we're going to
3 implement that program.

4 And, again, it's just trying to make it
5 clean so that when you make an application five years
6 from now, if there is a Rev 3 of Regulatory Guide
7 1.200, we don't have people thinking that they're
8 going back to a rev that may not have had seismic PRA
9 covered in it. You're going to use the one that is
10 current, that has the seismic PRA supporting
11 requirements in it. And that's the one you are going
12 to address.

13 So it is trying to make it actually
14 clearer to the licensees that when you make your
15 application, be aware of what the Regulatory Guide
16 1.200 endorsement is and what is the standard it is
17 endorsing. And it's keeping it up to date.

18 And that's all part of the phased approach
19 to PRA quality that started seven years ago or more.

20 MEMBER SIEBER: And so there's no
21 grandfathering provisions in here at all.

22 MR. HARRISON: Not the way -- no, not the
23 way we're implementing this here.

24 MS. DROUIN: Well, unless you mean, for
25 example, if somebody did some application we'll say in

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1 2005 and that was against Rev 1 of Reg Guide 1.200,
2 they aren't expected today to go update it. It was
3 done to that revision.

4 MEMBER BLEY: But if they come in with a
5 new application, they have to use the current.

6 MS. DROUIN: If they come in with a new
7 application, they have to do it to the current
8 revision.

9 MEMBER SIEBER: The probabilistic safety
10 standard for the old revision would be different than
11 the new revision. What would have been allowed two
12 years ago may not be allowed next year, right?

13 MR. HARRISON: I'm not sure it is a matter
14 of what is allowed or not allowed.

15 MS. DROUIN: Yes.

16 MR. HARRISON: It's a matter of what
17 information is available or not available. The
18 example that you've had on this is -- that this has
19 played out to a little bit is risk-informed in-service
20 inspections. The ones that were done ten years ago
21 was done before you had a Reg Guide 1.200. You had a
22 PRA quality review that was done per the reg guide
23 without a Reg Guide 1.200.

24 As those licensees have come back in after
25 their last ten year period and made risk-informed in-

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1 service inspection applications, they're being asked
2 to now address PRA quality still. So you're still
3 having to address PRA quality but now we have a
4 definition of what that means. We have a reg guide
5 that endorses a standard that actually defines it.

6 And, again, I don't say we're changing the
7 bar on the licensees. We're defining what that bar
8 is. And it is recognized that that bar is going to
9 get better defined as we evolve the standards.

10 So you're actually narrowing the bar
11 within the gap of where we were ten years ago to where
12 we are today. You are narrowing in, focusing in on
13 what really is PRA quality for an application. So
14 that's the staff's perspective on that -- of how we're
15 doing it.

16 MEMBER SIEBER: Okay.

17 MEMBER SHACK: But you seem to reference a
18 particular standard -- addition to the standard. So
19 are you going to have the problem that as the standard
20 changes, 1.200 is going to be endorsing a different
21 standard. And this one is still going to be
22 referencing 2009.

23 MS. DROUIN: Yes, 1.200 will stay current
24 with the standard.

25 MEMBER SHACK: No, but I'm just -- I mean

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1 there is an explicit reference to the ASME 209
2 standard in 1.174. So what happens when that standard
3 changes?

4 MEMBER BLEY: I thought they -- I looked
5 at it and the reference, I thought, only did not show
6 the revision. It just gave the name of the standard.
7 Did I miss one?

8 MEMBER SHACK: Yes, but it is RASa 2009.
9 They don't call it revs. They just change the date.

10 MS. DROUIN: Well, they do when it is
11 RASa, that second little a after AS, that means
12 Addendum A.

13 MEMBER SHACK: Oh, okay. But so you still
14 have a -- you're still calling out explicitly 2009.

15 MS. DROUIN: Well, I will tell you, we'll
16 have to go back and look. If it is a reference, then
17 it's not a reference in the sense of what we're
18 talking about.

19 MEMBER SHACK: Okay.

20 MS. DROUIN: It may be just that it talks
21 about the standard in general.

22 MEMBER SHACK: Okay. But you intend
23 everything to be controlled through 1.200.

24 MS. DROUIN: Yes.

25 MEMBER ARMIJO: Is it possible that the

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1 standard could change in a way that the staff did not
2 agree with? And --

3 MS. DROUIN: Oh, absolutely. And that
4 happens.

5 MEMBER ARMIJO: But the --

6 MEMBER SIEBER: That's my point.

7 MEMBER ARMIJO: -- you know, you have the
8 old standard, which is referenced, and now you have
9 the new standard. So it can't just automatically --
10 the reg guide can't automatically change with the
11 change in the standard unless the staff agrees. So I
12 guess I -- I don't understand not tracking with
13 revisions.

14 MS. DROUIN: Yes, the standard comes out.

15 MEMBER ARMIJO: Yes.

16 MS. DROUIN: We look at it and we endorse
17 it in 1.200. And there are places where we don't
18 agree with the standard. And we say we don't agree.
19 And we --

20 MEMBER ARMIJO: Okay. So you would
21 endorse with exceptions?

22 MS. DROUIN: Yes.

23 MEMBER ARMIJO: Okay.

24 MS. DROUIN: We endorse with exceptions.

25 MEMBER ARMIJO: Got it.

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1 MR. HOWE: And when we review an
2 application, we look specifically at how they deal
3 with those exceptions.

4 MEMBER BLEY: And, in fact, we reviewed
5 1.200 not too long ago. And they have, as I recall, a
6 whole table that lays out all of those steps and
7 whether they agree or --

8 MEMBER ARMIJO: Yes, so my issue isn't an
9 issue really. You've covered it.

10 MEMBER BLEY: Well, it's an issue but I
11 think they do it well.

12 MS. DROUIN: Well, we spend a quite a bit
13 of time looking at the standard to see where we agree
14 and disagree. And, you know, we're involved in that
15 consensus process so we try and resolve this through
16 the consensus process. But sometimes we can't come to
17 a resolution so then we have to sit back and say do we
18 really feel this is significant. And if we do, then
19 we take exception.

20 MEMBER BLEY: Yes.

21 MS. DROUIN: And the one I talked about is
22 definition of PRA. That's an ongoing exception that
23 we still maintain. We don't agree with it.

24 Okay, oh, my last slide. Oh, good. When
25 you look at peer review, the staff certainly

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1 recognizes that when industry performs a peer review,
2 it is done on the base PRA. That is what the standard
3 requires and that is what the staff position is in Reg
4 Guide 1.200.

5 However, when it comes to an application,
6 as part of the application we certainly could like to
7 know what are some of the findings that were on the
8 base PRA that may be important to the application. So
9 we tried to clarify that. We probably do a good job
10 as we could have but we clarified that. That's what
11 we mean.

12 We're not -- we've never required them to
13 do a peer review on the application. It's on the base
14 PRA. But we certainly want to understand, you know,
15 if there are some significant findings, how it would
16 effect an application.

17 MEMBER BLEY: Is there -- and I don't
18 remember from the standard -- but if there was an area
19 where the base PRA when it was peer reviewed, had a --
20 I won't call it a deficiency but wasn't fully at the
21 middle column level and now they do an application
22 where they have to extend their PRA and prove it to be
23 consistent with the standard for that application, is
24 there any peer review requirement for that update to
25 the PRA?

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1 MS. DROUIN: If the licensee has gone and
2 now made a modification to his PRA and that's
3 requiring a new method or something, the standard does
4 require that you come in on that base PRA and peer
5 review that part.

6 MEMBER BLEY: Just that part? Okay.

7 MS. DROUIN: Just that part, yes.

8 MR. HOWE: But in general, when we review
9 an application and an area of the PRA needs capability
10 category one, for example, and during the application,
11 they disposition -- what was the deficiency and how
12 does it effect this application. And if it does
13 effect the application, they either make necessary
14 changes to their model or do sensitivity studies.

15 MEMBER BLEY: Right, okay.

16 MR. HOWE: But it doesn't involve a change
17 in method, typically there's just --

18 MEMBER BLEY: Right. But I was just
19 asking if it, in fact, does and they have to revise it
20 --

21 MR. HOWE: Well, that was my point.

22 MEMBER BLEY: -- they can.

23 MR. HOWE: They can fix their PRAs from
24 the peer review without getting a follow-on peer
25 review. In other words, there is not a requirement

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1 for the peer review team to come back in and say yes,
2 you get it right now. They're allowed to do that.

3 MEMBER BLEY: Okay.

4 MS. DROUIN: Right the follow-on peer
5 reviews only -- there are very specific criteria for
6 when they need to do update peer reviews. And one of
7 them is that they -- you know, it requires them to
8 come in and do a new method. And I don't remember all
9 of them. I'd have to go back and look.

10 Also, you know, the staff position, and as
11 required in the standard, is that you perform a peer
12 review. It is what the standard requires and it is
13 what our staff position is in Reg Guide 1.200. So we
14 do feel that the change we made in, you know, removing
15 these peer review alternatives, is absolutely
16 appropriate because we're being consistent with what
17 the standard requires and the staff position in 1.200.

18 And that's where my slides --

19 MR. HELTON: All right. I'll take back
20 over and I just have a couple of slides here. I
21 wanted to highlight a couple of items that have been
22 deferred for future consideration.

23 The first is what we talked about earlier
24 with the consideration of a new risk metric for
25 changes that are not well captured by CDF or LERF.

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1 MEMBER BLEY: What's it mean to be
2 deferred?

3 MR. HELTON: That sounds like a loaded
4 question. They are -- these are areas that we
5 recognize need further consideration. We recognize
6 that if we had the solution right now, we'd put it in
7 the reg guide. But we don't have that solution in
8 mind. So they are things that are --

9 MEMBER BLEY: It doesn't mean it is some
10 kind of an action list. You've just a catalogue of
11 deferred things.

12 MEMBER SIEBER: It means you may think
13 about it later.

14 MR. HELTON: It varies. For instance, the
15 third one, potential modifications to guidance for new
16 reactors. I don't know whether it would be
17 characterized as an action plan or an action list but
18 that is something that is very actively being worked
19 right now. And, in fact you know, Don Dube mentioned
20 the SECY that has gone forward. And we're awaiting
21 the SRM associated with that. So that's one where
22 there is very active work going on right now.

23 The safety/security interface is one where
24 it is recognized and, in fact, this committee pointed
25 out in their acceptance of Reg Guide 5.74 that that

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1 needed to happen.

2 So the quick answer to your question is it
3 varies.

4 MEMBER BLEY: On those last two -- well,
5 the last one I guess I understand where that is.
6 Safety/security interface, what kind of activities are
7 going on now? I'm trying to think about that. Or is
8 it just a general discussion issue or are there people
9 actively working on trying to figure out how to deal
10 with that?

11 MR. HELTON: My answer unfortunately to
12 that would have to be -- would be that I would have to
13 get back to you. I don't know if anybody --

14 MEMBER BLEY: I wish you would. I'd be
15 interested.

16 MR. HELTON: -- in the crowd knows. If
17 not, then we will get back to you.

18 MS. LUI: Christiana Lui, Research/DRA.
19 Currently we don't have any activity within the Office
20 of Research in my division at least at this point in
21 time to pursue that particular issue. But we do
22 recognize that.

23 We do have a -- on the table right to work
24 with NSER. We are looking into the possibility and
25 feasibility of using risk-informed approaches in

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1 certain security evaluation. So as that particular
2 work evolves and the chores, then we will be looking
3 at how that should be built into the rest of the risk-
4 informed guidance documents. But right now we're not
5 actively pursuing anything within my area.

6 MEMBER BLEY: Okay. Anything in NRR that
7 you can say anything about?

8 MR. HOWE: Not that I'm aware of. If
9 Donnie Harrison knows of anything, I'll defer to him.

10 MR. HARRISON: At this time, there's
11 nothing.

12 MR. HOWE: Donnie says not at this time.

13 MEMBER BLEY: Okay.

14 MR. HELTON: So we'll get back to you.

15 MEMBER BLEY: So that really is kind of
16 deferred. Go ahead.

17 MR. HOWE: I understand what deferred
18 means.

19 MEMBER REMPE: This generally is about
20 going through everything in the SECY, what type of
21 guidance modifications are being proposed for the new
22 advanced reactors? Can you highlight a couple of
23 things?

24 MR. HELTON: I mean at a high level, the
25 notion is does the existing framework provide the

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1 necessary guidance? Does that framework need to be
2 completely changed to include, for instance, a new set
3 of guidelines? Or is it truly a case-by-case basis.
4 And so the SECY lays out these different options for,
5 you know -- an obvious example is going back to the
6 acceptance guidelines. And this is an issue that has
7 been discussed before this committee with the Office
8 of New Reactors is, you know, should these acceptance
9 guidelines been directly applied? Should they be
10 reduced by an order of magnitude but otherwise applied
11 the same? Should they be treated in a sort of
12 different way in terms of looking at relative changes.

13 There's -- it's that sort of thing.
14 Getting into any more detail than that, I'll defer to
15 --

16 MEMBER REMPE: That's fine.

17 MR. HELTON: And then finally just the
18 path forward on this. So we recommend, obviously, the
19 issuance of these two new revisions. But we continue
20 to work on other risk-informed application reg guides.

21 And we'll update them as necessary. And then we also
22 continue to work on the bigger issue of risk-informed
23 guidance in the phased approach to PRA quality.

24 MEMBER BLEY: Don, there were two things
25 you haven't talked about that are kind of slow but

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1 still -- and most of the changes the I saw were either
2 editorial or making yourself consistent with what's
3 happened over the last ten years.

4 But you did redefine what small means and
5 you came up with new acceptance criteria for temporary
6 AOT changes. And I guess the only thing I saw in the
7 document, as I recall, is we did that to be consistent
8 with NUMARC 9301. Was there any justification for
9 those beyond that? Or is it just felt that they were
10 small enough that it really doesn't matter?

11 MR. HOWE: Are you talking about the
12 change to the ICCDP and ICLERP for permanent changes?

13 MEMBER BLEY: Yes.

14 MR. HOWE: Yes, I was going to mention
15 just sitting here, I notice that our slides didn't say
16 that or I didn't catch it on the preview. So I didn't
17 want to bring it up. But since you have, the numbers
18 before were the five to the minus ten to the minus
19 seven probability of core damage or the five times ten
20 to the minus eight larger release probability.

21 Those are applied to each individual AOT
22 entry. The basis for those was you estimate how often
23 you are going to enter a new AOT and you calculate a
24 delta CDF on an annual basis to say it's acceptable
25 per Reg Guide 174.

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1 But there's an additional requirement that
2 since we don't control how many times you can enter an
3 AOT, it ca be done over and over, we want every entity
4 to be a very small amount of risk. Those numbers were
5 chosen in 1998, really before we had a lot of
6 experience in maintenance rule before maintenance rule
7 84 was in place.

8 Basically what we have is a disconnect
9 between what has been indorsed in NUMARC 9301 through
10 I think Reg Guide 1.183 I want to say, which indorses
11 their guidance of 1E to the minus six ICDP.

12 MEMBER BLEY: Okay.

13 MR. HOWE: So this is really just an
14 alignment of -- if you're allowed to do maintenance on
15 your own up to that amount of risk, why would we think
16 that tech spec exchanges need to be limited more
17 strictly.

18 MEMBER BLEY: That's fair enough. All I
19 saw was to be consistent for the NUMARC. But it's
20 also to be internally consistent with the others.

21 MR. HOWE: Right. And then yes, the
22 temporary or one-time changes, that reflects the
23 guidance of what we actually do even though there was
24 nothing really to back it up. And now we have it
25 written down as to that's our policy.

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1 MEMBER BLEY: Okay. Thanks.

2 MEMBER SIEBER: Just so there's no
3 confusion, in 1.174, where very small can be bigger
4 than small, depending on where you are in this chart -
5 -

6 MEMBER BLEY: I was hoping that we
7 wouldn't get into that.

8 MR. HELTON: Well, and I apologize. I'm
9 glad you brought that up. We definitely won't trying
10 to pull one over on you. It is in the slides, in
11 Slide 11. But if my own co-presenter didn't pick up
12 on it, then I clearly didn't emphasize it enough.

13 MR. HOWE: But the temporary change was
14 there, right?

15 MR. HELTON: Yes. That's --

16 MR. HOWE: But the alignment of the --

17 MR. HELTON: The 9301 --

18 MR. HOWE: Yes.

19 MR. HELTON: -- that's two different
20 changes but I thought it was the same one.

21 MEMBER BLEY: That was kind of dealing
22 with your earlier question.

23 Well, I'd like to thank you for a great
24 presentation. We appreciate it.

25 CHAIRMAN ABDEL-KHALIK: Well, thank you.

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1 At this time, we will start reading the letters. And
2 I would recommend that we start reading the aircraft
3 impact letter. And we'll follow that with the Vogtle
4 letter.

5 My understanding is that these letters are
6 being printed right now and have them. So we have to
7 make sure that people who have the need to know and
8 have the right access credentials are present in the
9 room before we distribute these letters.

10 And at this time, we are off the record.

11 MR. HELTON: Well, actually --

12 CHAIRMAN ABDEL-KHALIK: I'm sorry, excuse
13 me.

14 MR. HELTON: I'm sorry, we did -- I got
15 distracted by the questions and didn't bring up my
16 last point, which was just to clarify that the
17 committee will be providing a letter --

18 CHAIRMAN ABDEL-KHALIK: Yes.

19 MR. HELTON: -- with regard to this.

20 CHAIRMAN ABDEL-KHALIK: Yes. Thank you.

21 (Whereupon, the above-entitled meeting was
22 concluded at 3:07 p.m.)
23
24
25

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AP1000 Reference Combined License Application

ACRS Full Committee Presentation

January 13, 2011



Compacting Backfill for Plant Vogtle Unit 4 with Units 1 and 2 in background
November 4, 2010

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Introduction – Approach

- **Design Centered Review Approach**
 - NRC use of “One issue, one review, one position”
 - Maximum benefit achieved through standardization
 - Site specific issues coordinated

- **AP1000 DCWG Members**
 - Reference (R)-COLA – Southern Nuclear, Vogtle (GA)
 - Subsequent (S)-COLAs
 - South Carolina Electric & Gas, Summer (SC)
 - Duke Energy, Lee Nuclear (SC)
 - Progress Energy, Levy County (FL)
 - Progress Energy, Shearon Harris (NC)
 - Florida Power and Light, Turkey Point (FL)
 - Tennessee Valley Authority, Bellefonte (AL)

- **DCWG Coordination**
 - With WEC, AP1000 S-COL applicants, NEI, NRC Staff

Introduction – Application Concepts

- **Combined License Application for 2 Units**
 - **Part 52, Subpart C “Combined Licenses”**
 - **Reference to AP1000 Design Certification**
 - **Reference COL Application for standard content**

- **NRC Guidance Utilized**
 - **Regulatory Guide 1.206**
 - **Combined License Applications for NPPs**
 - **NUREG-0800 (generally updated for Part 52)**
 - **Standard Review Plans for Review of SARs**
 - **Interim Staff Guidance for COLs**

- **Incorporation by Reference (for FSAR)**
 - **Certified Design of Westinghouse AP1000 (as amended)**
 - **Nuclear Energy Institute (NEI) templates**
 - **Early Site Permit (Vogtle specific)**

VEGP 3&4 Overview

- **COL Application submitted March 28, 2008**
- **IBR of WEC AP1000 DCD Amendment Application**
- **IBR of SNC VEGP Early Site Permit Application**
 - **ESP and LWA-A issued August 26, 2009**
- **Submitted initially as Subsequent COLA following TVA BLN as the Reference COLA**
- **VEGP became Reference COLA for AP1000 plants in 2009**
- **LWA-B submitted October 6, 2009**



Figure 1-2 50-Mile Vicinity

Reference (and S-)COL Application

- **Part 1 – General & Financial Information**
- **Part 2 – Final Safety Analysis Report**
- **Part 3 – Environmental Report (addressed in EIS)**
- **Part 4 – Technical Specifications (w/FSAR 16)**
- **Part 5 – Emergency Plan (w/FSAR 13.3)**
- **Part 6 – Limited Work Authorization**
- **Part 7 – Departures, Exemptions & Variances**
- **Part 8 – Safeguards Information (w/FSAR 13.6)**
- **Part 9 – Withheld Information**
- **Part 10 – Proposed License Conditions (incl. ITAAC)**
- **Part 11 – Other Application Documents (w/various)**

COL Application Highlights

- **DCD identified COL Information Items**
 - Identified in Table 1.8-201
 - Addressed throughout FSAR
 - Holder items – Post COL issuance
 - Proposed License Conditions in Part 10
- **Supplemental Information**
 - Provided to address RG 1.206 items
 - Provided to address NUREG-0800 (SRP) items
 - Addressed throughout FSAR

COL Application Highlights

- **Departures from AP1000 DCD**
 - **VEGP 1.1-1 – FSAR organization (administrative)**
 - **STD 8.3-1 – Voltage regulating transformer design**
 - **VEGP 9.2-1 – Potable water system filtration**
 - **VEGP 18.8-1 – Emergency facility locations**
- **Exemptions from the Regulations**
 - **FSAR organization (administrative)**
 - **SNM Material Control and Accounting Program**

COL Application Highlights

- **Early Site Permit COL Items**
 - **2.2-1 – Address hydrazine for CR habitability**
 - **2.2-2 – Address site specific chemicals for CR**
 - **2.3-1 – Address UHS cooling tower if applicable**
 - **2.4-1 – Address chelating agents in release transport evaluation**
 - **13.6-1 – Address access control for rail spur**

- **ESP Permit Conditions addressed**
 - **Removal and replacement of topsoils**
 - **Development of Emergency Action Levels**
 - **Resolution of common Technical Support Center and relocation**
 - **Site-specific dispersion factor comparison**

COL Application Highlights

- **Variations from Vogtle Early Site Permit**
 - **1.2-1 – Updated site layout information**
 - **1.6-1 – Updated DCD incorporation**
 - **1.6-2 – Updated DCD incorporation**
 - **1.6-3 – Updated DCD incorporation**
 - **2.2-1 – Updated onsite chemicals information**
 - **2.3-1 – Updated DCD incorporation**
- **NRC Review Open Items from SER**
 - **Addressed and closed in AFSER**

COL Application Highlights

- **“Plant-specific” ITAAC (+ DCD ITAAC)**
 - **Physical security design items**
 - **Feedwater flow measurement components (for calorimetric uncertainty of 1%)**
 - **Transmission switchyard and offsite power system**
 - **Backfill (from VEGP ESP)**
 - **Waterproof membrane (from VEGP ESP)**
 - **Pipe rupture hazards analysis**
 - **Piping design**
 - **Emergency planning (majority from VEGP ESP)**

COL Application Topical Highlights

Comparison of Site Characteristics to Certified Design Site Parameters

- **COL comparison confirms DCD Site Parameters are bounding for the site specific Site Characteristics OR justification is provided**
- **All Vogtle Site Characteristics within bounding DCD Site Parameters**

COL Application Topical Highlights

Program Descriptions (selected examples)

- Radiation Protection
- Training for Operations and other Staff
- Containment Leak Rate Testing
- Emergency Planning
- Preservice / Inservice Inspection
- Preservice / Inservice Testing of Valves

COL Application Topical Highlights

ACRS Topics of Interest

- **Containment Cleanliness**
- **Containment Vessel Coating Inspections**
- **AP1000 Squib Valve Inservice Testing**

COL Application Topical Highlights

Containment Cleanliness

Purpose – Meet in-containment debris limits of DCD

- **Controls to account for the quantities and types of materials introduced into the containment**
 - **Certain materials excluded**
- **Controls for loose items**
- **Housekeeping procedures**
- **Design bases provided in DCD 6.3.8.1**

COL Application Topical Highlights

Containment Cleanliness (cont'd)

- **Latent debris sampling program per NEI 04-07, as supplemented by NRC Safety Evaluation Related to Generic Letter 2004-02, and NEI Guidance Report (Proposed NEI 04-07), "Pressurized Water Reactor Sump Performance Evaluation Methodology"**
- **DCWG developing a standard program that will utilize OE and best practices from the current operating fleet**
- **Sampling conducted after containment exit cleanliness inspections to confirm latent debris design bases met**
- **Sampling frequency and scope adjusted based on results**
- **Any nonconforming results addressed by corrective action program**

COL Application Topical Highlights

Containment Vessel Coating Inspections

- CV coated with inorganic zinc and limited epoxy topcoat
- Application and inspection of quality coatings is based on Regulatory Guide 1.54 and ASTM standards
- 100% of readily accessible CV coatings receive a walk-down general visual inspection each refueling outage
- Focus of detailed inspections is on coatings which could have the greatest impact on plant safety and areas identified as repeat problem areas or with location, service condition, or geometry characteristics that make degradation more likely
- Identification of deficiencies initiates detailed documentation and an organized process of performing a condition assessment of the degradation

COL Application Topical Highlights

Containment Vessel Coating Inspections (cont'd)

- **AP1000 upper head and areas behind and below the air baffle are considered to be accessible**
- **Visual examinations may be conducted directly (unaided eye) or remotely (binoculars, telescope, cameras, and/or robotics) by methods suitable for the application and able to resolve indications of interest**
- **100% of accessible areas will be visually inspected every 3 to 4 years**
- **Acceptance criteria based on guidance of EPRI 1003102**
- **Complementary containment inspection programs e.g., ASME XI - IWE, 10 CFR Part 50 Appendix J, and 10 CFR 50.65 (Maintenance rule)**

COL Application Topical Highlights

AP1000 Squib Valve Inservice Testing

During review of inservice testing (IST) Program, NRC requested information addressing the development of surveillance activities for the squib valves.

Resulting commitment

- **Westinghouse and DCWG utilities will develop IST surveillance activities for squib valves based on final design and lessons learned from qualification process**

COL 3.9-4 – Develop Inservice Testing Program

- **FSAR 3.9.6.2.2 currently addresses this commitment**

Summary of VEGP COL Application

- **Serves as the AP1000 R-COLA**
- **Incorporates the AP1000 DCD Amendment by reference**
- **Incorporates an approved ESP by reference**
- **Provides reasonable assurance two AP1000 units can be safely constructed and operated on the VEGP site**



AP1000
DCWG



AP1000



Presentation Acronyms

- AFSER – Advanced Final Safety Evaluation Report**
- ASME – American Society of Mechanical Engineers**
- ASTM – American Society for Testing and Materials**
- BLN – Bellefonte Nuclear Plant**
- COL – Combined license**
- COLA – Combined license application**
 - R-COLA – Reference COLA**
 - S-COLA – Subsequent COLA**
- CR – Control room**
- CV – Containment vessel**
- DCD – Design Control Document**
- DCWG – Design Centered Working Group**
- EPRI – Electric Power Research Institute**
- ESP – Early Site Permit**
- FSAR – Final Safety Analysis Report**

Presentation Acronyms

- IBR** – Incorporated by reference
- ITAAC** – Inspections, Tests, Analyses, and Acceptance Criteria
- LWA** – Limited Work Authorization
- NPP** – Nuclear Power Plant
- OE** – Operational Experience
- RG** – Regulatory Guide
- SNC** – Southern Nuclear Operating Company
- SNM** – Special nuclear material
- SRP** – Standard Review Plan
- STD** – Standard
- TVA** – Tennessee Valley Authority
- UHS** – Ultimate Heat Sink
- VEGP** – Vogtle Electric Generating Plant
- WEC** – Westinghouse Electric Company

Backup Slides



Presentation to the ACRS

Vogtle Units 3 and 4 COL Application Review

January 13-15, 2011

Vogtle COL Application

Chronology of Activities:

- Received VEGP COL Application-3/28/2008
- Acceptance Review Completed-4/24/2008
- VEGP designated as RCOLA-4/28/2009
- Vogtle ESP/First LWA granted—8/26/09
- Received the Second LWA request-10/6/2009
- Safety Review Phases 1 through 4 are complete
- Phase 5—ACRS Subcommittee Review completed of Advanced SER-December 15-16
- Phase 5—ACRS Full Committee January 2011
- Phase 6—Final SER-June 2011

Vogtle COL Application

- Vogtle COL application incorporates the ESP site safety analysis report (SSAR) and incorporates by reference the Westinghouse AP1000 Design Certification (DC) and DC amendment.
- Vogtle ESP/LWA1 was granted on August 26, 2009.
- Second LWA request received 10/6/2009.

Vogtle COL Application Content

- Material incorporated by reference (IBR) from portions of the ESP, and DCD
 - Staff's safety evaluation for ESP and DC reflected in NUREG-1923, and NUREG-1793 and its supplement, respectively
 - Staff's safety evaluation of AP1000 DC amendment was completed and presented to the committee
- Standard content material (applicable to all AP1000 COL applicant)
 - Vogtle's safety evaluation for standard content references Bellefonte safety evaluation report with open items
 - Vogtle's safety evaluation provides the basis for standard content open item resolution
- Vogtle plant specific information

ACRS Interactions - RCOL

- The Advanced Safety Evaluation Report (ASER) was issued on a chapter-by-chapter basis.
- All open items on standard content and plant-specific issues were resolved prior to chapter issuance. Some confirmatory items remain.
- Four meetings (June 24-25, July 21-22, September 20-21, and December 15-16) were completed with the ACRS AP1000 subcommittee through this calendar year. All chapters were presented at those meetings.

Vogtle COL Overview

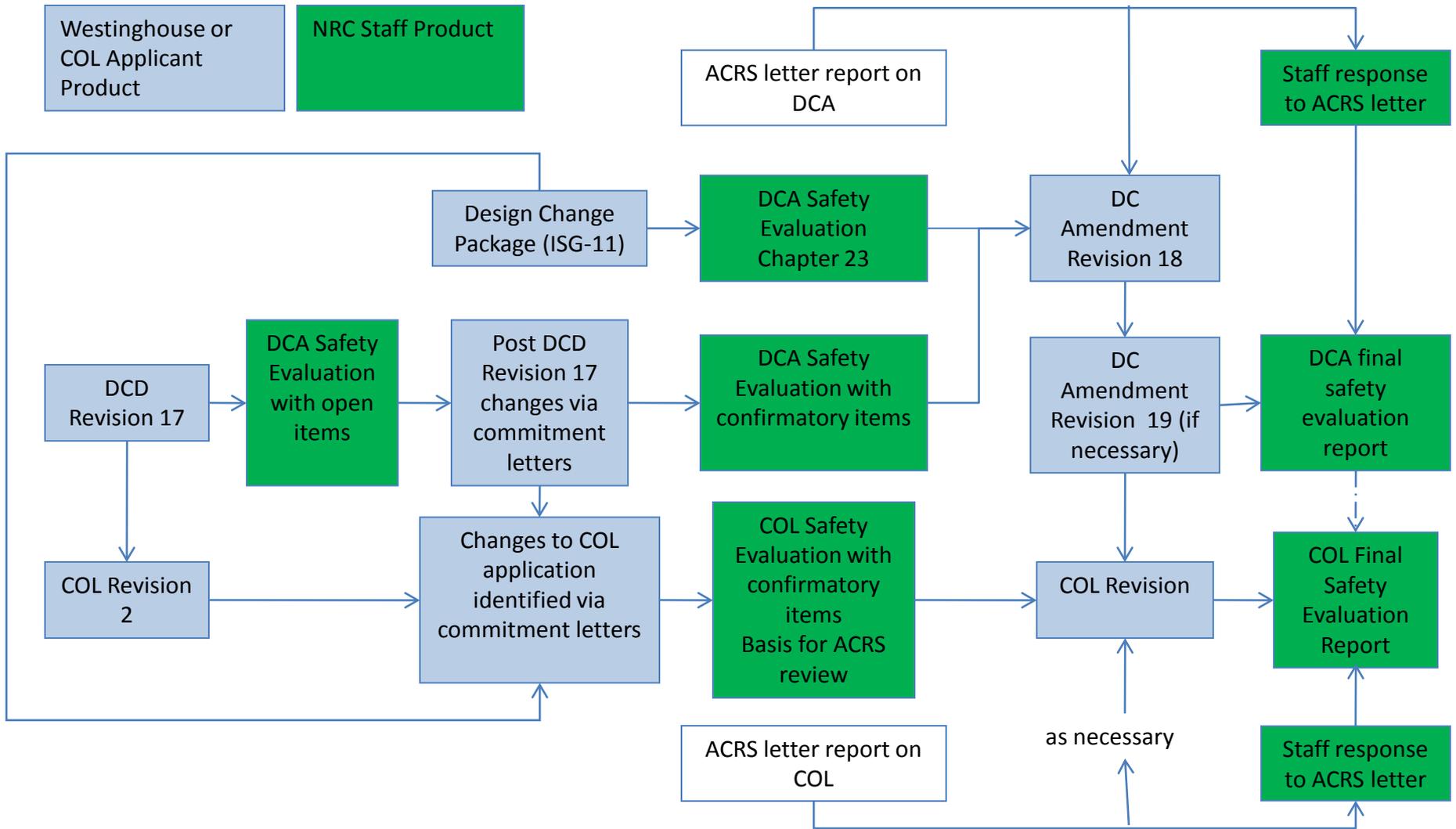
| Part Number | Description | Evaluation |
|-------------|---|--------------------------------------|
| 1 | General and Administration Information | Section 1.5.1 |
| 2 | Final Safety analysis Report | In appropriate SER Chapters |
| 3 | Environmental Report | Final Environmental Impact statement |
| 4 | Technical Specifications | Chapter 16 |
| 5 | Emergency Plan | Chapter 13 |
| 6 | Limited Work Authorization # 2 | Section 3.8.5 |
| 7 | Departure Reports | In appropriate SER Chapters |
| 8 | Security Plan | Section 13.6 |
| 9 | Withheld Information | In appropriate SER Chapters |
| 10 | Proposed Combined License Conditions (Including ITAAC) | In appropriate SER Chapters |
| 11 | Information Incorporated by Reference (e.g., quality assurance plan, material control and accountability program) | In appropriate SER Chapters |
| | Other Parts (e.g., Mitigative Strategies Document, Cyber Security Plan) | In appropriate SER Chapters |

ACRS Future Interactions

- Summer SCOL presented to AP1000 Subcommittee January 10 and 11, 2011
 - Currently no additional interactions with the AP1000 Subcommittee planned
 - Applicant and Staff prepared to provide Full Committee presentation in February including:
 - Overview of the application and the staff's review of the application
 - Site specific topics of interest
 - Staff's use of HABIT code for the toxic gas confirmatory analysis associated with control room habitability
 - Seismic qualification and source model

Backup Slide

Tie between DCD Revision 18 and COL Review





Briefing for the Advisory Committee on Reactor Safeguards on Proposed Issuance of RG 1.174 (Rev. 2) and RG 1.177 (Rev. 1)

Office of Nuclear Regulatory Research (RES)
Office of Nuclear Reactor Regulation (NRR)
Office of New Reactors (NRO)

January 13, 2011

Acronyms

| | | | |
|--------|---|-------|--|
| ANS | American Nuclear Society | NEI | Nuclear Energy Institute |
| ASME | American Society of Mechanical Engineers | NFPA | National Fire Protection Association |
| BWROG | Boiling Water Reactor Owners Group | NRC | US Nuclear Regulatory Commission |
| CDF | Core damage frequency | PRA | Probabilistic risk assessment |
| CFR | Code of Federal Regulations | PWROG | Pressurized Water Reactor Owners Group |
| CRMP | Configuration risk management program | RG | Regulatory Guide |
| CT | Completion time | SF | Surveillance frequency |
| ICCDP | Incremental conditional core damage probability | SRP | Standard review plan |
| ICLERP | Incremental conditional large early release probability | SSCs | Structures, systems, and components |
| LB | Licensing basis | STS | Standard technical specifications |
| LERF | Large early release frequency | TS | Technical specifications |

Presentation Outline

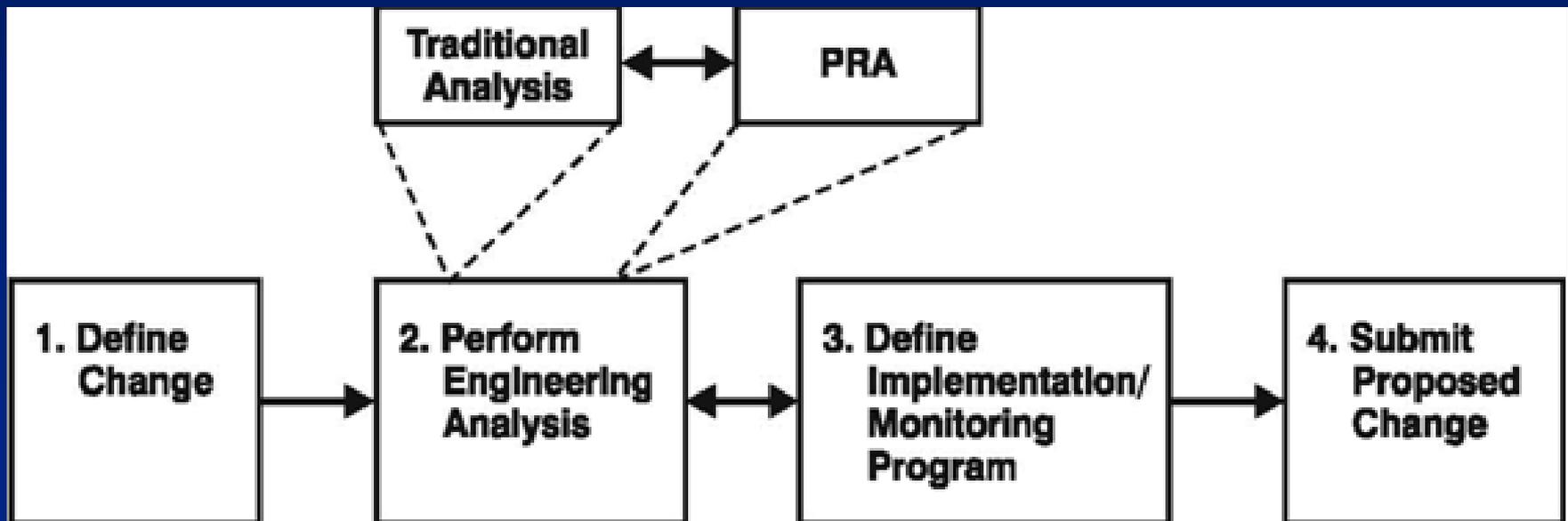
- Refresher on RG 1.174 / RG 1.177
- Relationship to other guidance documents
- Reason for updates
- Changes made prior to public comment
- Public comment disposition
- Deferred items
- Path forward

Refresher on RG 1.174, Rev. 1 (1)

- RG 1.174: “An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis,” Rev. 1, 2002
- “...describes an acceptable method for the licensee and NRC staff to use in assessing the nature and impact of LB changes when the licensee chooses to support, or is requested by the staff to support, the changes with risk information.”
- Lays out a set of 5 key principles:
 - Meets the current regulations
 - Is consistent with defense in depth
 - Maintains sufficient safety margins
 - Increases in CDF or risk are small
 - Monitored using performance measurement strategies

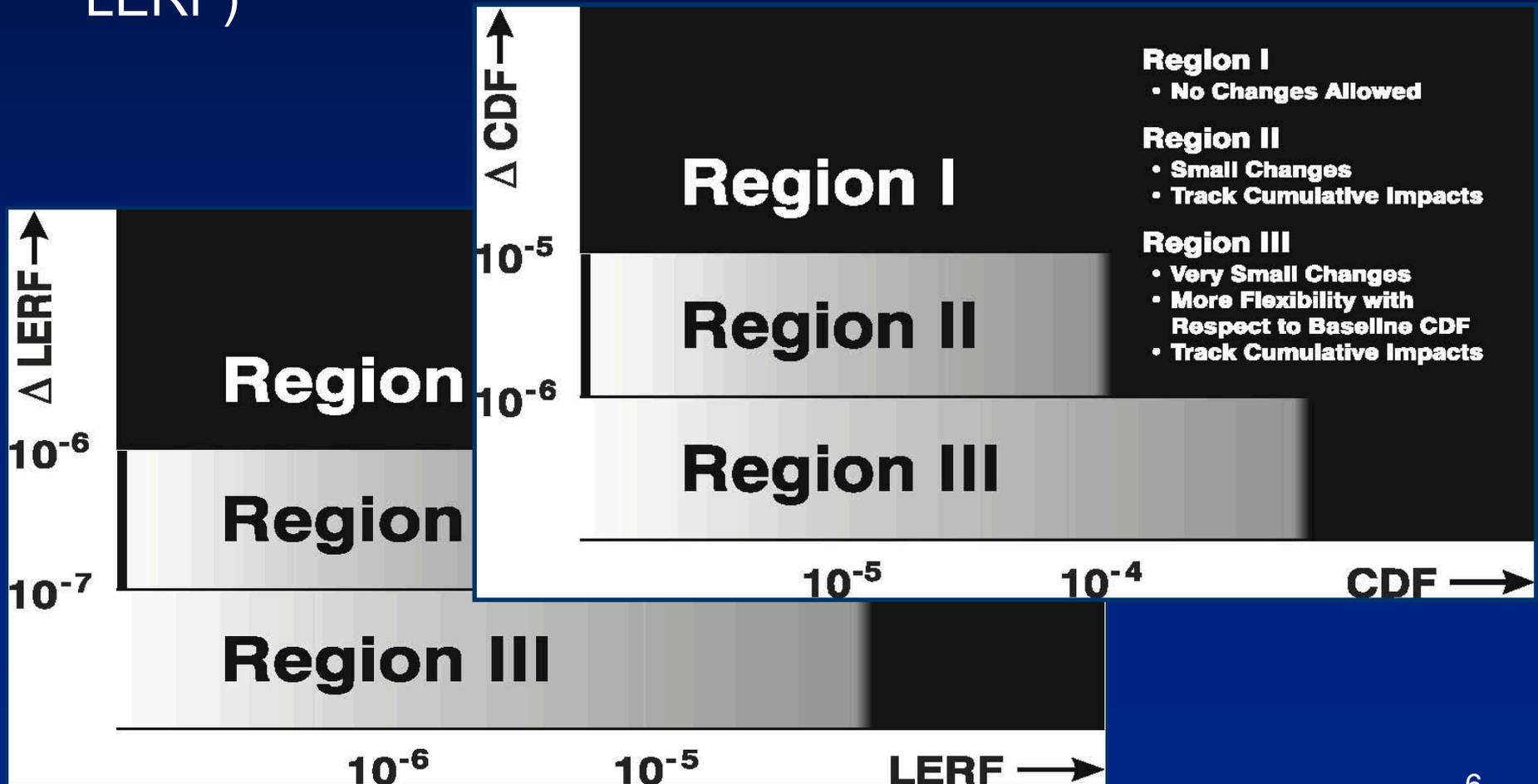
Refresher on RG 1.174 (2)

- Lays out the principal elements of risk-informed, plant-specific decisionmaking



Refresher on RG 1.174 (3)

- Establishes risk-acceptance guidelines as a function of baseline risk and change to baseline risk (for CDF and LERF)



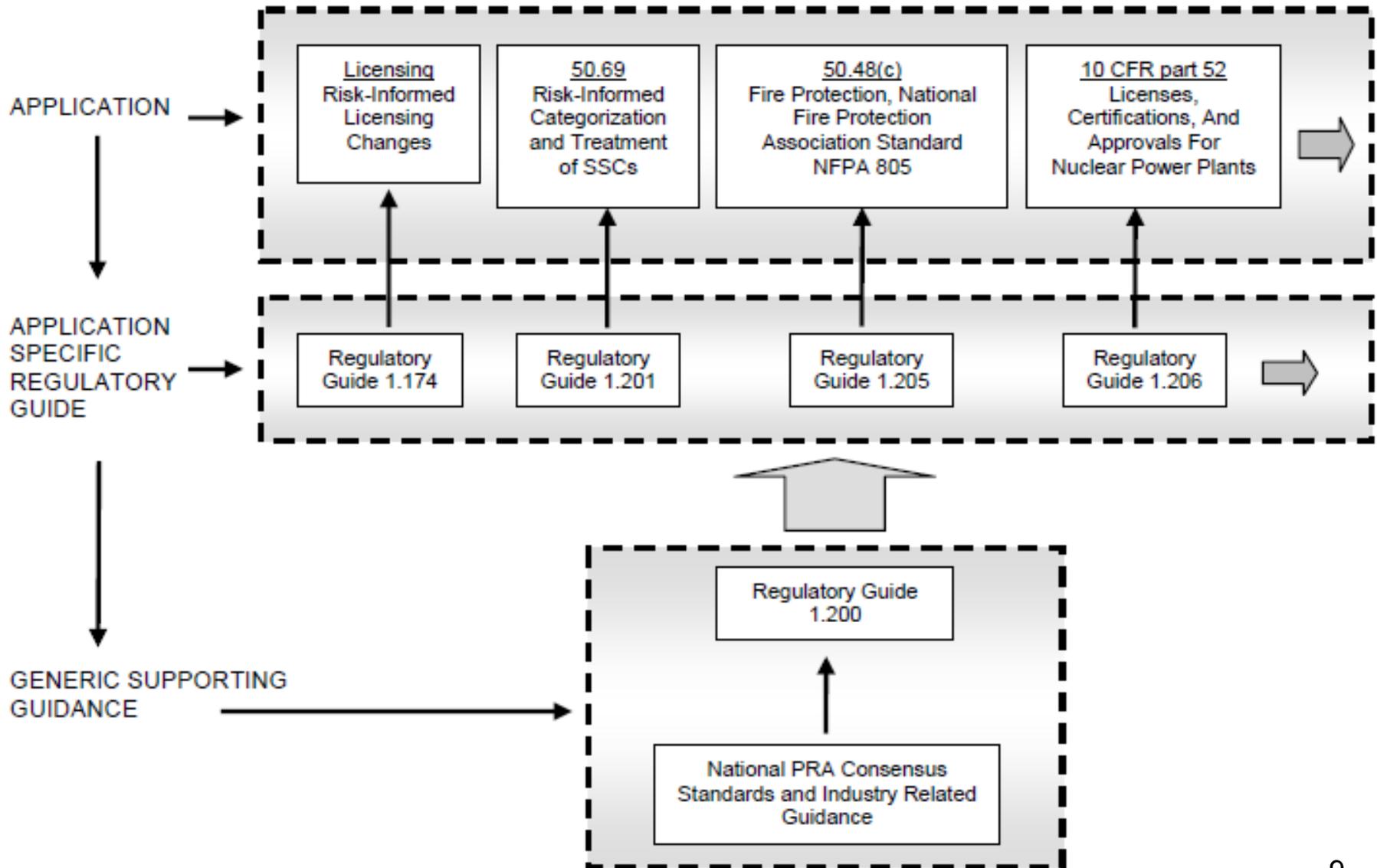
Refresher on RG 1.177 (1)

- RG 1.177: “An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications,” 1998
- Used to review licensee-initiated risk-informed TS change requests
- Provides a method for utilizing risk information to evaluate changes to TS completion times (CTs) and surveillance frequencies (SFs) to assess the impact on the risk associated with plant operation
- Relates to:
 - 1993 Commission Policy Statement on TS Improvements
 - 10 CFR 50.36, “Technical specifications”
 - 10 CFR 50.65, “Requirements for monitoring the effectiveness of maintenance at nuclear power plants” (a.k.a., The Maintenance Rule)

Refresher on RG 1.177 (2)

- Echoes the 4-step risk-informed decisionmaking philosophy from RG 1.174
- Establishes a 3-tiered approach for evaluation of risk of a CT change
 - Tier 1: Impact expressed by Δ CDF and incremental conditional core damage probability (ICCDP) – parallels for LERF
 - Tier 2: Identification of high-risk configurations (i.e., simultaneous equipment outage and/or concurrent system/equipment testing)
 - Tier 3: Establishment of an overall configuration risk management program (CRMP)
- Establishes acceptance guidelines for risk changes (in addition to the RG 1.174 guidelines)
 - ICCDP $< 5 \cdot 10^{-7}$ and ICLERP $< 5 \cdot 10^{-8}$ (distributed in time)
 - Appropriate restrictions on dominant risk-significant configurations
 - Implementation of a risk-informed plant configuration control program

Relationship to other guidance documents



Reason for updates

- Since last issuance of RG 1.174 (in 2002) and RG 1.177 (in 1998):
 - Significant changes to the ASME/ANS PRA Standard
 - Issuance of RG 1.200 (Revs. 0, 1 and 2) “An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities”
 - Issuance of NUREG-1855 on uncertainty, “Guidance on Treatment of Uncertainties Associated with PRAs in Risk-Informed Decision Making”
 - Continued evolution of the risk-informed application process / reviews

Changes made prior to public comment

- Editing terminology for consistency with RG 1.200 and the 2009 ASME/ANS PRA standard
- Updating discussion of uncertainty to incorporate NUREG-1855
- Adding a paragraph to address changes in risk not captured by CDF and LERF
- Removing outdated discussion on steam generator tube rupture, technical specifications, inservice inspection, etc.
- Including guidance for one-time only technical specification changes, including new quantitative criteria that align with NUMARC-93-01
- Various other minor changes for clarity, etc.

Public comment disposition (1)

- Draft regulatory guides (DG-1226 and DG-1227) were issued for public comment in August 2009
- ~ 50 comments received for each RG (after consolidating comments)
- Comments received from:
 - NEI (included input from BWROG)
 - PWROG
 - Exelon

Public comment disposition (2)

- A large # of comments dealt with consistency between RG 1.174, RG 1.200, the PRA standard, and NUREG-1855
- Many comments re-visited issues that were unchanged from the current active versions
- Roughly 70% of the comments were accepted in part or in full
- RG 1.177 terminology comprehensively changed for consistency with STS (AOT → CT, STI → SF)

Key public comment dispositions (1)

- Industry concern that RG 1.174 is attempting to require more with respect to other hazards (e.g., fire), or restrict previously acceptable bounding/qualitative approaches
- NRC staff:
 - No new or additional requirements have been added beyond the framework set up in RG 1.200 / the phased approach to PRA quality plan
 - No changes are being enacted relative to specific applications (e.g., NFPA-805)
 - In several cases, minor changes were made (as suggested) to clarify particular points

Key public comment dispositions (2)

- Industry comments on:
 - Relationship between 10CFR50.65(a)(4), the CRMP, Tier 3 in RG 1.177, and RG 1.200
- NRC staff:
 - 50.65(a)(4) does not always satisfy the CRMP requirement of RG 1.177
 - On a case-by-case basis it may be acceptable (if fire / seismic risk are not significant for the application)
 - The relevance of RG 1.200 to RG 1.177 is adequately addressed

Key public comment dispositions (3)

- The draft version of RG 1.174 included a new paragraph:
 - “...the impact of the proposed change on those aspects of containment function not addressed in the evaluation of LERF should be addressed qualitatively...”
- Industry concern that the paragraph:
 - Represents a new requirement that has no supporting guidance (more regulatory uncertainty)
 - Confuses the issues of risk assessment / defense-in-depth / safety margins
- The staff agrees, and has removed the paragraph
 - The paragraph’s intent is covered by existing defense-in-depth text

Key public comment dispositions (4)

- A new sentence was added:
 - “Additional or revised guidance might be provided for new reactors (e.g., advanced light-water reactors) licensed under 10 CFR Part 52...”
- Industry concern:
 - Deliberations are ongoing outside of RG 1.174 space, and the placeholder is pre-mature
- NRC staff:
 - The placeholder has the appropriate caveat

Key public comment dispositions (5)

- Draft guides were inconsistent on whether a revision # for RG 1.200 is cited
- Industry concern that not citing a revision # leads to regulatory instability and ambiguity as to what the correct revision is
- Staff disagrees:
 - Revising RG 1.174 every time RG 1.200 is revised is impractical, and unnecessary
 - The relevant version of RG 1.200 is the one associated with the application (i.e., the current version, unless a grace period is in effect)
 - All RG 1.200 revision #s have been removed

Key public comment dispositions (6)

- Industry concern that a requirement for application-specific peer reviews is being added
 - Staff has changed wording to clarify that it means a peer review augmented by a discussion of the model's appropriateness to the application
- Industry concern over the removal of peer review alternatives (certifications or cross-comparisons) in the documentation section
 - A peer review is what is required, thus this change is appropriate

Deferred Items

- Consideration of a new risk metric to further address late containment failure / environmental impacts
- Safety/security interface (10 CFR 73.58 and RG 5.74)
- Modification to guidance for new reactors

Path Forward

- Staff recommends issuance of the new versions of RG 1.174 / 1.177
- Other risk-informed application RGs (e.g., RG 1.178) will be updated on an as-needed basis
- Staff is continuing work on the larger risk-informed guidance effort



Backup Slides

Mapping of significant comments

| Item | Public comment #s | NRC disposition matrix #s |
|---|---|---|
| Bounding estimates, “mandated” methods, & qualitative assessments | DG-1226: NEI cover ltr. 3 rd bul., PWROG #3, NEI #12 / Exelon #7, NEI #36 DG-1227: NEI cover ltr. 5 th para. / NEI #18, PWROG #5 | DG-1226: 2, 15, 21, 50 DG-1227: 26, 27 |
| Relationship btwn. MRule, Tier 3, CRMP & RG 1.200 | DG-1227: NEI #13, Exelon #4, NEI cover ltr: 7 th para. | DG-1227: 17, 18, 41 |
| Paragraph on risk not captured by CDF/LERF | DG-1226: NEI #8, NEI #10 / Exelon #6 / PWROG #4 | DG-1226: 16, 17 |
| 10CFR52 Placeholder | DG-1226: NEI cover ltr. 2 nd bul. / NEI #3 DG-1227: NEI #3 | DG-1226: 6 DG-1227: 4 |
| RG 1.200 revision # | DG-1226: NEI cover ltr. 1 st bul. / NEI #35 / Exelon #9 DG-1227: NEI cover ltr. 3 rd para., PWROG #4, NEI cover ltr. 4 th para., NIEI #32 | DG-1226: 1 DG-1227: 1, 22, 24, 45 |
| Peer review requirements | DG-1226: NEI #29, PWROG #10 | DG-1226: 39, 40 |