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NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

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FUKUSHIMA SUBCOMMITTEE

+ + + + +

THURSDAY

MAY 23, 2013

+ + + + +

ROCKVILLE, MARYLAND

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The Subcommittee met at the Nuclear
Regulatory Commission, Two White Flint North, Room
T-2B1, 11545 Rockville Pike, at 8:29 a.m., Stephen
P. Schultz, Chairman, presiding.

SUBCOMMITTEE MEMBERS:

STEPHEN P. SCHULTZ, CHAIRMAN

J. SAM ARMIJO, Member

DENNIS C. BLEY, Member

CHARLES H. BROWN, JR., Member

MICHAEL L. CORRADINI, Member*

JOY REMPE, Member

MICHAEL T. RYAN, Member

1 SUBCOMMITTEE MEMBERS (Continued):

2 WILLIAM J. SHACK, Member

3 GORDON R. SKILLMAN, Member

4 JOHN W. STETKAR, Member

5

6 NRC STAFF PRESENT:

7 HOSSEIN NOURBAKHS, Designated Federal

8 Official

9

10

11 ALSO PRESENT:

12 BIFF BRADLEY, NEI

13

14 *Participating via telephone

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

(8:29 a.m.)

1
2
3 CHAIRMAN SCHULTZ: Good morning. This
4 meeting will now come to order.

5 This is a meeting of the Advisory
6 Committee on Reactor Safeguards, Subcommittee on
7 Fukushima.

8 I am Stephen Schultz, Chairman of the
9 Subcommittee. Members in attendance today are Dick
10 Skillman, Dennis Bley, Sam Armijo, John Stetkar, Mike
11 Ryan, Bill Shack, Charlie Brown, Joy Rempe, and Mike
12 Corradini is on the phone line.

13 The purpose of today's meeting is to
14 review and discuss the NRC Staff's development of a
15 notation vote paper with possible options for
16 addressing the Near-Term Task Force Recommendation 1,
17 which is establishing a logical, systematic and
18 coherent regulatory framework for adequate protection
19 that appropriately balances defense in depth and risk
20 considerations. This paper is due to the Commission
21 in the beginning of December 2013.

22 So far the Subcommittee has held two
23 meetings on this subject: on August 15th, 2012, and
24 December 4th, 2012. In addition to today's briefing,
25 we've scheduled two more Subcommittee meetings in

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1 September and October, prior to a full Committee
2 meeting in November, where the ACRS plans to write a
3 letter to the Commission.

4 This entire meeting is open to the public.
5 Rules for the conduct of and participation in the
6 meeting have been published in the *Federal Register* as
7 part of the notice for this meeting. The Subcommittee
8 intends to gather information, analyze relevant issues
9 and facts, and formulate proposed positions and
10 actions as appropriate for deliberation by the full
11 Committee.

12 Hossein Nourbakhsh is the Designated
13 Federal Official for this meeting.

14 A transcript of this meeting is being kept
15 and will be made available, as stated in the *Federal*
16 *Register* notice.

17 It is requested that all speakers first
18 identify themselves and speak with sufficient clarity
19 and volume so that they can be readily heard for the
20 transcript.

21 We have received on written comments. We
22 do have a request for time to make an oral statement
23 from a member of the public following today's meeting
24 or as a part of today's meeting in public comment
25 period. I understand that there also may be other

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1 stakeholders on the Bridge Line who are participating
2 in today's proceedings via phone line. We will
3 maintain that line on mute during the presentations to
4 avoid background noise.

5 We will have an opportunity for the public
6 comments, as I mentioned, at the end of the meeting,
7 and at that point we'll open the Bridge Line to hear
8 the public comments near the close of today's meeting

9 The focus points for today's discussion
10 are establishing a design extension category of events
11 and associated regulatory requirements; establishing
12 commissioned expectations for defense in depth and
13 clarifying the role of voluntary industry initiatives
14 in the NRC regulatory process.

15 Today we also have the benefit of hearing
16 a progress report from the staff and also a
17 presentation by Biff Bradley from the Nuclear Energy
18 Institute regarding NEI's perspectives on these
19 topics.

20 We'll now proceed with today's meeting,
21 and I call upon Mr. Michael Johnson, Deputy Executive
22 Director for Reactor and Preparedness Programs, to
23 open the presentation.

24 Michael.

25 **MR. JOHNSON:** Thank you. Good morning.

1 I wanted to just spend a few minutes at
2 the start of the meeting, first of all, to thank you
3 in advance for the work that you're doing to help us
4 move forward on Recommendation 1, and I wanted to come
5 in person because, first of all, it has been far too
6 long since I sat on this side of the table at an ACRS
7 meeting, Subcommittee or Committee meeting.

8 it has been a long time, and I look back.
9 I want to say I look back with fond memories.

10 (Laughter.)

11 MR. JOHNSON: But I won't go quite that
12 far, but it is good to be here.

13 But I also am here because I wanted to put
14 an emphasis on the importance of this particular task
15 to the Staff. Of course, as you well know, based on
16 your involvement to date with Fukushima items, there
17 are five basic areas of those recommendations, three
18 of which dealt with enhancing protection, enhancing
19 mitigation, enhancing emergency preparedness based on
20 the lessons that we learned from Fukushima.

21 But the other two, one which dealt with
22 the Staff looking at our internal processes and the
23 other, Recommendation 1, we broke out and were working
24 in parallel some would say on a slower track, if you
25 will, recognizing the urgency of the three items that

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1 I talked about that you're well familiar with.

2 The fact though that Recommendation 1 was
3 broken out and worked on a slower track I don't think
4 in any way should mean to anyone that we see that
5 recommendation being of less potential value than the
6 other recommendations going forward, and I was
7 fortunate enough to sit in on a forum conducted by
8 NRO, the Office of New Reactors, not too long ago, and
9 it was on 50 years of licensing experience, and we
10 brought in folks like Tom Murley and the NRC Historian
11 and other folks to talk about lessons that we learned
12 in licensing over the last 50 years.

13 And one of the folks, the historian, Tom
14 Wellock, talked about the fact that following Three
15 Mile Island, in fact, in that 18 to 24-month period
16 following Three Mile Island when we were trying to
17 figure out whether or not we would continue to license
18 or how we would continue to license the NPOLs, for
19 example, and we were very much introspective about
20 learning lessons from Three Mile Island and making
21 sure that the fleet was safe.

22 At that very time, there was a group that
23 was stood up chartered by Steve Crockett, who some of
24 you may know, Jerry Wilson, who a number of you
25 probably remember, to do work on Part 52, to build the

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1 licensing -- the rule Part 52 -- and to set in place
2 the framework that really became a final rule in the
3 late '80s and then is the rule that we use to support
4 reactor licensing, combined licenses and so on and so
5 forth.

6 So even at the time, even within days or
7 months or a few months of Three Mile Island we were
8 looking forward with respect to what we ought to do
9 with the framework, and I really see Recommendation 1
10 as having that same sort of perspective for the Staff
11 today, recognizing that we need to do things urgently
12 with respect to, for example, mitigating strategies.
13 We know that's work that has to happen, but we also
14 want to make sure that we take a look at the
15 framework, and that's what the work on Recommendation
16 1 represents.

17 So we recognize that some will say that we
18 ought to really focus on things that will bring us the
19 most immediate safety benefit, if you will. We would
20 agree with that, but we also think that in parallel
21 with those activities we ought to be doing work on
22 Recommendation 1.

23 Of course, the group that will be
24 presenting today has done a lot of work, a lot of
25 thinking on Recommendation 1, and has had substantial

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1 interactions with external stakeholders on
2 Recommendation 1. We, in fact, as recently as
3 December of last year, I know, met with this
4 Subcommittee in terms of our thinking in the December
5 time frame.

6 In January we got together; the Fukushima
7 Steering Committee got together. We looked at what
8 was coming out of that work. We wanted to look at
9 those recommendations as a Steering Committee. We did
10 some repackaging, if you will. We wanted to try to
11 organize it in a slightly different way perhaps,
12 provide a little more clarity regarding where we were
13 going on some of those recommendations so the
14 Commission could have a clear option to pick at the
15 end.

16 And that caused us to revise the schedule
17 and to ask for additional time, and the Commission
18 granted that. And we recognize also though that you
19 have reordered your schedule to support interactions
20 that you talked about, Steve, in terms of the opening
21 interactions in September and October and a letter in
22 November. We see that as really being important to
23 enabling us to move forward to provide the Commission
24 a well rounded recommendation regarding what we might
25 do to the framework based on what we've learned as a

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1 result of the lessons of Fukushima.

2 So I guess I'll stop with just a thank you
3 in advance for your continued focus in all of the
4 areas, but of course, your continued focus on
5 Recommendation 1. We really value your perspective,
6 and I know the Commission values your perspectives
7 with respect to the recommendations that the Staff
8 will be offering up.

9 So thank you.

10 CHAIRMAN SCHULTZ: Thank you.

11 MR. JOHNSON: With that I'll turn to Dick.

12 CHAIRMAN SCHULTZ: Okay.

13 **MR. DUDLEY**: I'm Dick Dudley. I'm the
14 Project Manager, the Rulemaking Project Manager for
15 Recommendation 1.

16 On Slide 2.

17 This is just an overview of the
18 presentations that the Staff will be making today.
19 I'm giving right now a little overview of
20 Recommendation 1 and review the action that we've
21 taken and some of the actions that we plan.

22 Then I will also present Improvement
23 Activity 1, establish a design basis extension
24 category of events and associated requirements.

25 Mary Drouin will then present Improvement

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1 Activity 2, to establish Commission expectations for
2 defense in depth.

3 And then Dan Doyle will present the
4 Improvement Activity 3, to clarify the use of
5 voluntary initiatives.

6 On Slide 3.

7 When we met with the ACRS the first time
8 in August of 2012, we described 12 potential framework
9 improvement activities. When we met with you again in
10 December, those improvement activities had evolved
11 into four different options that we described in a
12 November 2nd white paper.

13 And today those four options are condensed
14 down into three improvement activities any of which
15 the Commission can decide to undertake or to not
16 undertake.

17 These improvement activities were
18 described in a February 2013 white paper, which was
19 very broad and that we tried to describe all the
20 different ways one could accomplish each of those
21 improvement activities, but then on May 15th, we
22 updated that white paper. This is our third white
23 paper, and we presented the Working Group's
24 recommended approach for each of the three improvement
25 activities.

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1 Slide 4.

2 NEI provided comments on our very broad
3 white paper, our February white paper and April 30th,
4 and as I said before, we presented our recommendations
5 in a white paper on May 15th.

6 The day after that white paper, we opened
7 a public comment period, and we're using the federal
8 government rulemaking Website, regulations.gov, to
9 have that comment period, and we'll close that comment
10 period about 90 days later. So it's a substantial
11 public comment period, and we're going to close it on
12 August 15th.

13 The docket for that on regulations.gov is
14 Docket NRC-2012-0173.

15 After the meeting today, we'll hold our
16 third public meeting on June 5th, and then after all
17 these interactions, we'll update our white paper again
18 and issue a fourth white paper in august that
19 addresses the comments from the ACRS, from external
20 stakeholders, from internal stakeholders and, in
21 particular, from the JLD Steering Committee.

22 We'll provide that fourth white paper to
23 the ACRS to support the Subcommittee meeting on
24 September 3rd.

25 On Slide 5.

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1 And then we'll start to prepare the SECY
2 paper, and as you can obviously see, the white paper
3 is going to be a large part of what will be in the
4 SECY paper. We'll provide a SECY paper to ACRS in
5 mid-September to support the Subcommittee meeting in
6 mid-October, and then we have the full Committee
7 meeting on November 7th or 8th of this year.

8 We would like if at all possible to
9 receive our ACRS letter within a week. I know that
10 that's not the normal schedule, but if that's
11 possible, it would help us out a great deal because we
12 owe the SECY paper to the Commission on December 2nd,
13 and after we get the ACRS comments, we have to
14 evaluate them. We have to modify the SECY paper as
15 appropriate, go through all the management approvals
16 and reviews involved with that, and provide it to the
17 Commission by December 2nd. So if we could get the
18 letter in a week, that would help us out a good deal.

19 CHAIRMAN SCHULTZ: We'll work to achieve
20 that. Thank you.

21 MR. DUDLEY: Thank you.

22 Okay. Well, that completes my
23 introduction. If there are no questions on that, I'll
24 just proceed to Improvement Activity 1.

25 CHAIRMAN SCHULTZ: Any questions on the

1 introduction?

2 (No response.)

3 CHAIRMAN SCHULTZ: Go ahead, Dick.

4 MR. DUDLEY: Thank you.

5 So I'm going to be on Slide 7 now.

6 Improvement Activity 1 is, again, to
7 establish this design basis extension category of
8 events and associated requirements. Both task forces,
9 the Near-Term Task Force and the Risk Management Task
10 Force recommended establishing such a category by
11 issuing rulemaking to set it up. This new category
12 for beyond design basis requirements.

13 The working group evaluated three
14 different approaches to establish this new category,
15 three approaches that we looked at in detail.
16 Approach number one is a plant specific approach that
17 would require licensees to prepare an updated PRA, a
18 plant specific PRA, and then use that PRA to identify
19 plant specific risk outliers that met threshold
20 criteria that the NRC had established by rulemaking.

21 When the licensees identified risk
22 outliers, they would have to mitigate them to reduce
23 the risk associated with those outliers, again,
24 consistent with whatever we would issue and the
25 criteria we would establish in the rulemaking.

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1 In addition, for that sort of an approach,
2 we believe it would be acceptable for licensees who
3 had these PRAs to also look at their deterministic
4 design basis and potentially identify non-risk
5 significant sequences or accidents with their PRA that
6 they could propose and submit to the NRC for review
7 and approval for possibly moving those sequences or
8 accidents from the deterministic design basis into the
9 design basis extension category, which would support
10 reducing the mitigation requirements associated with
11 those sequences because they were not that risk
12 significant.

13 So that's approach number one. Approach
14 number two is a plant specific approach that would not
15 have a PRA. It's basically the same approach as
16 approach number one, but instead of doing an updated
17 PRA, one would establish expert panels who would look
18 at -- I mean, every licensee has a PRA. They're all
19 a different quality and have been updated at different
20 times or have not been updated, but the expert panels
21 would look at the existing PRA and other approach risk
22 information, and the expert panels would try to
23 identify risk outliers associated with this plant and
24 even perhaps design basis accidents that have low risk
25 significance. So that's approach number two.

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1 Approach number three is the generic
2 approach. It would not require a plant specific PRA
3 because under approach number three the NRC would
4 generically establish the requirements on its own that
5 would populate the design extension category.

6 And so those are the three approaches that
7 we looked at, and the working group recommends a
8 modified reduced scope version of approach number
9 three.

10 CHAIRMAN SCHULTZ: For our information,
11 Dick, are you going to describe today the differences
12 between what you described as plants have a PRA today,
13 that approach, and what you're indicating in approach
14 number one as a PRA that would be developed, a
15 required PRA?

16 MR. DUDLEY: Well, I have some backups,
17 and I can explain about approach number one and how we
18 evaluated it and why we didn't recommend it.

19 CHAIRMAN SCHULTZ: Okay.

20 MR. DUDLEY: If that's --

21 CHAIRMAN SCHULTZ: When you get to it,
22 that will be fine.

23 MR. DUDLEY: Okay. All right.

24 CHAIRMAN SCHULTZ: Thank you.

25 MR. DUDLEY: Fine. Thank you. Okay.

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1 MEMBER SKILLMAN: Dick, before you go on.

2 MR. DUDLEY: Yes.

3 MEMBER SKILLMAN: Words matter, at least
4 as they're recorded and read by the public and other
5 professionals. You just said that we recommended kind
6 of a reduced version, like it's Approach 3 Light, or
7 something like that. And while perhaps you don't mean
8 to communicate it, it sounds like the working group
9 says, "Well, it's really too hard to do all of
10 Approach 3. We'll just do something less."

11 Can you explain what you meant there,
12 please?

13 MR. DUDLEY: Yes, but I think if we go
14 through the presentation when I explain why we
15 selected approach number three, I think I'll get to
16 that in the future.

17 MEMBER SKILLMAN: Okay.

18 MR. DUDLEY: And if I don't, please ask
19 your question again.

20 MEMBER SKILLMAN: Thank you.

21 MR. DUDLEY: Okay. All right. So we
22 recommend a modified version of approach number three.

23 Now on Slide 8.

24 To develop a categorization approach, you
25 have to do two things. You have to find a category,

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1 and you have to identify the requirements that would
2 go into the category.

3 On Slide 9.

4 The working group recommendation on how to
5 do these two things is to define a generic design
6 basis extension category. That's what we would call
7 it, and we believe that can be done with internal
8 staff guidance only, and we would populate this new
9 design basis extension category in a forward fit
10 manner only in that it would only apply to new issues
11 or new information that arise in the future and would
12 be associated with new rules that we would issue based
13 on those issues or that information.

14 MEMBER STETKAR: Dick, I was going to wait
15 until the end, but I can't. Why is this different
16 from the current regulatory framework that is
17 effectively event drive and reactionary?

18 MR. DUDLEY: It is not substantially
19 different.

20 MEMBER STETKAR: Okay. Why is that then
21 responsive to both NTF Recommendation 1 and the Risk
22 Management Task Force recommendations, which
23 highlighted that event driven reactionary type of
24 framework as the fundamental source of this notion of
25 patchwork regulations?

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1 Something happens and we react to it
2 specification. The reactor trip breaker doesn't open
3 so we have apps. Plants have common cause failures of
4 diesel generators. So we have station blackout, and
5 so forth and so forth, without having an integrated,
6 forward looking sort of evaluation of things that can
7 happen, not reacting to things that have happened in
8 the past.

9 And Fukushima is another example. We're
10 reacting to things that happened at Fukushima.

11 MR. DUDLEY: We agree that approach number
12 one, which is the plant specific approach where
13 licensees are required to perform new or upgraded
14 PRAs, we agree that that would be the most well
15 defined approach to proceed with.

16 MEMBER STETKAR: Okay.

17 MR. DUDLEY: It would increase safety.
18 What we are proposing will not have a substantial
19 increase, will not really increase safety. There may
20 be some marginal improvement by having clearer
21 regulations, but if you required a plant specific PRA
22 for all the reactors in the operating fleet, you could
23 increase safety.

24 What we were concerned with though was
25 that we didn't know how much we could increase safety,

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1 and to have those PRAs, it is very, very expensive,
2 and so we just made a judgment that we didn't feel as
3 a group that the increase in safety associated with
4 that approach would be -- we weren't sure that it
5 would be cost effective if you proceeded down that
6 path.

7 The Commission would have to be in a
8 position that they would issue a PRA rule, and I'm not
9 -- Michael, did you want to comment on that?

10 I'm just not sure that they're in that
11 position right now.

12 MEMBER STETKAR: It seems like we should
13 possibly give them the option to see if they are.

14 MR. DUDLEY: Well, they can certainly
15 direct us to implement Improvement Activity 1 in
16 accordance with one of the other approaches. They can
17 do that, and we'll make it clear in the SECY paper.

18 MEMBER STETKAR: In the final SECY paper,
19 are you going to elaborate more on the approaches that
20 you showed on that first slide?

21 MR. DUDLEY: Certainly more than on this.

22 MEMBER STETKAR: Well, but I mean the
23 white paper really does.

24 MR. DUDLEY: We can do that. Okay? We
25 can do that.

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1 MEMBER ARMIJO: Dick, I don't understand
2 your comment that the approach number three that
3 you're recommending would not improve safety. Is it
4 just simply --

5 MR. DUDLEY: No, I'm talking about the
6 categorization approach only.

7 MEMBER ARMIJO: Oh.

8 MR. DUDLEY: The other two activities
9 will, indeed, improve safety.

10 MEMBER ARMIJO: Okay, okay.

11 MR. DUDLEY: But for categorization only,
12 we don't believe that this approach will have a
13 significant increase in safety. It will increase
14 coherency, logic, and efficiency of the rules that we
15 would issue in this beyond design basis area.

16 MEMBER ARMIJO: Okay.

17 MR. DUDLEY: But we don't believe -- well,
18 to some extent if you increase the clarity and
19 efficiency of a rule, then there's maybe an arguable
20 increase in safety, but it is not a substantial
21 benefit of the approach we propose.

22 Our approach basically is to increase the
23 coherency and the logic and the efficiency of
24 rulemakings that we would undertake in this beyond
25 design basis area.

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1 MR. JOHNSON: And I love John's -- I'm
2 sorry. Can I just? I love John's question, and I
3 hope at the end we come back and maybe try to take it
4 on holistically. We're going to be talking about --
5 we're talking about this in pieces, but it occurs to
6 me at the end of the day -- in fact, I harken back to
7 conversations that we had in the Steering Committee
8 with the Recommendation Working Group about Gary tells
9 the story that -- Holahan tells the story that before
10 he came to the NRC, in fact, he was working on, was
11 concerned about ATWS, was working on the need for an
12 ATWS rulemaking ten years before the rule, five years
13 before the ATWS was done at Davis Besse.

14 All right. So there is at the end of
15 this, at the end of all of the things that we do with
16 respect to the framework, I think we do need to harken
17 back to the question about so are we, based on these
18 changes, are we going to be able to be in a better
19 place with respect to finding the next potential
20 Fukushima before it happens and address it.

21 I think actually when you look at all of
22 the things that we're proposing together holistically
23 we get closer. When you look at defense in depth, for
24 example, that makes us look through a different lens
25 that I think puts on the table an opportunity for us

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1 to advance issues that you wouldn't advance if you
2 simply looked at, for example, the likelihood that you
3 would have the initiator that would result.

4 So I think it's a great question. Maybe
5 at the end if we come back, I'd love to know what --

6 MEMBER STETKAR: That's one of the reasons
7 I decided to make this comment early, to kind of get
8 the panel thinking a little bit in that direction.

9 MEMBER BLEY: I guess I'd like to expand
10 on John's points and ask you as you go through if you
11 can help me understand.

12 You know, the issue about the patchwork
13 response is an important one, I think. We will always
14 be reactive if something new and surprising occurs.
15 There's no way around that, but when we react, we can
16 either respond to that very narrow thing that happened
17 and try to make sure that particular exact thing
18 doesn't happen again, which is what we seem to do, or
19 we can look more broadly and see that as a class, and
20 make sure whatever we do is looking at the class and
21 all the different things that can lead us to that
22 class.

23 As you go through, maybe you can tell us
24 what you're suggesting under your Option 3, how it
25 addresses that issue.

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1 MEMBER SHACK: Just to pile on a little
2 bit in the forward fit here notion, I mean, we just
3 went through a mitigating systems order that we
4 decided was needed for adequate protection, and you
5 know, we've suddenly -- now that's the last time we're
6 ever going to have to do that and there's no way that
7 we can't think ahead? We wait for the next set of
8 events or we decide that we need this.

9 And it doesn't seem responsive to me to
10 the NTTF's thing that we needed to take a deeper look
11 at defense in depth. I mean, everything was sort of
12 PRA. Now somehow your defense in depth seems somewhat
13 bloodless compared to the NTTF's, which I thought made
14 the case that you really need to consider defense in
15 depth stronger, and here you're in a much more neutral
16 kind of position that we're going to look at this
17 again. We're going to define it again, but there's no
18 real feeling that we haven't considered defense in
19 depth adequately.

20 And as I say, we just now issued an order
21 for a whole bunch of defense in depth measures as
22 adequate protection, and we somehow seem to ignore
23 that.

24 CHAIRMAN SCHULTZ: Defense in depth we
25 ought to wait on.

1 MEMBER BROWN: I guess I didn't quite
2 understand Bill's comment because I thought Activity
3 2 covered a reexamination of the defense in depth
4 stuff, and you know, there were examples. There were,
5 you know, principles that you elucidated which should
6 be considered.

7 So I just thought after listening to the
8 rest of this I would provide some like moderate,
9 moderating different thought process. I wasn't
10 necessarily for or against any one of these
11 approaches. I was appreciative of your comments along
12 the way in here that throwing away a framework which
13 has been used for 40, 50-something years, where people
14 are comfortable and familiar and understand it, for
15 the normal flow of business is not necessarily a good
16 idea.

17 And I didn't quite understand how you
18 couldn't integrate some of these things that you
19 talked about in Activity 1, Approach 1, 2 or 3,
20 without disassembling your current methodology that
21 you use.

22 I mean, agreed that it's reactive in some
23 circumstance, but I don't know why a simpler thought
24 process relative to what have we not thought about
25 going forward in terms of big events that could hurt

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1 us based on what we've seen and broaden the thought
2 process a little bit within the existing framework on
3 this activity 1.

4 So I'm a big fan of defense in depth as
5 opposed to process in some other places in PRAs and
6 things like that.

7 Anyway, that was just a slightly
8 moderating comment on the overall thought process.

9 MR. JOHNSON: Thank you, Charlie.

10 Can I give you just a 50,000 foot level
11 perspective and then these guys are going to tell you
12 what the right answer is?

13 We struggled with -- we will struggle with
14 laying out for the Commission however this looks a
15 recommendation that causes them to decide whether this
16 new framework -- you decide what it looks like -- gets
17 applied retrospectively. We recognize that there are
18 100 or maybe 102, maybe five years from now 104 or
19 five -- I don't know what the count is -- but we've
20 got a bunch of plants that were licensed and are
21 operating and we're overseeing based on an existing
22 framework, and so the Commission is going to need to
23 decide do you take that framework, that pristine
24 framework or revised framework that you would want to
25 have in place before you licensed any of those 104 or

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1 whatever the count; do you apply that backwards
2 looking or do you put it in place and then apply it to
3 new things?

4 Not to say that you need to be reactive
5 looking forward, to continually be reactive, but that
6 you would make it looking into the future. So you
7 would deal with new issues, new regulatory concerns.
8 You would deal with new and significant information
9 perhaps out of operating experience in a broad sense
10 so that it's not just narrowly, but very broadly.

11 But that's the decision. Do you put it in
12 place and then look forward in terms of its
13 implementation, or do you put it in place and then
14 also look backwards and make changes to existing
15 plants perhaps based on what that revised framework
16 would tell you?

17 That's a decision that we're going to need
18 to lay out for the Commission because they'll have to
19 make it. It will have costs and benefit
20 considerations associated with it. At the end of the
21 day I think the Commission has got to decide that as
22 a policy matter.

23 What did I say wrong?

24 MR. DUDLEY: That's fine. That's fine.

25 CHAIRMAN SCHULTZ: Why don't you proceed,

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1 Dick?

2 MR. DUDLEY: Okay. May I go to Slide 10
3 now?

4 The working group, you know, identified
5 that NRC regulations already include a de facto design
6 extension category. It would include the beyond
7 design basis, the current beyond design basis
8 regulations of station blackout ATWS; the 50.44
9 combustible gas requirements for severe accidents;
10 50.54(hh) on the loss of large areas due to fires and
11 explosions.

12 We're also working on a number of other
13 rules that are currently being looked at: 50.46(a),
14 risk informed; ECCS; and the beyond transition break
15 size LOCAs would appropriately fit in this category.

16 The risk informed GSI 191 Rule for long-
17 term cooling, and I believe all of the Fukushima rules
18 would fit in this category.

19 Essentially we already have the category.
20 We don't need rulemaking to establish it. We can do
21 it with internal Staff guidance.

22 Now on Slide 11.

23 All right. So what would we put in this
24 internal staff guidance? Well, first, we would define
25 design basis extension conditions, and these would

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1 include both events and hazards. And then what we
2 would do is we would specify how the Staff would write
3 future requirements, both regulations and orders.
4 This would apply to orders also, to ensure that
5 they're consistent, coherent and complete.

6 The problem with beyond design basis
7 regulations is a lot of the things you take for
8 granted like quality assurance requirements, the 50.59
9 change process, training requirements, a lot of those
10 things don't apply in the beyond design basis area.
11 So what we think the guidance will do, it will allow
12 the Staff to write better, more complete, more
13 efficient, and more thorough rules and just do a
14 better job of regulating in this area.

15 We believe that beyond design basis rules
16 should include well defined performance goals. You'd
17 have to specify analysis methods and acceptance
18 criteria. You need to specify treatment requirements
19 with respect to design criteria, availability,
20 something, you know, in place of tech specs since tech
21 specs do that for your design basis regulations;
22 testing requirements, quality assurance, quality
23 control, training.

24 And another thing in this internal
25 guidance would be general guidance that would assist

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1 the Staff in determining the appropriate treatment
2 requirements for the regulations in this category. We
3 don't believe that we could establish a single set of
4 treatment requirements that would apply to all the
5 rules that would go in this category. So what we're
6 proposing is to develop guidance to assist the staff
7 in selecting the appropriate set of treatment
8 requirements for the specific regulation that they're
9 working on.

10 So that's what we would do with treatment.
11 You should also in each beyond design basis rule
12 specify reporting requirements, including how you
13 would update the FSAR because 50.59 talks about
14 changes to the probability and consequences of
15 accidents previously evaluated in the FSAR. If you
16 issue a design basis extension rule and you make sure
17 that it is valuated in the FSAR, then it's possible
18 that the 50.59 change process would be applicable to
19 that particular design basis extension rule. So that
20 is something we should always look at.

21 If you can't make 50.59 work for the
22 particular rule, the station blackout mitigating
23 strategies rule is perhaps an example where it's not
24 really an accident or an event. It's just a
25 condition. Then each rule would have to specify it

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1 sown change process to make sure that it was complete
2 and thorough.

3 And we're also working with, like for the
4 station blackout mitigating strategies rule, I'm
5 working with Tim Reed, the Project Manager for that,
6 and he's aware of our recommendations, and he's
7 considering these things in that particular
8 rulemaking.

9 On Slide 12.

10 MEMBER SKILLMAN: Before you go there,
11 would you expand on your thoughts regarding FSAR
12 operating, please, Richard?

13 MR. DUDLEY: Well, I don't have a lot of
14 detail on that, but we would just need to make sure
15 that the regulation said how the licensee would update
16 their FSAR regarding whatever beyond design basis
17 issue is being considered by that rule.

18 And then it would say also that 50.59
19 either was or was not applicable based on how the FSAR
20 updated was specified by that rulemaking.

21 I don't know if that's answering your
22 question, but --

23 MEMBER SKILLMAN: No, I'm pulling on a
24 different thread. In the original NTF report, the
25 thought was that they have a category called extended

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1 design basis requirements. Those were changed
2 slightly, design basis extension conditions.

3 I'll take you back to ECCS hearings in the
4 early '70s. When the NITTF report explains that the
5 current framework has been effective, I agree with
6 that. I was a participant many, many years ago when
7 we had to come forward with our analyses of accidents
8 and transients in our Chapters 15 or 16, or whoever
9 they were in the old PSARs and FSARs, because you
10 remember that tortuous process.

11 And the result of that robust interaction
12 between the licensee, the NSSS vendor, and the NRC was
13 a fairly high level of agreement how the plant would
14 behave and what the outcome would be for a large break
15 or small break or a steamline break or a reactivity,
16 you know, rod ejection or whatever it might have been.

17 So in that third from the top bullet
18 there, including FSAR updating, I'm wondering if what
19 preserves the integrity of the process in the
20 robustness of the product is an interactive process
21 with the licensees where these items that are now
22 considered beyond design basis get a complete and
23 thorough analysis that the licensee and the NRC agree
24 to, and it becomes documented as an addition to the
25 FSAR.

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1 So there's really no wiggle room in what
2 equipment will be used, what the anticipated thermal
3 hydraulic and reactivity behavior of the plant will
4 be, where the EOPs fit to make sure that what is now
5 the extended design basis gets fulfilled, and to the
6 extent that that's important, that the quality
7 classifications, the level of the hardware you're
8 depending upon are actually delivered, whether that's
9 commercial grade dedication or you've got to go out
10 and buy new stuff.

11 So I'm suggesting that maybe this idea of
12 FSAR updating might not be a target as big as an
13 airplane hangar that you really needed to look at.
14 It's big, and if the extended design basis phenomena
15 that are going to be required are not fully analyzed,
16 at least I for one would say we've only delivered half
17 a loaf. There's a whole lot more that needs to be
18 done.

19 Those who are going to say, hey, we've
20 moved into a new area for design basis extension have
21 proven through our analysis and our interactions that
22 we can do this, that we can cool the core, maintain
23 the clad, and maintain the containment area.

24 So it seems that hiding in FSAR updating
25 is a very large piece that probably needs some stern

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1 consideration.

2 MR. DUDLEY: So your comment is basically
3 FSAR updating is not a trivial thing. You need to
4 make sure it's very broad and it addresses all aspects
5 of the criteria that I've specified on this slide.

6 MEMBER SKILLMAN: Yeah, and I'm going back
7 to the ECCS hearings and some of the TMI 2 stuff where
8 after those events we said, "By golly, we're weak. We
9 had better shore this up by doing all of these other
10 things," which we did.

11 I mean, I think the licensing basis of a
12 lot of our current facilities for some of these beyond
13 design basis regulations that we've written is
14 probably buried in safety evaluation reports on the
15 docket of the facility. I'm not sure of the degree
16 and accuracy with which the FSAR is updated for all
17 those things, and what I'm saying is that we need to
18 know that, and one of the things we would do when we
19 move forward with the new rules in this design
20 extension category is make sure that all of this
21 information on this slide here is incorporated and, I
22 guess, included in the FSAR or some relationship
23 that's linked to the FSAR.

24 MR. DUDLEY: I would agree with that.
25 That's exactly what I'm saying.

1 MEMBER SKILLMAN: Thank you.

2 CHAIRMAN SCHULTZ: Dick, in terms of the
3 magnitude of what that would perhaps set out to do,
4 you mentioned earlier that we're talking about future
5 rules and approaches, but then as you described the
6 design basis extension categories, you indicated,
7 well, there are many things that would fit in that
8 category based upon what we have already done.

9 So one needs to identify carefully if
10 you're setting out to do these elements of performance
11 goals, treatment requirements, reporting requirements,
12 and so forth, that we have to answer that question.
13 Are we, in fact, establishing something that's only
14 for future or are we going to be tempted to
15 incorporate these expectations or all of those other
16 things that are somewhat in place with respect to the
17 category?

18 MR. DUDLEY: The existing rules -- I'll
19 get ahead of myself a little bit -- but, you know, we
20 will recommend putting the existing beyond design
21 basis rules into this new category unchanged. Okay?
22 That we believe is the most efficient way to do it.
23 You won't have a bunch of backfit issues associated
24 with each licensee's design basis.

25 And what we would do then is to the extent

1 that we need to change any of those rules, say, 50.44,
2 say, Recommendation 6, I believe it is, on hydrogen,
3 say that requires us to change our hydrogen
4 requirements. Well, that rulemaking will be a design
5 basis extension category rulemaking, and we'll
6 undertake it, and we'll meet all of the criteria on
7 this slide.

8 So we would address, we would grandfather
9 these existing beyond design basis rules, and to the
10 extent that they needed to be modified in the future,
11 we would bring them into full, you know, compliance
12 with the criteria and the goals in the Staff guidance
13 that we would implement, but only on a forward fit
14 basis.

15 So some of these things you're going to
16 see rulemaking again, and that rulemaking will be
17 subject to this category and to all of these criteria.

18 MR. JOHNSON: So a perfect example of that
19 is the station blackout mitigating strategies
20 rulemaking. So there's an order based on that Near-
21 Term Task Force recommendation that deals with making
22 sure that plants are able to maintain and store, you
23 know, whatever.

24 And we had to make decisions. I mean,
25 it's clearly beyond design basis. It's clear, as Dick

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1 said, it's in that other category. We had to make
2 decisions about all the things that are on this slide
3 as it related to that new requirement. We did it.
4 We, the Staff, proposed; the Standards Committee
5 decided to propose to the Commission; the Commission
6 approved.

7 The guidance that we want licensees to
8 apply in order to come back with integrated plans,
9 they submitted integrated plans on how they're going
10 to achieve those requirements in accordance with the
11 internal -- the interim Staff guidance that we issued.
12 We're going to write safety evaluations on those plans
13 where we approve the mitigating strategies the
14 licensees are proposing to implement.

15 So that is, in fact, a part of their
16 licensing basis captured in their FSAR to some extent,
17 certainly captured in our safety evaluations, and
18 we'll oversee that.

19 We made it up. We made it up for that
20 one. We made it up. It turns out, I think, the Near-
21 Term Task Force report would say we made it up every
22 time.

23 What this is trying to do is establish a
24 framework or establish the process by which we don't
25 make it up case by case. We apply that same

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1 consideration with respect to what we'll accept in
2 terms of analysis methods and acceptance criteria and
3 those kinds of things.

4 So it really is, as Dick started, the
5 point you started with, intended to make us more
6 consistent, efficient. It's not going to change. I
7 mean, I think this notion about updating the FSAR
8 really is we're going to be specific about how that
9 happens or requirements, new requirements, that fall
10 in this category.

11 So I don't know if that helps. Just a
12 different way of thinking about it, I guess.

13 CHAIRMAN SCHULTZ: All right. Thank you.

14 MR. DUDLEY: On Slide 12 now.

15 We would recommend -- well, what are the
16 criteria for including a regulation in this category?
17 Well, we recommend putting both adequate protection
18 and safety enhancement rules into the same category.
19 The existence in the new design basis extension
20 category wouldn't change in any way the Commission's
21 discretion and the criteria that they use to determine
22 adequate protection.

23 Likewise the safety enhancement
24 regulations that would be added to this category, we
25 recommend continuing to use the existing criteria and

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1 the Regulatory Analysis Guidelines.

2 The purpose of this graphic is just to
3 kind of illustrate the criteria in the Regulatory
4 Analysis Guidelines that determine when the design
5 extension requirements -- when a rulemaking would be
6 undertaken and when it would be appropriate, based on
7 risk and other things, to not have any regulatory
8 requirements associated with an accident or a
9 condition.

10 The break analysis guidelines depend on
11 the change in CDF associated with the event or the
12 accident, and they're also related to the conditional
13 containment failure probability. So that is some
14 aspect of the defense in depth associated with that.

15 But to integrate Improvement Activity 2
16 into this concept, we envision the possibility -- and
17 please correct me if I get out of whack here -- but we
18 envision the possibility that the defense in depth
19 activity could also be brought into the reg. analysis
20 guidelines as an additional criterion, and that would
21 fit into the design extension category that we're
22 proposing.

23 But by doing that, we could, indeed,
24 increase the safety of facilities by bringing in
25 better defense in depth criteria in addition to the

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1 criteria that are currently in the reg. analysis
2 guidelines.

3 MEMBER STETKAR: Dick.

4 MR. DUDLEY: Yes.

5 MEMBER STETKAR: I'm always intrigued when
6 I see those numbers on the bottom there, delta CDF and
7 CCFP and all of those sorts of things because I
8 usually think they come out of risk assessments. How
9 is the Staff going to make those determinations now on
10 a generic basis because you're proposing this on a
11 generic basis?

12 MR. DUDLEY: Well --

13 MEMBER STETKAR: Are you going to use the
14 SPAR models?

15 MR. DUDLEY: The way we do rulemaking
16 now --

17 MEMBER STETKAR: Yeah, and completely.
18 Are you going to use the SPAR models going forward?
19 SPAR models are not complete. They're not consistent.
20 They don't address by and large Level 2. They don't
21 or very few of them address fires, flooding, seismic,
22 shutdown and low power conditions. So are you
23 proposing to, when you implement this, are you
24 proposing to have a full scope, all hazards, all
25 operating mode SPAR model for every plant in the

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1 country so you can use those models on a generic basis
2 now to determine fleet-wide generically whether a
3 particular concern fits into, you know, which side of
4 these dotted lines they fit?

5 Because that certainly is going to cost
6 the taxpayers quite a bit of money to enhance those
7 SPAR models to achieve that degree of sophistication,
8 and if you use the current ones, in many cases the
9 vent responses, the analysts will look at a SPAR model
10 and say, "Well, gee, the SPAR model really doesn't do
11 this, but if I make some assumptions and I look at the
12 Surry or Peach Bottom PRAs, I will draw a conclusion,"
13 which is not necessarily very holistic going forward.

14 MR. DUDLEY: I'm going to ask for some
15 help here, some of our PRA experts to do that.

16 MR. DINSMORE: This is Steve Dinsmore in
17 the PRA Licensing Branch.

18 I don't think you're going to like this
19 answer that much, but --

20 (Laughter.)

21 MEMBER STETKAR: At least we'll have
22 something on the record though.

23 MR. DINSMORE: We already have a process
24 to do all of these things. Every time we did a
25 rulemaking, we calculate a change in CDF and learn,

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1 and we do cost-benefit analysis. So there are
2 processes in place, and I don't think they use the
3 SPAR models. That would be more of a plant specific
4 type, the first one of Dick's things.

5 So this is kind of continue to use the
6 processes that we have in place to do these
7 evaluations. So we already do them, and we would just
8 continue to do them the way we have been. I don't --

9 MEMBER BLEY: I guess that's a little
10 vague. How do you do them without a PRA when you're
11 using PRA measures to define these things?

12 MR. DINSMORE: I've never done one of
13 these analyses. So I'm not going to be able to answer
14 that specifically, but they do generate some change in
15 off-site dose associated with the proposed new rule or
16 the proposed backfit. How they get that change in
17 off-site dose, they do kind of generic analyses and if
18 it affects LOCAs, they look at the dose that you get
19 from LOCAs and how it can be improved, and then they
20 turn that dose into a cost.

21 MEMBER BLEY: That kind of sounds like
22 what Mr. Stetkar said. You take, you know, Surry or
23 Peach Bottom or something and use it as a surrogate
24 for some generic view of this thing. Is that what
25 we're talking about?

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1 MR. JOHNSON: I'm looking around, and I
2 don't see any of the rulemaking, regulatory analyses
3 folks in the room, and I don't want you to leave with
4 the impression that we don't know how to do it. It's
5 just that we don't have the folks here to tell you how
6 we do it.

7 You certainly know that we consider in
8 terms of the attributes that we look at, in computing
9 the regulatory analysis, we look at the likelihood.
10 So risk enters into that calculation that supports the
11 regulatory analysis.

12 So let me just offer that we'll get you
13 that answer so that your question is satisfied and we
14 scratch that itch, and we'll try to do that, in fact,
15 before the end of the morning. Okay?

16 CHAIRMAN SCHULTZ: What we would like to
17 hear is a description of what is done now --

18 MR. JOHNSON: Yes.

19 CHAIRMAN SCHULTZ: -- as well as we
20 describe what it an approach going forward, what would
21 be done going forward.

22 MR. JOHNSON: Yes.

23 MEMBER REMPE: What is the least you think
24 the models need to be improved to go forward?

25 MEMBER STETKAR: That's right, because the

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1 proposal here is to apply this on a generic basis,
2 which means the agency will need to make decisions for
3 the whole fleet. Now, if this is reactionary
4 responding to a particular event, a particular event
5 happens at a particular plant, and the agency will
6 need to make a decision going forward. Does that
7 event meet the criteria generically, fleet-wide, of
8 satisfying inclusion in this design extension category
9 is my understanding of this proposal.

10 To do that, you need some tools to support
11 that decision making, and at least as long as you're
12 using that delta CDF and CCFP, those tools ought to
13 give you a broad perspective across the whole fleet
14 whether or not that particular event satisfies these
15 criteria.

16 MR. JOHNSON: Absolutely.

17 MEMBER BLEY: The second one of those
18 measures, before you respond to that one, the CCFP is
19 conditional. It depends on what the event is, and I
20 guess this is a place where those other issues of
21 being narrow when we look at a new event that occurs,
22 you want to say what are all the things that can cause
23 this event.

24 Given that this is the event that we're
25 talking about, like loss of power, does that make some

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1 initiators more likely than others?

2 What are the kinds of initiating events
3 that lead to that, and do each of those kinds of
4 initiating events make containment failure more or
5 less likely?

6 So you recall have to dig pretty deeply to
7 do this in a meaningful way, I think.

8 MR. JOHNSON: Okay. I think we understand
9 the question. I would leave you with the point that
10 we didn't intend that the decisions that would support
11 this piece of this criteria going forward are things
12 that we use. We have tools that do this today, and so
13 we need to explain to you how that works and how it
14 would work as a part of this recommendation. I think
15 that's the take-away to your question.

16 MEMBER BLEY: That is.

17 MS. HELTON: Mike, sorry to jump in here.
18 Fred Schofar is on his way over to help address this
19 question.

20 MR. JOHNSON: Okay.

21 MS. HELTON: So as soon as he gets here,
22 we can take a crack at answering this.

23 CHAIRMAN SCHULTZ: Can you identify
24 yourself for the record?

25 MS. HELTON: Oh, I'm sorry. this is Shana

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1 Helton, the Branch Chief in Rulemaking in NRR.

2 Thank you.

3 CHAIRMAN SCHULTZ: Thank you.

4 MR. DUDLEY: May I go to Slide 13 now?

5 CHAIRMAN SCHULTZ: Yes.

6 MR. DUDLEY: Okay. All right. I already
7 said this. We would grandfather the existing beyond
8 design basis requirements unchanged into the design
9 basis extension category. To the extent they needed
10 to be adjusted in the future, we would use the new
11 criteria associated with the design basis extension
12 category so that those rules would evolve to generally
13 have consistent criteria in the future.

14 We would add the ongoing --

15 MEMBER SHACK: Explain that evolution
16 again. I missed it.

17 MR. DUDLEY: Well, to the extent that any
18 of these --

19 MEMBER SHACK: Rules can change.

20 MR. DUDLEY: -- rules that were added
21 unchanged, to the extent that it needed to be modified
22 in the future, we would use these criteria on Slide --
23 which was it? Twelve? I don't know. The criteria in
24 the Staff guidance for the new design basis extension
25 category so that they would be, when they're modified

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1 in the future, brought into consistency with all the
2 other rules in the category.

3 CHAIRMAN SCHULTZ: That's back on Slide
4 11.

5 MR. DUDLEY: I didn't explain that very
6 well, but that was the intent.

7 So the other thing, the question is:
8 well, why is this only forward looking? All right.
9 We do not recommend going back and searching for
10 additional events, scrutinizing the licensing basis of
11 existing facilities as the NTTF recommended under 1.4
12 because we believe that a number of the ongoing
13 rulemakings, and particularly the mitigating
14 strategies rule, and the other work we're doing in
15 NTTF Recommendations 2 through 11 is going to address
16 and investigate a wide range of safety concerns, and
17 we believe that that will implement necessary safety
18 improvements.

19 If you were to go back and identify some
20 new event or sequence that you hadn't thought of
21 before, it's highly likely that the mitigating
22 strategies rule would at least give you partial
23 mitigation for that event. So the existence of the
24 mitigating strategies rules lessens the value of going
25 back and looking for some of these additional

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1 accidents or sequences.

2 As we've said before, we already have
3 processes to generically address these new issues as
4 they arise. The existing plants have performed the
5 IPE and the IPEEE studies for severe accident
6 vulnerabilities, and they have voluntarily addressed
7 a number of those deficiencies, I guess is what
8 they're called.

9 Now, you will hear later when we talk
10 about voluntary initiatives that we're going to
11 recommend taking a look at whether the voluntary
12 implementation was done effectively and whether it has
13 been maintained over time since that activity was
14 done.

15 MEMBER SHACK: But again, it comes back.
16 Take the mitigating strategies, you know. You're
17 finally going to get portable power supplies for
18 hydrogen igniters, which has been around for ten
19 years.

20 MR. DUDLEY: Right.

21 MEMBER SHACK: I suspect that you're going
22 to get a fair amount of action on coolant seal leakage
23 just because it's going to be hard to deal with in the
24 mitigating system, which, again, has been around, and
25 why did we have to wait for an event to decide that

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1 these were important and these were adequate
2 protection issues?

3 You know, why isn't that going to somehow
4 change? Don't we see there was a deficiency there
5 that should be changed, that we didn't have to wait
6 for Fukushima to do these things that we've suddenly
7 now decided are adequate protection, although we
8 thought a lot about them for decades?

9 MR. DUDLEY: Well, you know, I can't
10 really address how the criteria for adequate
11 protection or how that decision is made. We decided
12 that we're not going --

13 MEMBER SHACK: I know, but shouldn't we
14 have some criteria that would catch these things?

15 MR. DUDLEY: Well, we looked at those
16 things before, and we analyzed them, and we used our
17 start criteria and we decided that they didn't meet
18 the threshold. It's not like we missed those items.

19 MEMBER SHACK: I would say maybe we ought
20 to look at the criteria, and you know, I'm not sure
21 we're looking hard enough at the criteria. You know,
22 I would like to think that we --

23 MR. DUDLEY: Hence the fact that we're --

24 MEMBER SHACK: -- we would get these
25 things, you know. When we look at the -- and, again,

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1 you can always dump me off to Mary and defense in
2 depth.

3 MR. DUDLEY: I was going to do just that
4 actually.

5 (Laughter.)

6 MEMBER SHACK: And, you know, so, yeah,
7 just push it down the road. You know, maybe it will
8 catch it, and I kind of agree with that, but you know,
9 all of this is wonderful. I mean, I really think when
10 you look at this you sort of wonder why we weren't
11 writing rules that had all of these requirements
12 before because they're clearly things that we really
13 should have been doing. How we ever wrote 50.54(hh)
14 without these considerations, you know, is really a
15 black mark on us. You know, that wasn't done back in
16 pre-history. that's relatively new.

17 So this is all great. I'm still worried
18 about how we identify events to go in this category,
19 and that's all going to come to Mary now, and she's
20 going to give me some diagrams and stuff.

21 MR. DUDLEY: Well, not necessarily because
22 one of the examples you gave, the backup power of the
23 hydrogen igniters, one of the reasons we didn't get
24 that is because licensees came in and they had a
25 voluntary initiative for some kind of elementary

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1 portable generator or something that caused us to fail
2 the backfit rule test with this voluntary initiative.

3 MEMBER SHACK: Yeah, but with the Mark 3s,
4 you never made it with or without it.

5 MR. DUDLEY: Okay.

6 MEMBER SHACK: And now it's, you know,
7 suddenly included, which is a good thing.

8 MR. DUDLEY: Well, we're trying to -- the
9 activities associated with volunteer initiatives,
10 we're trying to adjust some things that we think --

11 MEMBER SHACK: I'll agree. Those all look
12 wonderful, too. Again, you sort of wonder why we
13 haven't been doing it that way.

14 There's lots of things I like here. I
15 still think we're short of this fundamental notion of
16 only looking reactively and how we're going to somehow
17 bring this defense in depth, and I guess I should wait
18 for Mary. So I'll stop here.

19 MEMBER SKILLMAN: Well, let me build on
20 Bill's just for a minute because I think it's clear in
21 our minds we saw a huge physical event in the last
22 week, and if that tornado instead of striking where it
23 did had come rumbling over Callaway or Wolf Creek or
24 Cooper or Fort Calhoun or Duane Arnold, right in the
25 belt, we might we having a different discussion today,

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1 and it gets to Bill's question on design criteria.

2 For years and years we took comfort in
3 General Design Criteria 2, all these great things we
4 were going to design against, but maybe we didn't get
5 it right in terms of the magnitude of some of the
6 phenomena that the plants are exposed to.

7 A couple of examples, TMI had to reassess
8 its water level because of flooding in the Susquehanna
9 River.

10 There's probably a question at For
11 Calhoun: who controlled the river? The people at the
12 station didn't. They just watched the water come up.
13 Might it be that the Corps of Engineers had some
14 culpability there?

15 We've talked around this table of flooding
16 in the Tennessee River, with all the plants that are
17 susceptible to sequential dam failures, and there's
18 good, old General Design Criteria 2 we kind of take
19 credit for, plants designed against floods.

20 Maybe the way we design criterion or the
21 criterion in general has not been as thorough as it
22 should have been, and so you're going to add a
23 category. These normally get handled as programs at
24 the site. That's the way utilities handle things like
25 SBO or ATWS or the other portions of the rulemaking

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1 that have been added on, when in reality there are
2 fundamental questions down in General Design Criteria
3 2 where perhaps we've not been as thorough or
4 effective or expansive as we need to be.

5 MR. DUDLEY: I'm not an expert on external
6 hazards, but I thought I heard that our tornado
7 protection was very robust, and so I'm not really sure
8 that the tornado that they had that you referred to
9 would cause substantial damage at existing sites that
10 meet the current criteria.

11 The flooding criteria and seismic criteria
12 perhaps are a little less robust, and we are looking
13 at flooding criteria and seismic criteria right now in
14 the other Fukushima recommendations.

15 So for the purpose of the Recommendation
16 1, we've deferred all of the flooding and seismic
17 activity to Recommendation 2-1 and 2-2, I believe, and
18 in the event that they, perhaps likely event, that
19 they are going to change the criteria, then that
20 changed criteria, that may become a design extension
21 rule, and we would place it in a category, and then we
22 would have appropriate treatment requirements for
23 those changes in those additional enhancements that,
24 you know, might come about as a result of changing the
25 requirements for seismic or for flooding.

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1 MR. JOHNSON: Yeah, I think that Dick's
2 got it exactly right. So I talked about the fact that
3 there were sort of five categories of things that came
4 out of the Near-Term Task Force, and that one of them
5 being enhancing protection and looking at external
6 events and the kinds of things that are captured in
7 GDC-2, for example, and that, of course, we're doing
8 work.

9 We should have been looking at existing
10 plants it turns out with respect to more modern
11 methods to see what has happened in terms of what you
12 would do with the analysis from seismic and what you
13 would do with your analysis on the licensing basis and
14 for flooding, for example, and other hazards, external
15 hazards.

16 So we'll capture that. That's been
17 captured as one of the actions. There was a Tier 3
18 Fukushima item that deals with setting up a periodic
19 reevaluation, right, that makes that a living
20 requirement.

21 So I think with respect to those kinds of
22 things we have as a result of the actions that were
23 taking on Fukushima, we're addressing those, but I
24 don't want to use that as the answer to take away from
25 what I think is your more fundamental, more important

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1 question that I think you're asking, which is: how do
2 we make sure that whatever fixes we do to the
3 framework are sufficiently broad so that we look for
4 the next one of these things and we take actions
5 appropriate to address them so that we're not reacting
6 to them.

7 And in a number of instances I think what
8 you're going to hear, I think our perspective is that
9 there have been instances where we didn't take the
10 action and we didn't move forward with regulatory
11 action because if we had looked at defense in depth
12 differently, there were instances where we would have
13 done more, but we didn't.

14 And so I think, again, it's when you
15 bundle all of these changes to the framework that
16 we'll be able to better answer your question, but at
17 the end of the day if we haven't answered your
18 question, I hope you continue to ask it because I
19 think in our hearts of hearts, that's where we want to
20 go with respect to what we're doing with them,
21 frankly. We want to be able to answer that question.

22 CHAIRMAN SCHULTZ: Michael, you've whetted
23 our appetite for defense in depth, and we can't wait
24 to get to Mary's presentation

25 MEMBER REMPE: Before you --

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1 CHAIRMAN SCHULTZ: Go ahead, Joy.

2 MEMBER REMPE: This slide though, you have
3 like a complaint about the new reactors are required
4 to have plant specific PRAs, but they're not required
5 to submit the PRAs is one of the things we've noticed
6 in our interactions, and sometimes when they
7 voluntarily submit them, the quality of them is
8 inadequate.

9 Have you thought about perhaps putting
10 more rigor in the PRAs that they're required to have?

11 MS. DROUIN: I'll take a shot at that one.

12 We have been working very hard with ASME
13 and ANS in developing PRA standards to get to this
14 very question, and ASME and ANS have issued a PRA
15 standard for operating reactors, for PRA for operating
16 reactors. They are very close to issuing a standard
17 for a PRA for plants that are in, you know, the design
18 certification stage.

19 Once the new reactor becomes operational,
20 then it falls under the operating PRA standard.

21 MEMBER REMPE: Okay.

22 MS. DROUIN: And then the other thing that
23 the standard, you know, does require is that all of
24 the plants are required to do an external peer review
25 of their PRA, and the NRC not only participates in the

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1 development of these standards, but we do a very
2 detailed review of the standard, and we endorse it
3 under Reg. Guide 1.200.

4 So you have seen a lot of the revisions to
5 the standard, you know, based on the endorsement from
6 the NRC taking certain exceptions, you know, and
7 recommendations to improving these standards, and it
8 will continue to live on forever in terms of
9 constantly looking at it and improving these
10 standards.

11 MR. MIZUNO: This is Geary Mizuno, NRC's
12 Office of the General Counsel.

13 I agree with Mary, and I just would like
14 to add one additional point, which is that the NRC can
15 require or have its expectations with respect to the
16 quality and completeness of PRA regardless of whether
17 the PRA is submitted to the NRC physically or
18 electronically or not.

19 If we're going to require it and be
20 maintained at the plant, we can require it to be
21 maintained at the plant and meet our expectations. So
22 the question about submission to the NRC is really
23 completely separate and subject to a different set of
24 considerations over the question about whether that
25 PRA, even if maintained at the plant, needs to meet

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1 NRC's expectations.

2 MS. DROUIN: And I would just like to
3 elaborate on your statement about them not submitting
4 the PRA to the NRC. When you go look at Chapter 19,
5 I believe, there's a whole list of things that they
6 are, you know, to submit on that PRA. So all of the
7 most important stuff that as a regulator we would want
8 to know coming out of that PRA, you know, is listed.

9 But, no, they don't have to submit those
10 20 -- and I'm just throwing that number out of the air
11 -- 20 some odd volumes because all the documentation
12 behind the PRA is, I mean, gigantic. So I don't know
13 what we would do with all of that even if we had it.

14 But the things that we want to know from
15 the PRA, you know, they are required to submit that.

16 MEMBER STETKAR: I'll make this brief,
17 Steve.

18 MR. DINSMORE: go ahead.

19 MEMBER STETKAR: We're walking a fine line
20 here, and none of the words that have been stated
21 accurately characterize the situation. The material
22 that's submitted in Chapter 19 is a summary of results
23 of the PRA. It does not give you confidence of what
24 was omitted from the PRA. It's the results of what
25 was analyzed in the PRA that was used to give you

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1 those results, period. That's all that's there.

2 MS. DROUIN: Oh, it's more than that.

3 MEMBER STETKAR: Mary, I've looked at
4 several of them. so I'll just make that statement.

5 On the other hand, you're absolutely right
6 that the PRA that is performed by the time the fuel
7 load is accomplished must satisfy all of those
8 requirements that you listed. That is the
9 requirement, and it must have an independent peer
10 review.

11 It is not submitted to the Staff for a
12 formal review unless the PRA is later used in some
13 sort of licensing application when the Staff, indeed,
14 would look at the PRA supporting that licensing
15 application, and the licensee -- at that time it is a
16 licensee -- is required to keep the PRA up to date,
17 updated every, I think, is it four year? Three or
18 four years or something like that.

19 So there are actual regulatory
20 requirements for both the quality and the maintenance
21 of that PRA in Part 52.

22 MEMBER BLEY: And it's available for
23 audit.

24 MEMBER STETKAR: And it's available the
25 audit. Staff can go in there at any time and audit

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1 that PRA, and at that time they can look at level of
2 detail and completeness and things that might have
3 been omitted from the design certification PRA if you
4 want to characterize it that way.

5 So as I said, it's kind of between a
6 little bit what we heard here.

7 MR. DUDLEY: I'm going to go to the next
8 slide now?

9 (Laughter.)

10 CHAIRMAN SCHULTZ: Well, I just wanted to
11 make one comment on the last bullet then. That seems
12 to set an expectation that if we had more resources at
13 the NRC, we would be often doing more associated with
14 searching for events and other elements to broaden our
15 search for things that we want to examine and include.

16 I'm not sure based on the other bullets
17 that that, in fact, is the right conclusion. So I'm
18 not sure that resource limitations is a reason why
19 we're not searching. Rather it's the more important -
20 - if it were important, I'm sure resources would be
21 found to delve into more activity here, but just a
22 comment.

23 MR. JOHNSON: I think it's just the
24 reality of what we deal with in terms of the demands
25 on that skill set, for example, our resources and

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1 licensee resources. Our focus, our continuing ongoing
2 focus on operational safety, so for example, the folks
3 who we could throw at this in terms of looking in the
4 past for things that we might want to bring forward
5 are also the folks that we wanted to have at the
6 fingertips of the regions and making decisions, real
7 decisions, real time decisions about the operational
8 safety of plants and issues that have been found.

9 So it's not the overriding factor, but
10 it's one of the things that we have on our minds
11 about, from our perspective, about whether or not the
12 benefit that you would get from doing that is
13 commensurate with the cost.

14 CHAIRMAN SCHULTZ: That's right. So it's
15 a matter of appropriate balance.

16 MR. JOHNSON: Yes, absolutely.

17 CHAIRMAN SCHULTZ: Thank you, Mike.

18 MEMBER REMPE: Actually, I have another
19 comment to what John was saying. If you're going to
20 wait till after you load fuel for a complete PRA but
21 you've already been looking at design basis extension
22 requirements, isn't that a bit late in the process?

23 MEMBER STETKAR: We've had that
24 discussion, and that's the way the regulations are
25 written.

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1 MR. MIZUNO: This is Geary Mizuno again.

2 I just want to bring to the ACRS'
3 attention that you have to understand that the current
4 combined licenses that have been issued have reference
5 design certifications, and under Subpart B of Part 52,
6 the design certifications are supposed to have PRAs
7 while the new design certifications -- so the concept
8 here, okay, is that the design certification has a PRA
9 to support the design that's certified, and that is
10 why when a combined license is issued, the full PRA to
11 address operations doesn't need to be complete at the
12 time of issuance of the combined license. It can be
13 developed during the time of construction and so it
14 won't hold up the construction.

15 But certainly by the time you load fuel,
16 the complete PRA to address operations -- and I'm
17 using "operations" in the very broad sense -- must be
18 complete to ensure that the safety of locations are
19 reflected in the PRA for purposes of operation.

20 So that's basically the way that Part 52
21 is constructed. Now, I believe that even though the
22 requirement for the PRA was not inserted into Subpart
23 B until 2007, as a practical matter, the current
24 design certifications, the later ones, the AP1000, do
25 have design specific PRAs.

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1 MEMBER STETKAR: One last thing, and then
2 I will keep this less than a minute.

3 We're not talking about the existence of
4 something called a PRA. We're talking about the
5 existence of something that's a full scope PRA that's
6 developed to the quality that one would expect of
7 PRA. It's like saying I have a vehicle which is a
8 skateboard with a little motor on it compared to a
9 Ferrari. You can both of those a vehicle.

10 The design certification PRAs, the staff
11 has come down on record saying that they only need to
12 at a minimum meet quality capability Category 1, for
13 example, which is really pretty minimal. It's a de
14 minimis requirement of something in the PRA.

15 By the time that operational, if you want
16 to call it, PRA is developed, there are more explicit
17 quality requirements applied to it. That's, I think,
18 Joy's point in terms of the evolution of that thing
19 that's called a PRA.

20 CHAIRMAN SCHULTZ: Thank you, John.

21 Michael, thank you for your participation
22 today.

23 MR. JOHNSON: Thank you.

24 CHAIRMAN SCHULTZ: Appreciate it very
25 much.

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1 Dick, can we go to the summary slide?

2 MR. DUDLEY: Yes.

3 CHAIRMAN SCHULTZ: Thank you.

4 MR. DUDLEY: Real quickly.

5 CHAIRMAN SCHULTZ: You understand some of
6 our concerns that have been elaborated.

7 MR. DUDLEY: I do. I do.

8 So just to summarize, this design basis
9 extension category would be generic. It would have
10 both adequate protection and safety enhancement
11 requirements within it. I would not have a common set
12 of treatment requirements. It would not require
13 licensees to have a plant specific PRA. It would
14 apply to both current and future licensees and
15 applicants. Existing requirements, beyond design
16 basis requirements would be grandfathered into it
17 without changing them, only if we changed them in the
18 future. Then they would be consistent with all the
19 rest of the criteria in the category.

20 It would be a forward fit application
21 only, applying to new information and new rules issued
22 in the future, and it's simple enough though that it
23 can implement it right now on the ongoing Fukushima
24 rulemakings, and it's a very low cost approach for
25 NRC, and probably even lower. It's a negligible cost

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1 option, I believe, for licensees, but NEI can maybe
2 comment on that later.

3 And that completes my discussion on
4 categorization. There was a question about how we do
5 regulatory analyses.

6 MR. BAHADUR: Mr. Chairman, this is Sher
7 Bahadur. I am the Deputy Director, Division of Policy
8 and Rulemaking at NRR, and I have my staff, Fred
9 Schofer, who is the cost-benefit analysis expert, and
10 in talking with you he'd like to answer the question.

11 The question was on the SPAR model, but if
12 the question could be repeated, then Fred could
13 respond.

14 Fred.

15 MR. CARUSO: Yes. Hello.

16 CHAIRMAN SCHULTZ: It's on. We hear you.

17 MR. CARUSO: This is Mark Caruso from the
18 Office of New Reactors, and I'm going to take a crack
19 at this first, and then Fred is going to provide some
20 additional information.

21 So we're talking about these numbers that
22 are in the guidelines for regulatory analysis, the
23 dump to CDF, dump to conditional core managed
24 probability. Remember the backfit process for issues
25 that the Staff wants to pursue as cost-justified

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1 safety enhancements as opposed to requirements for
2 adequate protection, there's basically a two-step
3 process, and the first step is for the Staff to decide
4 whether or not the requirements that they're proposing
5 would produce substantial additional protection, and
6 those are the words that are in the regulation.

7 So back when these guidelines were
8 developed there was thought as to how you do do.
9 What's the basis for that? And there was an attempt
10 to try and make it risk informed by putting in these
11 guidelines on how much improvement in risk you might
12 get from a given requirement.

13 So to do this you really need to take the
14 requirement you have, and you have to somehow map it
15 to a risk assessment or risk information to come up
16 with an estimate of what the change is. And I have to
17 admit this is probably more art than it is science,
18 some science. The Staff will use whatever risk
19 information it has to look at a protection generic
20 requirement. Remember there are no general PRAs.

21 So it may look at SPAR models. It may
22 look at PRAs that have been done. It may demand
23 information from licensees to provide information, but
24 it's intended to help the Staff come to this decision.

25 Now, this assessment, this analysis, this

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1 determination of whether or not there's substantial
2 additional protection is then reviewed by the
3 Committee, Committee for Review of Generic
4 Requirements.

5 My experience with this was back in the
6 '90s when we put the first shutdown rule up, and at
7 the time I was heavily involved in that. There were
8 no shutdown PRAs, but we were asked to actually try
9 and come up with these numbers and map things such as
10 if I put a safety program in place at a plant to cover
11 safety during outages, how much does that change the
12 core damage frequency?

13 Well, we all threw up our hands and said,
14 "Ah," but we did it anyway. We tried to come up with
15 sequences. We used information from the precursor
16 studies, whatever you have. So that's the best we
17 have. It's certainly -- you know, there's an attempt
18 here to risk inform that decision making process, but
19 it's by no means a, you know, detailed analysis, and
20 the issues you raise are good ones. I mean, you may
21 not have a lot of PRA information.

22 So that's pretty much it. if you can make
23 the judgment, and it is really in the end a judgment,
24 that's information that those risk estimates are
25 helpful, but there are other aspects that go into it,

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1 qualitative aspects, and in the end it is a judgment
2 and it is challenged in many cases.

3 So if you decide that it is something that
4 will achieve substantial additional protection and
5 there's agreement there, then the staff moves on to
6 the cost-benefit analysis.

7 MEMBER BLEY: I remember when an old
8 friend and colleague of mine used to say generic
9 plants have no risk, and that's right on a couple of
10 accounts. When you really dig into risk, you find it
11 comes from the details of a plant's design and how
12 it's operated, and when you take the generic look, you
13 don't have all those details and you miss the things
14 that are there.

15 So we're kind of teasing ourselves by
16 saying that this generic approach is really risk
17 informed. It's maybe risk hinted, but it's far from
18 risk informed. And if we were going to hear a little
19 more detail, that's welcome.

20 MR. CARUSO: Well, I was just trying to
21 answer the question about the numbers that are used in
22 regulatory analysis, but I think the question --

23 MEMBER BLEY: I think you did.

24 (Laughter.)

25 CHAIRMAN SCHULTZ: I think we have a

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1 pretty clear picture.

2 MR. CARUSO: I still owe you more
3 information on why we're not pursuing the plant
4 specific PRA route, which is what you're driving at.

5 MEMBER BLEY: Yes.

6 MR. CARUSO: And we've already said that
7 we recognize that in any generic approach, the
8 downsides of that is that there could be some plants
9 out there with things that you'll never capture
10 because you haven't looked at it with a plant
11 specific, you know, plant specific risk glasses, i.e.,
12 PRA.

13 CHAIRMAN SCHULTZ: Dick, I think we're
14 going to have to take this under advisement for future
15 discussion.

16 MR. DUDLEY: Sure.

17 CHAIRMAN SCHULTZ: Because it's certainly
18 an area where we feel we need more information and
19 clarification as to how the process would --

20 MR. DUDLEY: Okay.

21 CHAIRMAN SCHULTZ: -- develop and how it
22 would wind up supporting such a concept. We don't see
23 it at this point.

24 MR. DUDLEY: Okay. Thank you.

25 MEMBER BLEY: Can I go back to your last

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1 slide because I might have misunderstood something
2 earlier? I think you said as you went through this
3 that this approach will not have defined treatment,
4 and I thought earlier when you first introduced this
5 approach you talked some about how you would go about
6 defining the treatment categories.

7 MR. DUDLEY: Maybe I misspoke, but it
8 would not set a single set of common treatment
9 requirements. We would produce guidance, internal
10 Staff guidance describing a spectrum of treatment
11 requirements from which the rulemaker would select
12 appropriate treatment for the particular rule.

13 MEMBER BLEY: And guidance on what would
14 be appropriate.

15 MR. DUDLEY: Yeah, for the particular rule
16 that he or she were working on.

17 MEMBER BLEY: Have you done any work on
18 that yet or is this just -- I mean, this would be
19 useful for many cases where we've been talking about
20 --

21 MR. DUDLEY: Yes.

22 MEMBER BLEY: -- special treatment for new
23 designs from --

24 MR. DUDLEY: Well, I mean, there are
25 things out there that we would draw upon, but we

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1 haven't -- as a working group, we're not going to
2 really invest that effort until the Commission agrees
3 with us that we should proceed.

4 MEMBER BLEY: But the truth is if they
5 pick any of these three approaches you described, this
6 issue is really important.

7 MR. DUDLEY: Well, even if they don't take
8 any of these --

9 MEMBER BLEY: It's still important.

10 MR. DUDLEY: -- three, yeah, like it's
11 still important.

12 MEMBER BLEY: Yeah.

13 CHAIRMAN SCHULTZ: Okay. I want to stick
14 to the schedule as best we can with respect to the
15 break time, which is in ten minutes, Mary. So as you
16 start your presentation, you've got a first part of
17 introduction, and then you'll get to some examples,
18 and I'll pick a time in that discussion as I look at
19 the clock directly better than you; I'll let you know
20 when we'll need to break, and I will cut the break a
21 little bit shorter than advertised. It's 20 minutes.
22 We're going to go for 15.

23 MS. DROUIN: Okay.

24 CHAIRMAN SCHULTZ: So let's start now and
25 break at 10:10.

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1 MS. DROUIN: Slide 16.

2 We're going to provide you with some
3 detail here, but you know, the purpose of the detail
4 is to illustrate the approach, and so we beg you don't
5 get hung up on the words because we're in the midst of
6 vetting all of this, but we wanted to be able to give
7 you some idea, you know, of the level of detail of
8 what we're trying to accomplish. So we really didn't
9 want to get into a debate on terminology and try and
10 stay to the concept.

11 So if we can go to Slide 17.

12 You know, why are we, you know, addressing
13 defense in depth as an improvement activity?

14 CHAIRMAN SCHULTZ: You can use that if you
15 want and we can do it.

16 MS. DROUIN: Okay. And we really wanted
17 to tell you when you look over the history of defense
18 in depth, we really felt that it is very important to
19 try and achieve consistency in the concept, the
20 approach, and the terminology so that we have a common
21 understanding regarding defense in depth, and that is
22 a major impediment right now, is that when you go back
23 and you look over the history, there is some
24 similarities on the concept, but we get bogged down on
25 the terminology, and everybody saying it a little bit

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1 differently and having tremendous miscommunication.

2 And we think, too, once we get that
3 straightened out to have Commission approval regarding
4 this defense in depth concept approach and structure
5 because when you do go look over the history and you
6 see discussions on defense in depth even in the NRC
7 literature, it's like a couple of sentences, and
8 defense in depth deserves a lot more than just a
9 couple of sentences.

10 In coming up with our recommendation, we
11 just wanted to tell you we've done a lot of research
12 and looking at the literature, and this is just a
13 sample of the history and this is just, except for
14 IAEA and Idaho National Labs' work, this is all really
15 internal to the NRC, and you know, we went back as far
16 as 1957, which was the earliest place in WASH-740
17 where defense in depth was discussed, to the RMTF
18 NUREG-2150 where there is also some discussion of
19 defense in depth, and there's a tremendous amount, you
20 know, in this literature, and in our SECY paper we've
21 tried to capture this in an enclosure that's quite
22 extensive that summarizes all of this.

23 Now, these are things where I've listed
24 here that have some level of discussion of defense in
25 depth, but there's also what's not listed here is the

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1 number of regulatory guides, of SECY papers, of NUREGS
2 that just use the term "defense in depth."

3 So it is something that's prevalent and we
4 feel that, you know, the time has really come to try
5 and put a handle, you know, on what do we mean by
6 defense in depth and, more importantly, how do we
7 implement it, and how do we decide that we have
8 sufficient defense in depth?

9 And those are the key things that, you
10 know, we're trying to achieve.

11 Slide 19.

12 You do have, even though, you know, you do
13 have some similar concepts, you know, in the sense
14 that people will talk about, you know, there should be
15 multiple layers. There should be multiple barriers.
16 there should be multiple lines of defense. There
17 should be multiple echelons. I'm just using -- these
18 are all the different words, but you know, this
19 concept of having things multiple is a very similar
20 concept that goes through the whole history of defense
21 in depth. But how people define those, what those
22 multiple things are can vary extensively.

23 And then, again, I've already said there's
24 lots of confusion and misunderstanding because of the
25 inconsistencies in terminology, and I'm sure if we

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1 polled everybody in this room we would get very
2 different views in how they would explain what defense
3 in depth is.

4 So how is, you know, our approach to
5 dealing now with just trying to communicate what is
6 defense in depth, not yet how to implement it, but you
7 know just communicate what it is. So we're trying to
8 approach it in a very logical, systematic manner
9 because we do feel it's very important to achieve
10 consistency, and also to do it in a hierarchical
11 structure from a top down approach.

12 Now, and I will get to this at the end of
13 the presentation, to show you how what we're doing
14 here on NCTF Recommendation 1, how it also fits in
15 with RMRF because the number one recommendation from
16 RMRF was to develop this risk management regulatory
17 framework of which the biggest piece of it is defense
18 in depth, and that piece goes across agencies. We're
19 just narrowing here on reactor safety as part of our
20 scope.

21 But all of this has to be consistent and
22 work together. So, you know, there would be an
23 overall policy statement for the RMRF, a definition
24 based on the overall policy, objectives and
25 principles, and I'm going to get into tall of these,

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1 you know, levels of defense to accomplish the policy
2 and the objectives and principles, and then ultimately
3 a process with decision criteria to assure that
4 sufficient defense in depth has been achieved.

5 MEMBER BLEY: So from this slide I take it
6 what you're going to show us next is highly linked to
7 what's in the RMRF?

8 MS. DROUIN: Ultimately, yes. The next
9 slide, Slide 21, is showing how this is all -- it's a
10 very high level picture. We're going to show a very
11 detailed one when I talk about the relationship
12 between the two programs.

13 But everything in this blue box would be
14 in thee policy statement. So there would be an
15 overall generic policy on the risk management
16 regulatory framework talking about the mission, the
17 objectives, the risk management goal and the decision
18 making process, and then based on that, one important
19 element of that would be the overall generic policy on
20 defense in depth, and it would talk about the
21 definition, the objectives, the levels of defense and
22 decision criteria.

23 Now, what's in those yellow boxes is
24 what's being worked on on the RMTF. Now, the policy
25 statement on the defense in depth falling out of the

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1 overall generic policy then would be the policy for
2 each program area, and so what you see there in green
3 is what would be for the reactor area, and then you
4 see to the right the orange box, and there would be
5 comparable policies for each of the program areas,
6 talking about defense in depth, how it relates to
7 materials, how it relates to waste, et cetera.

8 So what I'm going to focus in on today is
9 how we're viewing defense in depth for the reactor
10 and, you know, what do we view as the definition; what
11 do we view as objectives and principles and what the
12 levels and how all of this fits into your decision
13 criteria in implementing defense in depth.

14 CHAIRMAN SCHULTZ: So, Mary, what I just
15 heard you say is that the yellow box, which has a
16 definition for defense in depth, is not what we're
17 targeting to in this effort, but it's where we're
18 targeting a subset related to that, which is going to
19 focus on the defense in depth definition for the
20 reactor program safety area. Is that true?

21 MS. DROUIN: Yes, but the two working
22 groups are working together. So as we formulate this
23 overall generic policy, we're getting information
24 from NTTF, and we're feeding information back. So
25 we're not doing this in isolation, and we have common

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1 people in both working groups, you know, to make sure
2 that at the end of the day this all fits together.

3 MEMBER STETKAR: Mary, one quick one
4 because I was going to ask this earlier. You've now
5 partitioned the thing up appropriately. When you say
6 "reactor," do you mean the thing that is included in
7 some pressure vessel that generates some heat that
8 eventually produces electricity, period?

9 do you include also the spent fuel, for
10 example, at that reactor facility in that green stream
11 on the left of your slide?

12 MS. DROUIN: the spent fuel pool really
13 falls under waste, I believe.

14 MEMBER STETKAR: Okay. So that's over in
15 the orange part?

16 MS. DROUIN: Yes.

17 MEMBER STETKAR: Okay. Thank you.

18 I don't understand that, but that's okay.

19 CHAIRMAN SCHULTZ: Me either.

20 MEMBER STETKAR: I just wanted to make
21 sure we had that on the record.

22 MEMBER ARMIJO: When you said reactor
23 program area, I was thinking you were talking about
24 nuclear power plant, and everything in that nuclear
25 power plant that affects safety.

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1 MS. DROUIN: Yes, but -- but we are
2 aligned. You know, that's just an artifact, you know,
3 of how the NRC -- when we draw the lines.

4 CHAIRMAN SCHULTZ: Well, that's why I
5 brought it up because we have a particular focus
6 associated with Recommendation 1, and we don't want to
7 have later the lines blurred as others define how
8 they're going to meet up with a generic defense in
9 depth definition, which I am concerned might be
10 somewhat vague.

11 MS. DROUIN: Well, on the RMRF Working
12 Group, all the offices are represented. So we are
13 working as a holistic body, and as I said, you know,
14 that information is fed back to NTTF, and we have
15 common people. So we are getting the benefit, you
16 know, of what we're going to be doing in these other
17 program areas because, you know, we want to make sure
18 whatever comes out of Recommendation 1 for reactors,
19 you know, is consistent, and this all fits together
20 in, you know, our overall view at a high level and for
21 the specific regulatory program areas, that it all
22 works together.

23 CHAIRMAN SCHULTZ: Okay.

24 MEMBER ARMIJO: Mary, just let me ask one
25 question. The yellow box, the overall generic policy

1 of defense in depth, and then that defines -- it
2 defines it for reactors, let's say for high level
3 waste if we ever deal with that, low level waste,
4 other activities. Do you anticipate it would be
5 significantly different in these different areas, the
6 requirements for defense in depth or the -- or the
7 levels?

8 MS. DROUIN: Well, I'm going to get a
9 little bit ahead of myself, but I'll just do it real
10 quick. You know, the generic policy may tell you you
11 need lines of defense. That's what we would say, you
12 know, perhaps generically. You need to have multiple
13 lines of defense that do these things.

14 However, on the reactor we may say we need
15 four lines of defense whereas maybe over in the ways
16 they say, "Well, we need, you know, to work for us,
17 it's three lines of defense."

18 MEMBER ARMIJO: Okay. You answered my
19 question. That's exactly what I was hoping you'd say.

20 CHAIRMAN SCHULTZ: Mary, let's leave this
21 slide on while we take a break.

22 MS. DROUIN: Okay.

23 CHAIRMAN SCHULTZ: And we'll come back.
24 I promised a 15 minute break so I'm afraid I'll move
25 it back to an endpoint to the break at 10:30.

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1 (Whereupon, the above-entitled proceedings
2 went off the record at 10:12 a.m., and was resumed at
3 10:30 a.m.)

4 CHAIRMAN SCHULTZ: I'll bring the meeting
5 back into session and we'll pick up with Mary's
6 presentation.

7 I did want to clarify our request to you,
8 Dick, before we proceed, and that is with regard to
9 the discussion we did have on the design extension
10 category, and we appreciate the additional
11 clarification of the staff, but what we talked about
12 there was how we have done things in the past, and I
13 believe what the Committee would like to hear in the
14 next Subcommittee and our discussions going forward is
15 how do you justify that what we have done in the past
16 is going to step forward and provide a good definition
17 and categorization methodology to allow us to proceed
18 forward or are there changes that, in fact, do need to
19 be made in terms of what is brought to the process to
20 identify again what the design extension category is
21 and what is in there.

22 MR. DUDLEY: thank you for putting that on
23 the record.

24 CHAIRMAN SCHULTZ: Mary, let's proceed
25 then with your presentation.

1 MS. DROUIN: Okay. On Slide 21, as I
2 said, the green area shows you what we are working on
3 in the NTF Recommendation 1 Working Group, and we've,
4 you know, given thought to this and now remember that
5 our recommendation is that -- to the Commission -- is
6 that a policy statement should be developed, and it
7 should address these things.

8 It is not within the scope of NTF to
9 develop that policy statement, but we're trying to
10 give the Commission at least some idea of the level of
11 detail of what we mean that should go into the policy
12 statement and into the decision making criteria.

13 So if we go to Slide 22, and these are
14 one-to-one correspondence with what we saw in the
15 green boxes. So an example policy, you know, the
16 problem is when we say policy statement, there's all
17 different statements in this policy statement. So I
18 was struggling with, you know, how to present this so
19 that, you know, it was understood that all of this
20 stuff is in the policy statement.

21 But anyway, in the policy statement there
22 would be some type of statement, you know, something
23 of the order of, you know, defense in depth approaches
24 used to provide reasonable assurance of public health
25 and safety from the operation of the reactor of a

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1 nuclear power plant.

2 So that was set, you know, at the high
3 level, you know, the tone, and the objectives of what
4 we're trying to achieve, and then the next layer down
5 would come in and have something on the order of
6 defense in depth as a strategy that employs successive
7 levels of defense and safety measures in the design,
8 construction, operation of the nuclear power plant to
9 ensure appropriate barriers, controls, and personnel
10 are in place to prevent, contain, and mitigate
11 exposure to radioactive material.

12 Then as we go along we're going to get
13 more and more detailed as we develop, you know,
14 starting at the high to get down into the details of
15 what would be in the policy statement.

16 So if we go to Slide 23, an example, you
17 know, of the objectives and the principles. The two
18 biggest objectives, you know, is to compensate for
19 uncertainties, and we want to be able to make the
20 power plant, you know, more tolerant of failures and
21 external challenges. So this is adding somewhat the
22 depth to your defense in depth because we do recognize
23 you've got a body of requirement, but we want to make
24 sure that, you know, they are designed to deal both
25 with uncertainties and that the plant can ride

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1 through, you know, failures and challenges.

2 And then imposed on those objectives and
3 trying to achieve that, we think that there would be
4 a set of principles that you have to meet regardless
5 of what level of defense that you're trying to
6 achieve. You know, key safety functions are not
7 dependent upon a single element, You know,
8 uncertainties in your system structures and components
9 and human performance are accounted for.

10 Application of conservative codes and
11 standards; high quality; system redundancy; defenses
12 against potential common cause.

13 Now, some people may call some of these
14 principles. Some of them may be called safety
15 measures. So, you know, what we need to distinguish
16 is which of those that we think are fundamental
17 principles versus a safety measure for meeting a level
18 of defense, and what I mean by that is we go to Slide
19 24, is that for a reactor for defense in depth, we
20 think that there's four successive levels of defense,
21 is what we propose to define.

22 And the first one would be event
23 preclusion. Now, we recognize you can't preclude
24 event, but this is a goal. So you would want your
25 design, you know, such that you could preclude as best

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1 you could; have safety measures that would preclude
2 events that could challenge safety.

3 And given at that level --

4 MEMBER BROWN: Mary, does this exclude
5 external events? I mean, obviously you can't preclude
6 a hurricane from hitting or a tornado from hitting.
7 So when you say event preclusion, that made me think
8 that what you're doing is restricting this to the
9 range of those events would occur within the plant,
10 like a pipe breaks or a pump fails. You get a leakage
11 or you get -- I don't know -- a valve that stays open
12 or something like that.

13 Is that --

14 MS. DROUIN: Okay. A hazard in my
15 terminology is not an event. It's a hazard. You
16 know, an event is once you have the hazard occur --

17 MEMBER BROWN: Oh, okay.

18 MS. DROUIN: -- it's going to cause some
19 events.

20 MEMBER BROWN: All right. So the tornado
21 hits and causes. That's the hazard, and then the
22 event occurs.

23 MS. DROUIN: Yes.

24 MEMBER BROWN: Okay. All right. Thank
25 you.

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1 MS. DROUIN: Good clarification.

2 And given that, you know, you failed with
3 that first line of defense, then you want the next
4 line of defense, and you want safety measures that
5 prevent the event from progressing to core damage.

6 And if that fails, then you want safety
7 measures that would prevent radioactive releases from
8 the containment and, you know, given that that fails,
9 you want some kind of release mitigation. You want
10 safety measures that would protect the public from the
11 effects of the radionuclide releases.

12 So, you know, the lines of defense cover
13 from the initiator all the way through. So you have
14 the whole scenario of your accident sequence covered,
15 and you want lines of defense to help minimize each of
16 those areas.

17 MEMBER BROWN: Can I ask one more
18 question?

19 MS. DROUIN: Absolutely, as many as you
20 like.

21 MEMBER REMPE: I wouldn't go that far.

22 MEMBER BROWN: That's a dangerous
23 allowance.

24 (Laughter.)

25 MEMBER BROWN: I understand the first

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1 three and where something you can do, but I don't
2 understand, and maybe it's because just I don't think
3 well enough, but release mitigation. Now, release
4 containment, I'm spewing contamination out. How do
5 you protect the public other than just getting them
6 out of Dodge?

7 You know, that one's a hard one for me
8 to --

9 MS. DROUIN: And I'm going to come to that
10 in a subsequent slide.

11 MEMBER BROWN: Okay. Thank you.

12 MS. DROUIN: Hopefully it will answer your
13 question. If it doesn't thoroughly answer, you know,
14 please let me know.

15 And then examples of the decision
16 criteria, and I'm going to get into this one a little
17 bit more, you know, is have your objectives of defense
18 in depth met. You know, where you have safety
19 margins, are they adequate?

20 Begin able to monitor; you know, looking
21 at the contributions from the overall risk; looking at
22 your levels of defense; looking at your principles;
23 looking at your safety measures. Know what is the
24 significance of the uncertainties and having some type
25 of quantitative acceptance guidelines.

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1 Okay. Now if we go to Slide 25, what
2 we're trying to show on this slide is that why we feel
3 for reactor safety, you know -- and remember for ways
4 and materials, these levels of defense would be quite
5 different, but this is what we're defining for reactor
6 safety.

7 And what you see there is on the bottom
8 axis is that, you know, you have normal operation.
9 You have the event occurs. You have core damage,
10 radiation release, and public exposed, and if you
11 remember one of the objectives is also to deal with
12 uncertainties, and what you see at each one of these
13 steps is an increase, you know, in the uncertainty.

14 So we think that's another good
15 justification for defining these different levels and
16 what they expand and what they cover. So, you know,
17 again, you know, we're trying to preclude events that
18 challenge safety, and then as you then get past that,
19 you start getting into, you know, the first part of
20 your accident scenario. You know, you have additional
21 uncertainties, and you want a level of defense that
22 deals with that.

23 And then if you do get the onset of core
24 damage as you go through your core melt progression,
25 you know, you want levels of defense to try and

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1 minimize that. You know, you want to contain and
2 confine your reactor material, and then as you jump
3 from there to your release and dealing with the
4 public, you have another set of uncertainties.

5 MEMBER ARMIJO: Mary, these are really
6 good charts, at least for me, but where I get hung up
7 is I don't see the initiator, the hazard, the
8 Fukushima type event that triggered all of these other
9 things.

10 I don't know if there's a lot of
11 uncertainty in the magnitude of the hazards that the
12 plant should face, and some of that is handled by
13 siting, selection of the right kind of site to
14 minimize those hazards, but to me of all the Fukushima
15 stuff, it really started with a failure to anticipate
16 the magnitude of the hazards, and that's what we're
17 addressing in all of these orders that we've worked on
18 now.

19 Is there any element of defense in depth
20 that ties to the hazard or starts with the hazard so
21 that -- because this chart starting with internal
22 events is fine, but --

23 MS. DROUIN: No, it's starting with any
24 event that is a consequence of the hazard. So, you
25 know, your hazard is going to brush across all of

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1 these. So to me, you know, perhaps --

2 MEMBER ARMIJO: To me the hazard is the
3 biggest uncertainty. I think at least from my view
4 that's it. But for this extremely large seismic event
5 and the tsunami, we wouldn't be sitting here talking
6 about this topic.

7 MS. DROUIN: Well, in your defense --

8 MEMBER ARMIJO: Maybe the staff and the
9 Commission is adequately handling hazard uncertainty
10 with all the other things we're working on on
11 Fukushima, but somewhere along there this just seems
12 to start with some event and pretty much everything
13 else is what we've been doing for years, you know, on
14 this chart.

15 MR. CARUSO: Mary, can I?

16 MS. DROUIN: Yes, go ahead.

17 MR. CARUSO: Mark Caruso, Office of New
18 Reactors and the Staff.

19 I think, you know, I mean, one thing
20 that's included in here is when we talk about, you
21 know, design, plant design, we're talking about the
22 analysis that you do to decide what level hazard you
23 have to protect against.

24 So I think for operating reactors, you
25 know, it might be that you take another look at that

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1 evaluation and perhaps all you can do there is you
2 don't have siting. So you have to look at--

3 MEMBER ARMIJO: But they're there.

4 MR. CARUSO: -- should I make a facility
5 change because now I've taken another look at the
6 magnitude of the hazard.

7 So I think the prevention there is really
8 more in trying to do the best job you can and perhaps
9 a conservative job of identifying the level of hazard,
10 and then based on that, you know, putting some
11 additional mitigation in place.

12 For new reactors then you do have siting
13 and also, you know, your analysis of the level of
14 hazard.

15 MEMBER ARMIJO: Thank you. I have to
16 think about this a little bit more.

17 MS. DROUIN: Another way to look at the
18 way these levels work is that you want to design your
19 plant that, given that you have some hazard, that you
20 can preclude the event from occurring. You know,
21 given that that fails, in looking at the hazard, you
22 want to design, you know, your systems, for example,
23 so that they can withstand and you can shut the plant
24 down.

25 You know, contain and confine; you want

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1 that containment to be able to withstand that hazard.
2 You know, you want to, in dealing with the hazard, you
3 know, you have to look at each lines of defense in
4 dealing with how you're going to design and construct
5 and operate that plant from all four levels.

6 MEMBER BLEY: Sam, let me take a shot at
7 something for you. Remember we're here today talking
8 about Recommendation 1.

9 MEMBER ARMIJO: Right.

10 MEMBER BLEY: And the first half of this
11 talk was about what kinds of events might we
12 incorporate as design basis extension conditions. One
13 of those would be a much larger seismic event than
14 we've thought about or a flooding event greater than
15 we've thought about.

16 What Mary's talking about is given an
17 event is defined or a hazard is defined, in the
18 language she's using, then what kind of defense in
19 depth do you need to be comfortable that we're dealing
20 with that, and that's what she's talking about.

21 We talked about the first half of it in
22 the first hour or so.

23 MEMBER ARMIJO: Yeah, I see that.

24 MEMBER STETKAR: One can always find
25 hazards for which there is no --

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1 MEMBER ARMIJO: Oh, sure, sure.

2 MEMBER STETKAR: -- defense in depth.
3 Asteroid blasters, for example. You know, you have
4 to, as Dennis said, I think you have to distinguish
5 those concepts.

6 MS. DROUIN: Yes. Okay. Slide 26.

7 This is just bringing in the other pieces
8 to give you a more thorough picture of this whole
9 defense in depth. So, you know, you see the blue
10 boxes, which are our levels of defense, and
11 superimposed on all levels would be the defense in
12 depth principles.

13 For example, if these end up being the
14 principles, you know, key safety functions are not
15 dependent upon a single element, system redundancy.
16 So those principles would be applied for each line of
17 defense.

18 And then, you know, for each line of
19 defense you would have safety measures, and we've
20 given, you know, some examples, and you might have the
21 same safety measure. Don't mean to say that you see
22 one safety measure for one line of defense and it
23 wouldn't be applicable for another one. This is not
24 a complete set. It's just to, you know, show you some
25 ideas that, you know, there would be safety measures.

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1 And if you come over to our fourth level,
2 you know, what would you have in place for the release
3 mitigation? Remote siting would be one; emergency
4 plans; potassium iodide; the NRC incident response.

5 So you aren't going to be able to protect
6 the public in the sense of, you know, wrapping them up
7 in something and they don't get exposed. You aren't
8 going to be able to design something. So that one,
9 you know, has some unique aspects to it.

10 You know, NRC oversight would be one for
11 your event preclusion. You know, safety systems for
12 accident prevention; your EOPs; your SAMGs, your EDMGs
13 for other examples of safety measures for you source
14 term containment to contain and confine.

15 So this is what would go into the policy
16 statement. Now, the actual safety measures would not
17 be in the policy statement. That would be in some
18 kind of implementation guidance document.

19 Now, if we go to Slide 27, what you see
20 here is kind of the logic that we would envision that
21 you would go through in making the determination on
22 your decision criteria in looking at it in terms of
23 both implementing your defense in depth and making the
24 decision whether or not you have adequate defense in
25 depth.

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1 And there's a couple of things to this
2 slide. First, what is shown is that when you go down
3 to that far right-hand corner, which is adequate
4 treatment, what you see in there is you've gone
5 through this criteria for all four levels. So, you
6 know, in determining that you have adequate defense in
7 depth, you cannot put it all on just one level. You
8 can't just say, "Okay. I've come up with a design,
9 and I'm going to be able to preclude all events, and
10 I don't have to worry about, you know, prevention or
11 containment or mitigation." You know, that is not
12 adequate defense in depth.

13 And the example I always like to show that
14 shows inadequate defense in depth was the Gulf
15 incident where they put everything -- and they didn't
16 even do a good job there on prevention -- but they had
17 nothing, nothing in place for mitigation. They had
18 not even thought about mitigation, and so our version
19 of the severe accident occurred, and they were not
20 prepared on how to deal with it.

21 You know, then they were going to the
22 drawing board and trying to design stuff of how to
23 mitigate. So, you know, our approach is that all four
24 levels, you know, have to be addressed.

25 Then in going through, you know, each of

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1 the levels, you would just systematically, you know,
2 start going through, you know, and are all of the
3 principles, you know, implemented, and if the answer
4 is no, you may enhance a level of defense safety
5 measure. There would be some kind of evaluation to,
6 you know, how egregious was that principle not met,
7 and then you may make the decision to enhance the
8 defense measure.

9 You know, the lever of defense measure is
10 met. You know, again, if they weren't met, how
11 egregious is it? You know, are your safety margins
12 adequate? Are your known uncertainties adequately
13 addressed? And are your applicable quantitative
14 acceptance guidelines met?

15 And in that one, you know, here we ere
16 trying to show an example, and this would really apply
17 on all of them. It just would get too complicated to
18 show all of this on a single slide. But, you know, in
19 determining, you know, how egregious is something,
20 here, you know, are the acceptance guidelines. The
21 exceed is minimal, and if the answer is yes, you know,
22 you may come in and say, "Well, okay. Do I have the
23 ability to monitor?"

24 And if I have the ability to monitor, then
25 I may come back and say I have adequate defense in

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1 depth.

2 But my point with this slide is that we do
3 feel that you can go through and start laying out, you
4 know, these decision criteria and making that
5 determination whether or not, you know, you have
6 adequate defense in depth for each of the different
7 levels, and if an issue comes up you would go through
8 this.

9 MEMBER STETKAR: Mary, before you leave
10 this, I just have to get into this notion again. I
11 get this concept. I think I understand it. Where I
12 hang up is on the next slide because -- and I wanted
13 to keep this one up here -- because there are several
14 places where you make decisions. Are the safety
15 margins adequate? Are the known certainties
16 adequately addressed?

17 One then must have some measuring tool to
18 address those margins and that notion of adequacy.

19 MS. DROUIN: Yes.

20 MEMBER STETKAR: Because -- and certainly
21 in the white paper it uses terms like acceptable
22 levels of risk, adequate treatment of uncertainties,
23 and yet on the next slide, you're going to get to a
24 tick box that says, "I don't have to have a PRA."

25 We can't answer it today, but going

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1 forward, as you go from this white paper to the final
2 SECY, I'd really like to understand better how you do
3 this in a conceptual process without the took of a
4 PRA.

5 MS. DROUIN: Okay.

6 CHAIRMAN SCHULTZ: And even if you had a
7 PRA --

8 MEMBER STETKAR: Even if you have a PRA.

9 CHAIRMAN SCHULTZ: -- how to fill the
10 process. That's right.

11 MEMBER STETKAR: That's right.

12 CHAIRMAN SCHULTZ: Because defining the
13 steps and their order is important also, and I think
14 you've taken a shot at a structure that makes sense.

15 MS. DROUIN: Right, and this is just the
16 structure. it's not --

17 CHAIRMAN SCHULTZ: As a first shot.

18 MS. DROUIN: Yes. This is not necessarily
19 the order, and a lot of it would be iterative.

20 CHAIRMAN SCHULTZ: Sure.

21 MS. DROUIN: You know, and this was just
22 trying to show you that we do feel that you can -- you
23 know, are you ever going to come up with a very
24 prescriptive process? No, but at least you can put
25 some structure to that process and guide the decision

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1 maker that these are the questions he needs to be
2 asking, and here's guidance of what should go into
3 that question.

4 You know, right now there's nothing.

5 CHAIRMAN SCHULTZ: That's right.

6 MEMBER STETKAR: You still have to have
7 some tools to provide that information --

8 MS. DROUIN: Yes.

9 MEMBER STETKAR: -- to the decision maker.

10 MS. DROUIN: Absolutely.

11 MEMBER STETKAR: And make sure that the
12 tools are appropriate for this decision process. You
13 know, micrometer versus a meter stick, for example,
14 depending on what level of resolution or information
15 you want to give that decision maker.

16 MS. DROUIN: And that is all going to need
17 to be worked out, absolutely.

18 MEMBER STETKAR: But, again, this is kind
19 of a statement going forward between the white paper
20 and the final SECY. There's that notion -- well, you
21 can go to the next slide here.

22 MS. DROUIN: Slide --

23 MEMBER STETKAR: That first tick box there
24 just says, "Well, we think it's too expensive to
25 develop PRAs."

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1 Okay. If that's what you think, well,
2 what else are we going to use?

3 MS. DROUIN: I understand. I understand.

4 MR. DINSMORE: I'm sorry. This is Steve
5 Dinsmore from the PRA Licensing Branch.

6 I guess I just want to react a little bit.
7 You say, you've said several times that we think it's
8 too expensive to develop PRAs.

9 MEMBER STETKAR: I didn't say that. You
10 said that in the white paper.

11 MR. DINSMORE: I think we said, what we
12 were trying to say is we're not sure that the benefit
13 that you're going to get, the safety benefit that you
14 can find from further developing these PRAs would be
15 worth the cost.

16 I think if we said that in the way that
17 you're saying, and I think we should go back --

18 MEMBER STETKAR: Certainly the message I
19 got, and I wasn't going to say this, but I will
20 because it's dramatic. How much has the industry and
21 the entire world regulatory body spent because
22 Fukushima did not have an adequately developed PRA
23 when you start talking about cost versus safety
24 benefit?

25 MR. DINSMORE: Well, you're assuming that

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1 there was a -- I mean, if Fukushima knew about the
2 size of the earthquake, they wouldn't have had it.
3 I'm not sure that the PRA is so --

4 MEMBER STETKAR: I'll just leave it there.

5 MR. DINSMORE: But I just wanted to react
6 to the statement.

7 MEMBER STETKAR: Just read the white
8 paper, but --

9 MS. DROUIN: I mean, I think that -- I
10 think you bring up a very valid question, and the
11 question begs are we going to come back ten years from
12 now and still be visiting this same question.

13 MEMBER STETKAR: Right. And I think --
14 you know, I kind of get it, but I think, again, in
15 terms -- I don't want -- trying to solve problems here
16 today, but in terms of at least the way I read the
17 white paper, it seems to be building a case -- and
18 your previous slide sort of shows that thought process
19 -- and then you say, "Well, but we're not going to do
20 PRA."

21 So there must be a thought going forward
22 of how we can solve those measuring issues in the
23 absence of that PRA, and I think without that, if you
24 haven't -- you've thought about a process, but you
25 kind of leave me hanging, you know, as a decision

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1 maker. Why is that conclusion of no PRA required
2 justified? Because you must have thought about some
3 other way of kind of accomplishing that measurement
4 process.

5 MS. DROUIN: Yes.

6 MEMBER STETKAR: The determination of that
7 adequacy.

8 CHAIRMAN SCHULTZ: Yes. So this is
9 another devil in the details.

10 MEMBER STETKAR: I think the white paper
11 or the SECY needs a little bit of --

12 MEMBER ARMIJO: Doesn't that go back to
13 the earlier question of how do we do it today?

14 PARTICIPANTS: Sure.

15 MEMBER STETKAR: That's right.

16 MEMBER ARMIJO: You know, and if we really
17 understand how we do it today and we find that
18 acceptable, this would be okay, but --

19 MEMBER STETKAR: But Mary has already
20 established the notion that we don't coherently, let's
21 say, and Mary can probably explain this better than I
22 can, address defense in depth because we sort of know
23 what it is, but haven't really defined what it is.

24 MEMBER BLEY: Well, she hit on it early.
25 There are vestiges of it everywhere. If you go look

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1 in the regulations and try to find it --

2 MEMBER STETKAR: You can't find it.

3 MEMBER BLEY: -- you're busy for the next,
4 you know, until you run out of time.

5 MEMBER STETKAR: So that in that sense the
6 current process doesn't explicitly address it because
7 there isn't anything to measure against in a
8 regulatory perspective.

9 MEMBER BLEY: She doesn't give quite the
10 sense that we had a few years ago on another projects
11 where everybody who came to talk about it knew exactly
12 what it was. We all knew somewhat different things,
13 sometimes radically different things we'd say. So
14 getting that coherence may help.

15 CHAIRMAN SCHULTZ: Well, let's couple this
16 to what we described earlier, Dick, with regard to the
17 elements that, in fact, will be required for
18 definition, structure, decision making, and
19 quantification and speak to that as we go forward.

20 MS. DROUIN: I'd like to elaborate on a
21 point that Steve brought up, you know, because, you
22 know, we do have the backfit rule, and you have to get
23 past the backfit rule. I think that when we talk
24 about a plant specific PRA -- and these are my own
25 personal views here -- is that we're asking the wrong

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1 question because when you ask that question just on a
2 specific issue, you know, you're always going to come
3 up and not be able to cost justify it.

4 To me it should not be on a specific
5 issue. We should be asking PRA across the whole body
6 of regulations, across the whole way that we deal in
7 the regulatory process, and you know, does it help us
8 and does it help the licensees, you know, in making
9 better, you know, design decision making, better, you
10 know, licensing decision making, better operational
11 decisions?

12 Instead of saying does it help me on the
13 specific decision, you know, and if you keep asking
14 that question on a specific decision, you're always
15 going to come up against it's going to be too
16 expensive, but you know, is it helping me in my whole
17 decision making process? I think that you would come
18 up with a different answer perhaps.

19 CHAIRMAN SCHULTZ: Well, let's go to the
20 next slides --

21 MS. DROUIN: Okay.

22 CHAIRMAN SCHULTZ: -- which will wrap this
23 back into the --

24 MS. DROUIN: Slide 29.

25 CHAIRMAN SCHULTZ: -- risk management

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1 regulatory framework.

2 MS. DROUIN: I want to just talk about a
3 little bit about the relationship between NTTF and the
4 RMRF.

5 NTTF Working Group, as you know, is
6 dealing with defense in depth for power reactor
7 safety. It's also looking at the process for
8 addressing beyond design basis events and voluntary
9 initiatives.

10 When you look at the RMRF Working Group,
11 we're providing recommendations for a draft policy
12 statement for a risk management regulatory framework,
13 and it addresses both the overall agency and each
14 program area, and defense in depth is a major piece of
15 that policy statement, and we're developing a detailed
16 plan for implementing the recommendations in 2150,
17 which include the design basis event category.

18 The voluntary initiatives is not part of
19 RMRF. So we only overlap on two of the improvement
20 activities with NTTF.

21 Our working group will disposition the
22 recommendations for power reactors based on the
23 decisions made in NTTF as guided by the Commission
24 SRM, and I'll try and clarify that a little bit more
25 on the next slide.

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1 Both working groups were working very
2 closely together, and we have common staff on both of
3 the groups to ensure that that communication, you
4 know, occurs and that we have consistency and
5 efficiency.

6 Can we go to the next slide?

7 This is showing in the blue everything
8 that would go into the policy statement, and you can
9 see there in that little purple box where the NTTF
10 fits in on the policy statement.

11 There's also the implementation guidance
12 and, you know, we're developing across all the program
13 areas and NTTF. You can see that one box there called
14 "safety."

15 There is a dotted line up there to the
16 overall generic because we want to make sure that
17 whatever is developed on, you know, the safety is
18 consistent with the generic. So there is that tie
19 there.

20 So that's just in a highlight shows you
21 that even though what we're doing on NTTF on defense
22 in depth is very important. It is going to be fitting
23 into this overall policy statement that we're
24 developing across the agency.

25 So if we go to Slide 31, what you're

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1 seeing here is how this is fitting together, you know,
2 schedule-wise. You know, the far left-hand yellow
3 arrow is showing the two working groups, you know, are
4 giving information back and forth.

5 On December 2nd, the NTTF notation vote
6 paper, you know, goes forward on their recommendation
7 for defense in depth policy statement describing the
8 concept with examples and the proposed new event
9 category.

10 Now, we're planning on doing Commission
11 briefings immediately after that paper so that they
12 understand and when they make a decision they
13 understand how it fits into the RMRF.

14 Our SECY paper is directly -- our date is
15 directly tied to the Commission SRM that will be
16 issued from the NTTF SECY paper. Those dates there,
17 those are the dates that we're supposed to meet, but
18 there's an assumption that the SRM will come out on
19 March 2nd. Our SECY paper is due six months after the
20 SRM. So right now, the EO's office has assumed we'll
21 get the SRM in three months. We may get it sooner.
22 You know, we may get it, you know, within a couple of
23 weeks or it might take six months, but since that date
24 is, you know, unknown, you know, our plan is to have
25 a draft policy statement and a draft plan completed by

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1 the end of this calendar year.

2 So we're working very hard, and we also
3 have contractor help to help us. So when our SECY
4 paper goes forward supposedly on September 2nd, you
5 know, it will have a draft policy statement for
6 Commission consideration to formally go out on public
7 review and comment, and it will have a detailed plan,
8 and then we'll see what comes out of the Commission
9 SRM.

10 The plan is that during that six months,
11 is to make any changes that we'll need to make as a
12 result of the Commission SRM.

13 So that's, you know, all I had to say on
14 defense in depth.

15 CHAIRMAN SCHULTZ: Very fine. Thank you.

16 Just a note there. John and I meet with
17 Mary separately last month, end of last month, to talk
18 about this connection between work that she's just
19 presented here, the work that we're discussing today,
20 and the future work related to the overall program,
21 and you've done a great job putting that together in
22 a picture for the Committee that will be helpful. But
23 we'll just have to continue to watch that and see the
24 developments going forward.

25 MS. DROUIN: Good. The one thing I --

1 CHAIRMAN SCHULTZ: Because it's very
2 connected and very --

3 MS. DROUIN: -- I made a note but I forgot
4 to say, is that, you know, Dick talked about that
5 there's a public meeting on June 5th --

6 CHAIRMAN SCHULTZ: Yes.

7 MS. DROUIN: -- in the morning. We are
8 piggybacking on that, and we're having a meeting that
9 same day in the afternoon, and meeting notices have
10 gone out and they've referenced each other. So like
11 when you see the meeting notice on the RMRF, it tells
12 you that there is a meeting on NTTF in the morning,
13 and it's in the same location.

14 MEMBER STETKAR: We're also working -- I
15 don't know if you've talked to John Lai, but working
16 to try to get the Subcommittee briefing on the RMRF
17 hopefully on the same day of our NTTF Recommendation
18 1 Subcommittee meeting in September.

19 CHAIRMAN SCHULTZ: And we have a slot
20 available.

21 MEMBER STETKAR: And we have a slot
22 available.

23 CHAIRMAN SCHULTZ: We'll see if we can't
24 make that happen.

25 MR. LAI: It will be in September.

1 MEMBER ARMIJO: Mary, on your Chart 30,
2 which I think is -- I want to add again I think these
3 are really good charts to help understand how this all
4 will fit together. I was just wondering if somebody
5 made an overlay that said this is what we have today
6 how much of this chart would be blank.

7 MS. DROUIN: Probably all of it>

8 MEMBER ARMIJO: All of it? That's what I
9 was worried about.

10 MEMBER BLEY: With respect to our policy
11 statement. That's what this chart is about.

12 MEMBER ARMIJO: Yeah, the policy, but we
13 do have at the lower things these levels and a variety
14 of guidance documents and regulations. So we have a
15 lot of the implementing stuff that exists today, but
16 not the policy that gets you there.

17 You know, we have --

18 MS. DROUIN: Yes.

19 MEMBER ARMIJO: Safety measures. I guess
20 that's what I was talking about. We have a lot of
21 safety measure stuff today across the board.

22 MS. DROUIN: Yes. There's a lot of those
23 -- yes, I mean, it's not like we don't have defense in
24 depth in our plants.

25 MEMBER ARMIJO: Yeah, yeah.

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1 MS. DROUIN: Of course we do.

2 MEMBER ARMIJO: But it doesn't come out of
3 a very well defined and structured policy.

4 MS. DROUIN: Right. And the other
5 benefit, I mean, we aren't talking about going
6 backwards because we do have defense in depth, but as
7 we go forward on decision making, you know, this will
8 as events and things occur, will then force us to go
9 systematically through and consider, really consider
10 defense in depth and have we really achieved it and
11 how we would achieve it to deal with the decision
12 under consideration.

13 CHAIRMAN SCHULTZ: Let's leave that point,
14 Mary, at this time and we will come back to it I'm
15 sure.

16 MS. DROUIN: Yes.

17 MEMBER SHACK: I just want to congratulate
18 Mary on that very eloquent statement about how useful
19 it would be to have PRAs, considering it's the
20 totality of all the questions we asked, you know.
21 You'd save it for a letter.

22 (Laughter.)

23 MEMBER STETKAR: It's on the record.

24 MR. DUDLEY: Okay. Next Dan Doyle will
25 talk about Improvement Activity 3, which is to clarify

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1 the role of voluntary industry initiatives.

2 **MR. DOYLE:** Okay. Activity 3 is not quite
3 as broad as the other activities. It's more focused,
4 and I'll try to explain that in the presentation that
5 I'm going to give here. So I'm just pointing that out
6 that this is slotted for half an hour on the agenda,
7 and looking at the close, it looks like we're a little
8 bit behind in the time we had scheduled things to move
9 along, but I just wanted to point that out as we move
10 into this.

11 And just also about me, I've been on the
12 working group since August of last year. I've been
13 doing rulemaking for a little over a year, and I've
14 been at the NRC for three years. I was in the Navy
15 for eight years before that. So that's my operational
16 perspective that I bring to the working group, and I
17 feel very fortunate to be part of the working group
18 and learn about the current framework and the
19 brainstorming ideas about how we can improve that.

20 And also when I joined the working group,
21 they pointed out that my initials are DID.

22 (Laughter.)

23 **MR. DOYLE:** So I was lucky. I didn't get
24 assigned Activity 2. I think Mary --

25 (Laughter.)

1 MR. DOYLE: She wouldn't let go of it, but
2 I did get Activity 3. So that's what I'm going to
3 talk about in this presentation.

4 And this activity is about industry
5 initiatives and how they fit into the regulatory
6 process. So I'm going to give you an overview of what
7 this activity is and what we're recommending, what
8 actions we recommend taking. I'll give a brief
9 background on the topic and how it relates to the NTTF
10 and RMTF reports, and then I'll go through a little
11 more detail on the specific actions we're
12 recommending, and I'd be happy to take any questions
13 you have.

14 The purpose of this activity is to clarify
15 the role of certain industry initiatives. So just big
16 picture, three things is that we want to reaffirm the
17 current policy that industry initiatives may not be
18 used in lieu of NRC regulatory action for issues of
19 adequate protection.

20 Another thing is that we recommend
21 specifying when certain industry initiatives may be
22 credited in the baseline case and the regulatory
23 analysis, and I'll talk about that, and also providing
24 guidance about what level of oversight is appropriate
25 in the event that we do rely on an industry

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1 initiative. So those are the main points for the
2 activity.

3 Some background, the role of industry
4 initiatives as you're probably aware was the subject
5 of a direction setting initiative in the late '90s,
6 DSI 13. There was a proposed formal process that was
7 developed and issued for comment. There was
8 overwhelming negative feedback from the public and the
9 industry overall, and the NRC withdrew the program
10 that was documented in SECY 01-121.

11 Industry initiatives came up again in the
12 Fukushima and near term task force report, and they
13 were all talked about in the Risk Management Task
14 Force report. Specifically, those two reports , the
15 Fukushima reports stated that industry initiatives
16 should not serve as a substitute or replacement for
17 requirements, but should be a mechanism for
18 facilitating standardization of a requirement that
19 already exists.

20 They also noted that there's little
21 attention given to industry initiatives and inspection
22 and licensing programs because there are no
23 requirements to inspect against.

24 SAMG as hardened events came up as
25 specific examples. They were in a lot of discussions,

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1 and they were not regulatory requirements, and when
2 inspections were done through temporary instructions,
3 there were inconsistencies that were found and how
4 those two things specifically were implemented,
5 maintained and in some cases, well for SAMGs at least,
6 maintained and how practical their use might have been
7 in certain circumstances.

8 The Risk Management Task Force had a
9 different perspective. They talk about how through
10 industry initiatives and other licensee specific
11 initiatives there's a gap that develops between the
12 regulations and the licenses and what's actually in
13 place, and then when an issue comes up through the
14 reactor oversight process, there's a question about
15 what to evaluate against do you credit this thing that
16 may be a voluntary industry initiative or not.

17 And before moving on to the specific
18 actions we're recommending, I just wanted to first
19 explain industry initiatives again briefly, that there
20 are generally three types. These descriptions that
21 are on the slide come from the current version of the
22 Regulatory Analysis Guidelines.

23 The first type are initiatives that relate
24 to an existing regulatory requirement and describe a
25 means of compliance. So two examples would be the BWR

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1 vessel internal program and the PWR material
2 reliability program. So there are rules in place on
3 reactor and coolant integrity and these initiatives
4 given to the nuts and bolts of how the industry will
5 comply with the existing rules. That's the first
6 type.

7 The second type is those that are used in
8 lieu of regulatory requirements being put in place,
9 and those have varied over the years. Primary
10 examples coming out of Fukushima again are the BWR
11 Mark-1 hardened vents and a more recent -- and SAMGs -
12 - a more recent example is backup power for hydrogen
13 igniters for BWR and ice condensers.

14 The third type of industry initiatives are
15 those that are undertaken by the industry sometimes
16 with or without involvement from the NRC. They
17 involve matters where it's unlikely that we would put
18 a new regulation in place. An example would be the
19 groundwater monitoring program, which was a big issue.
20 After many discussions the NRC basically decided that
21 we were not going to do anything in addition to what
22 the industry was doing through their initiative.

23 The main focus of Activity 3 that we're
24 discussing today is really on the Type 2 initiatives,
25 and to answer the question what do you do when you're

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1 considering imposing a generic regulatory requirement
2 and there's an industry initiative that may also
3 address the issue. So how do you move ahead of that?

4 So this is what we recommend, to clarify
5 the role of industry initiatives. One action would be
6 to develop either a Commission policy statement or
7 advise existing guidance to achieve two different
8 things. The first is to reaffirm that industry
9 initiatives may not be used in lieu of NRC regulatory
10 action, adequate protection issues.

11 And the second thing is that it will
12 direct that industry initiatives may not be credited
13 in the baseline case of the regulatory analysis unless
14 there is high likelihood that industry will
15 effectively implement and maintain the initiative over
16 time.

17 And also we intend to revise oversight
18 processes to verify implementation and effectiveness
19 of certain Type 2 initiatives which the NRC believes
20 are important from both the safety and regulatory
21 perspective.

22 MEMBER BLEY: Can you go through this
23 slide again, the two-year bullet.

24 MR. DOYLE: Sure.

25 MEMBER BLEY: From the standpoint of the

1 three types you had on the previous page? I mean, the
2 industry can clearly do things. The plant can do
3 things it thinks improves its performance, safety,
4 whatever, as long as they don't conflict with
5 regulation here at NRC. So that first bullet, I don't
6 know the exact to which it's intended to apply.

7 You aren't going to go in and find out
8 everything people are doing and make sure you have
9 guidance or Commission policy statement associated
10 with it.

11 MR. DOYLE: Right.

12 MEMBER BLEY: Can I get an amplifier to
13 your comment? Because in your white paper you said
14 that your Activity 3 was only going to deal with Type
15 2 initiatives, not Type 1 and Type 3, and you didn't
16 say that until the fourth bullet here.

17 MEMBER BROWN: Well, that wasn't even
18 really as crisp as I would -- I mean they were very --
19 this just says verify the implementation of Type 2.
20 He didn't really say we're not going to look at the
21 other ones. It's implied. At least that's my
22 impression because I haven't looked at the next slide.

23 MR. DOYLE: Right.

24 MEMBER BROWN: And I just wanted -- okay.
25 Go ahead and answer Dennis. I just wanted to

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1 highlight that thought because it seems I was going to
2 make it later, but it seemed to be a spring --

3 MR. DOYLE: Right. So it comes up a lot
4 that the -- trying to understand how things that the
5 industry does, that, you know, there's not a way that
6 we're -- this activity is not an attempt to control or
7 put an arm around everything that's happening. The
8 focus is really on regulatory decision making. The
9 NRC gets to the point where we feel we need to or are
10 considering taking a generic regulatory action.

11 At that point and that decision, how do we
12 account for the fact that there may be an industry
13 initiative about that? So I thought you were asking
14 about, you know, what if a licensee decides to do
15 something that relates to adequate protection. Is
16 this policy statement somehow going to prohibit them
17 from doing that or how does that factor in?

18 but the point of the policy statement is
19 to do the second and third bullets, is just to make it
20 clear that when we're considering imposing a
21 regulatory requirement we will not -- if it's an
22 adequate protection issue, we will not say, no, the
23 industry already had its initiative. It's okay. We
24 don't need to put this requirement in place.

25 We should put the requirement in place.

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1 That's what the policy is saying. That's what this
2 activity is posing, and then that's what the policy
3 statement would say or the revising the guidance.

4 The next bullet is to explain in that
5 decision making process that the NRC should ask itself
6 how likely is it that this will be effectively
7 implemented. So there are a number of different
8 guidance or things that could go into the coming to
9 that conclusion, but that's another aspect that would
10 be included in --

11 MEMBER BLEY: Is this in any way a change
12 in policy, these two bullets?

13 MR. DOYLE: Well, the first bullet is not,
14 but what would be a change is that that second bullet
15 exists in an SRM 99063, I believe. It's the first
16 sentence in there, and that's where it's clearly
17 stated by the Commission that this is the policy.

18 It's also sort of incorporated in the
19 Regulatory Analysis Guidelines so that the basic
20 answer is no for the second bullet. That's not really
21 a change, but it would elevate the visibility of it.

22 MEMBER BROWN: Just let me --

23 MR. DOYLE: Yes, sir.

24 MEMBER BROWN: You made another statement
25 in here where it said for the Type 2 that you may be

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1 in the -- this is in relation to your second bullet.
2 You say industry initiatives may not be used in lieu
3 of NRC regulatory action. However, you state industry
4 initiative may be used to provide safety enhancement
5 without the need for regulatory. In other words, you
6 could be considering action, but they've taken
7 voluntary actions which abrogate the necessity of an
8 issue --

9 MR. DOYLE: That's not an adequate
10 protection issue.

11 MEMBER BROWN: Okay. And that, I don't
12 read that out of this.

13 MR. DOYLE: Right.

14 MEMBER BROWN: I understand that if you've
15 already got an action, some regulatory requirement in
16 place, obviously you can't use that to substitute, but
17 it doesn't say that you would -- the SLAD (phonetic)
18 doesn't say that you would then not do the regulatory
19 action because of the voluntary initiative.

20 And so I'm a little bit fuzzy on how if
21 you're not going to do that because the initiative is
22 there and you talk about then how do you then verify
23 that they actually implemented in a manner that's
24 consistent with not taking your regulatory action and
25 the long-term oversight of it?

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1 MR. DOYLE: Well, I think the important
2 thing is that you would, in the case of the third
3 bullet there, you would -- you had a rule you were
4 thinking of issuing and there was a voluntary
5 initiative. If you decided that you didn't believe
6 that it would be likely that that activity could be
7 implemented and maintained for a long time, then when
8 you did your regulatory analysis for that rule, you
9 would not give credit for the voluntary initiative
10 that you didn't think was highly likely to be
11 maintained over time.

12 So then you would go through your
13 regulatory analysis with all the regular criteria we
14 have in the backfit rule and in the Regulatory
15 Analysis Guidelines, and the result of that would
16 determine whether or not we would issue a rule.

17 And if we issued a rule, we'd have a
18 requirement. If we didn't, the industry's voluntary
19 initiative would still stand.

20 Does that clarify?

21 MEMBER BROWN: Well, but do you have to --
22 if you accept a voluntary -- okay. Let me phrase it
23 more simplistically. I understood what you said, but
24 if you accept an industry initiative and make the
25 decision not to issue a regulatory action, does it

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1 become incumbent upon you all then to implement or
2 execute something with your region offices or within
3 NRC to monitor that over the subsequent period of time
4 or not?

5 MR. DOYLE: Well, when you say we accept
6 a voluntary initiative, I want to clarify. We don't
7 accept voluntary initiatives in the scenario we're
8 talking about. What we're talking about is a
9 rulemaking that we're thinking of implementing, and we
10 go through the regulatory analysis to determine if it
11 meets all the criteria for a rulemaking.

12 And if it does not meet the criteria for
13 a rulemaking, then we would accept it as a voluntary
14 initiative because we can't issue a rule on it. So
15 does that --

16 MEMBER BLEY: Well, you're not objecting
17 to it. They're doing what they're doing --

18 MEMBER BROWN: I understand.

19 (Simultaneous conversation.)

20 MEMBER BROWN: But you're recognizing the
21 voluntary initiative --

22 MR. DUDLEY: Yes.

23 MEMBER BROWN: In the fact that you are
24 not then finishing some subsequent action on issuing.
25 So maybe my term "accept" --

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1 MR. DUDLEY: Okay.

2 MEMBER BROWN: -- it's through the back
3 door that you've effectively accepted that in lieu of
4 proceeding with something. It's just to me if you're
5 going to have an industry initiative where you're
6 going to use it kind of; yeah, now we don't really
7 need this because it accomplishes the same goal; then
8 you have to have some follow-up action or long-term
9 thing to make sure that's done in the overall
10 oversight process.

11 MR. DOYLE: And what's what we're
12 recommending, and that would be --

13 MEMBER BROWN: Well, I didn't see how that
14 was explicitly stated here.

15 MEMBER STETKAR: You're really talking
16 about the verifiability of that high likelihood.

17 MEMBER BROWN: Yes.

18 MEMBER STETKAR: Regulatory verifiability
19 of high likelihood.

20 MEMBER BLEY: But the second bullet up
21 here says that if you get to this point, you
22 essentially have to put a requirement in place, if
23 it's an adequate protection issue and you need
24 something. So you have to put a requirement in place.

25 Then when you have the requirement, you

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1 might accept what they're doing if it looks good, but
2 with some kind of inspection or continuing
3 verification activity is what I think it says.

4 MR. DUDLEY: Your second scenario was only
5 for a non-adequate protection issue, right?

6 MEMBER BLEY: No. It's an adequate
7 protection issue that then your second bullet says you
8 have to put a regulation in place.

9 MR. DOYLE: Right, and then if they have
10 an initiative about how to comply with that --

11 MEMBER BLEY: Yeah.

12 MR. DOYLE: That's what you're asking.
13 Yeah, so that would be a Type 1 initiative, and you're
14 asking are we going to verify that or how do we verify
15 that. So, yes, that is included. That's actually on
16 the next slide.

17 And that is related to the question were
18 asking before --

19 MEMBER BLEY: I think it gets to
20 Charlie's.

21 MR. DOYLE: -- where it says in the white
22 paper that we're only talking about Type 2, and yet I
23 didn't state that in here. So there's a reason for
24 that, and that's on the next slide here, but --

25 MEMBER ARMIJO: Before you go to that --

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1 MR. DOYLE: Sure.

2 MEMBER ARMIJO: -- just to keep track,
3 it's a Type 1. Let's just say, for example, let's say
4 it's a BWR VIP, vessel internal program, Type 1. It
5 was put in place to ensure that existing requirements
6 are met.

7 Now, how is that currently -- do you
8 monitor its effectiveness and verify that it's going
9 to continue?

10 MR. DUDLEY: As rulemaking staff, we are
11 not experts in that level of detail.

12 MEMBER ARMIJO: Well, clearly, I know it's
13 being done, but how does a regulator assure that it's
14 being done?

15 MR. DOYLE: You're asking how the NRC
16 currently verifies--

17 MEMBER ARMIJO: Yeah.

18 MR. DOYLE: -- that the BWR VIP program is
19 effective?

20 MEMBER ARMIJO: Since that's a Type 1 that
21 exists.

22 MR. DOYLE: Right.

23 MEMBER ARMIJO: And I just want to make
24 sure that it --

25 CHAIRMAN SCHULTZ: Bill Reckley is here.

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1 MR. RECKLEY: Bill Reckley from NRR.

2 In that particular example, the mechanism
3 we use is reporting, not really inspections, but we
4 receive reports of their inspections of the vessel
5 internals. Those are submitted as part of that
6 program to NRR, and we look at them here at
7 Headquarters.

8 MEMBER BLEY: Does it end up -- is that
9 open to audit? Do you ever audit those reports, those
10 inspection reports?

11 MR. RECKLEY: That they submit?

12 MEMBER BLEY: Yes.

13 MR. RECKLEY: Oh, yes. Sir, they're
14 looked at by Headquarters Staff.

15 MEMBER ARMIJO: Okay. And that would
16 satisfy the high likelihood issue?

17 MR. RECKLEY: Yes.

18 MEMBER ARMIJO: Okay.

19 MR. RECKLEY: Although, again, in that
20 example, that's a Type 1.

21 MEMBER ARMIJO: Yeah.

22 MR. RECKLEY: So it's a different --

23 MEMBER BROWN: In the white paper you
24 listed under -- I'm just trying to make sure I
25 understand here -- the type of Type 2, where you don't

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1 issue a rulemaking. If you put a hydrogen igniter to
2 put in the back of power supplies, I guess, as a
3 voluntary initiative, and you've accepted it -- excuse
4 me -- you've recognized that.

5 Now, to me that means you all have to
6 maintain some understanding and knowledge of where
7 that stands. Five years from now are they still
8 maintaining that satisfactorily? And how is it being
9 maintained?

10 Am I wrong in thinking that that will be
11 monitored in some way by the Staff here, whatever
12 reactor oversight --

13 (Simultaneous conversation.)

14 MR. DUDLEY: There's no formal program to
15 put that into effect, not now.

16 MEMBER STETKAR: At present.

17 MR. DUDLEY: And that's one of the things
18 that we're recommending, is that we create an
19 oversight structure for these.

20 MEMBER BROWN: For these voluntary things
21 where you've -- like the hydrogen igniter. I used
22 that. That's the first example that we --

23 MR. DUDLEY: That we end up accepting
24 because we can't justify a rulemaking, yes.

25 MEMBER BROWN: Yeah, but then you have

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1 adequate oversight to ensure it's maintained on a go
2 forward basis.

3 MR. DUDLEY: Right.

4 MEMBER BROWN: Okay. That's what I didn't
5 understand that totally from reading all that stuff in
6 the white paper. Thank you.

7 MR. DOYLE: Okay. this is the last two
8 specific things I wanted to highlight in our activity.
9 So there are two other specific actions, not really
10 related to the Type 2 policy statement or revised
11 guidance that was on the last slide, but still
12 included as part of this activity, and one of these is
13 to review certain IPE/IPEEE commitments that were made
14 to verify that those with the highest safety
15 significance were implemented and have been
16 maintained. That's one of the recommendations in this
17 activity.

18 And the other thing is getting to the
19 question you had about Type 1. So the action that
20 we're recommending is to modify inspection procedures
21 to provide more oversight of the significant Type 1
22 initiatives that the NRC believes are important from
23 both the safety and regulatory perspective.

24 So the difference is that the policy
25 statement provides guidance, on the last slide is

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1 about the decision making, the regulatory decision
2 making process. Do I impose a generic requirement or
3 not? And if I decide not to, then basically if there
4 was an initiative there, then that would be a Type 2
5 initiative.

6 Separate from that policy is the
7 suggestion in this activity that for the Type 1
8 initiatives -- so we're not talking about the decision
9 making process. There is a requirement in place --
10 but the action we're suggesting is that there should
11 be a little bit more oversight. There should be more
12 thought about certain Type 1 initiatives to follow up
13 and to verify that they are actually accomplishing --
14 that they're being effective for achieving the
15 underlying requirement.

16 MEMBER BLEY: How would this stuff apply
17 to things that are currently beyond the design basis,
18 but are in place, like the SAMGs and that sort of
19 thing? Would this apply to those?

20 You're saying --

21 MR. DOYLE: SAMG is --

22 MEMBER BLEY: -- your stuff is all forward
23 looking. So you don't even go back to things that are
24 in place; is that right?

25 MR. DUDLEY: Well, we're undertaking a

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1 rulemaking on SAMGs that --

2 MEMBER BLEY: Which will be separate.

3 MR. DUDLEY: yes. So that will become a
4 requirement.

5 MEMBER BLEY: But there are classic things
6 like SAMGs and some of the B.5.b equipment and
7 procedures that were -- my memory is that when those
8 things were put in place, you got letters from the
9 utilities saying they were in place. You may have
10 audited some of them, but after Fukushima you went out
11 and got a re-look and found that some of that stuff
12 wasn't really there or had disappeared or wasn't
13 maintained and that sort of thing.

14 MR. DUDLEY: I believe, and correct me if
15 I'm wrong, but I believe the B.5.b initiatives were
16 overtaken by 50.54(hh) rulemaking --

17 MEMBER BLEY: That's true.

18 MR. DUDLEY: -- and made into
19 requirements. I can't tell you --

20 MEMBER BLEY: They were, but that was some
21 time ago.

22 MR. DUDLEY: Right. I can't --

23 MEMBER BLEY: But you didn't have any
24 continuing oversight of those apparently.

25 MR. DUDLEY: I can't speak to the

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1 oversight in that interim.

2 MEMBER BLEY: But would they fit --

3 MR. DUDLEY: There may be some in here who
4 can.

5 MEMBER BLEY: -- under this? They are now
6 part of the regulation, but there wasn't, to my
7 knowledge, any inspection program or audit program or
8 follow-up.

9 MR. DOYLE: I understand the question.
10 that's come up in our discussions and also with
11 management, which is a good segue to the next slide,
12 is, well, what are the ones --

13 MS. HELTON: Excuse me. This is Shana
14 Helton in the Rulemaking Branch.

15 I'd just like to note that I think your
16 question on the B.5.b equipment also relates to the
17 station blackout mitigation strategy's rulemaking
18 activity --

19 MEMBER BLEY: Yeah, that's true.

20 MS. HELTON: -- and what's going on. And
21 I know we'll be coming to speak to the Subcommittee on
22 June 5th.

23

24 MEMBER BLEY: But you're not saying it's
25 unrelated to what's here, are you?

1 MS. HELTON: There are with all of the
2 Fukushima recommendations, I think it's safe to say
3 that there are some interconnections.

4 MEMBER BLEY: I think so.

5 MS. HELTON: As Dick mentioned earlier in
6 his presentation, he's been working closely with Tim
7 Reed, who is the project manager for that rulemaking
8 activity, and things that you're talking about,
9 including treatment requirements and change
10 management, that sort of thing, that is being worked
11 within that rulemaking activity, but with the
12 knowledge of where things are progressing with
13 Recommendation 1.

14 But I think that's a very good question,
15 and I'll personally take that back to Tim Reed, and
16 we'll try to address that question also when we come
17 back to address the --

18 MEMBER BLEY: Okay.

19 MEMBER SHACK: Yeah, Dick said it would
20 evolve. Has any of these regulations -- reconsidered,
21 they would bring them up to the standard they had
22 proposed, which did include all those treatment
23 requirements.

24 MR. DUDLEY: Right, right, exactly.

25 MR. DOYLE: So that would be a similar

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1 idea for here. I think your question was, well, if we
2 had these Type 2 initiatives in the past, are we going
3 to go do something about those or not, or what about
4 those? What about the ones that are already out
5 there?

6 So I think it would be similar to that,
7 the categorization approach in that they're there. We
8 have developed this list. There's a table that's
9 attached to the white paper, and this slide just shows
10 the Type 2 initiatives. So we have done some research
11 to come up with this list and do some thinking about
12 the ones that are out there, but the way it relates to
13 that is that if the NRC through its normal process
14 comes to a point where we are considering imposing a
15 generic requirement related to one of these things,
16 then the policy applies.

17 It's about the decision making process.
18 When we're looking to make a generic requirement, it's
19 not a retrospective look at everything that's out
20 there.

21 MEMBER BLEY: Our early statement,
22 everything in Recommendation 1 was forward looking.
23 I don't think it applies in this area, or maybe it
24 does in that it would be forward looking if you
25 applied a requirement now to one of these existing

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1 programs. then you'd have inspections and everything
2 associated with it or reporting requirements.

3 MR. DUDLEY: One of the things that's not
4 forward looking also is we're going to go back and
5 look at the maintenance of some of the IPE and the
6 IPEEE commitments. So this is not -- my statement
7 about forward looking only was for categorization.

8 MEMBER BLEY: Okay.

9 MR. DUDLEY: This effort kind of goes both
10 ways.

11 CHAIRMAN SCHULTZ: For Activity 1.

12 Your next slide gets into that, Dan. Why
13 don't we go through that?

14 MR. DOYLE: Sure, okay. so this is my
15 last slide. This summarizes the recommended actions
16 that I just went through. And just to reemphasize it,
17 the big picture with this activity is that when the
18 NRC is considering imposing a generic regulatory
19 requirement, it is acceptable to factor industry
20 initiatives into that decision making process unless
21 the issue is a matter of adequate protection, or if it
22 is a matter of adequate protection, don't rely on the
23 initiative in lieu of taking the action.

24 For adequate -- and if we go through that
25 decision making process and make some assumptions

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1 about what the industry initiative is going to
2 accomplish and if we decide in the end not to impose
3 the requirement based on those assumptions, then the
4 NRC should consider having some oversight of the
5 initiative, and the reason for the oversight is to
6 follow up and see if the industry initiative is not as
7 effective as we assumed, and if not, we should
8 reconsider imposing the regulatory requirement.

9 That's the big picture, and that is the
10 end of what I had to say on this. Are there any other
11 questions?

12 MEMBER SHACK: Is there not adequate
13 protection? I mean, Type 1 initiatives do, but you
14 then build them into the regulatory system in like
15 tech specs or things like that. I mean, so they
16 really can address it. they just have to address it
17 with a regulatory backup.

18 MR. DOYLE: That's right.

19 MR. DUDLEY: There is a requirement;
20 there's an underlying requirement. So those
21 particular voluntary initiatives are more like a Reg.
22 Guide, and we could inspect against them and if they
23 weren't being maintained, we could issue a violation
24 based on the rule, the underlying rule.

25 MEMBER SHACK: Every time I have to see

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1 this statement up here I have to --

2 MEMBER ARMIJO: Yeah.

3 MEMBER SHACK: -- Type 2, not for adequate
4 protection issues.

5 MR. DUDLEY: Right. That's correct.

6 CHAIRMAN SCHULTZ: As we go forward and
7 get toward the SECY document, are we going to have
8 more clarity or specificity with regard to the second
9 bullet under the first bullet, when to credit the
10 baseline case? That ties in, I would suspect, to
11 defense in depth, as an example.

12 Also, under the full second bullet with
13 respect to oversight of certain Type 2 initiatives, is
14 it the intent of the group to put together some
15 specifics associated with which Type 2 initiatives
16 ought to be examined carefully?

17 MR. DUDLEY: Your first question on when
18 to create in baseline case, again, our criteria for
19 that is likely to be maintained over time. We will
20 need to expand on that a little bit, maybe with some
21 examples, to give the Commission a better idea of what
22 that means so that they can make their decision.

23 Regarding the infrastructure and guidance
24 for oversight, I mean, that's why we put together this
25 list, and we're looking at this list, and we can do

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1 that. We don't need Commission approval. We can
2 actually do that on our own, but we're going to
3 present this list to the JLD Steering Committee, and
4 we're going to discuss some of those activities with
5 them.

6 MR. DOYLE: Yes. As far as expanding on
7 which types of initiatives would warrant oversight,
8 yes, I think we can expand on that. And then what
9 type of oversight are we talking about? Is it
10 reporting or is it some sort of like a one-time
11 inspection or some sort of ongoing thing? Yes, we can
12 expand on that.

13 CHAIRMAN SCHULTZ: That's important for
14 our development of a full understanding. thank you.

15 MEMBER ARMIJO: Now, you're not going to
16 change anything on Type 3 Initiatives?

17 MR. DOYLE: That's right.

18 MEMBER ARMIJO: That's going to be left
19 alone.

20 MR. DOYLE: Right.

21 MEMBER SHACK: Do you have an example of
22 a Type 1 initiative where you think you need more
23 oversight? I mean, the ones I think of seem pretty
24 well -- steam generator tubes don't get ignored.

25 MR. DUDLEY: I don't -- Bill, do you want

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1 to suggest one? Bill Reckley.

2 MR. RECKLEY: I can look.

3 MR. DUDLEY: No, no, that's all right.

4 MR. RECKLEY: I don't have one off the top
5 of my head.

6 MR. DUDLEY: No, we don't. We'll come
7 back to that. Yes, we do. Yes, we do.

8 MR. CARUSO: Mark Caruso, Office of New
9 Reactor.

10 So Type 1s are the ones that are there for
11 adequate protection, and we have -- we may have
12 programs, voluntary programs, in place to implement
13 the requirement.

14 Am I on the right page here for the
15 question?

16 MR. DUDLEY: He wanted a specific example.
17 I didn't think it was involved there in the --

18 MR. CARUSO: A specific example would be
19 50.54(hh)(2), the loss of large area requirements. We
20 have a requirement in place for them to develop and
21 maintain a program for, you know, having mitigating
22 strategies for these events.

23 It started as an order, and the program
24 for implementation was developed with input from the
25 industry and the NRC evaluating it, and basically an

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1 industry document was developed that guides how that
2 will be done.

3 MEMBER SHACK: There's a Reg. Guide that
4 endorses that document.

5 MR. CARUSO: And there's a Reg. Guide that
6 endorses it.

7 MEMBER SHACK: I mean, that's standard
8 procedure.

9 MR. CARUSO: Right.

10 MEMBER SHACK: I mean, if you're not
11 inspecting, that's really more his Case 1 back there
12 rather than this one, I think.

13 MR. CARUSO: There is inspection for it,
14 too.

15 MEMBER SHACK: I mean, I don't see that as
16 a Type 1 initiative. That's a rule.

17 MR. DUDLEY: Well, it's certainly
18 inspectable.

19 MEMBER SHACK: Yes, but I mean, I thought
20 that would be covered under your Activity 1, would
21 just be beyond design basis extension.

22 MR. DUDLEY: Oh, you mean improvement
23 activity.

24 MEMBER SHACK: Improvement activity.

25 MR. DUDLEY: The 50.54(hh) rule would fit

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1 in the extended design basis category. That's
2 correct.

3 MR. RECKLEY: This is Bill Reckley again.

4 I don't have one off the top of my head
5 for what we would do different now, but historically
6 I can give you one that's easy. We have regulatory
7 requirements in place for pressure boundary integrity.
8 When the issue came up on boric acid corrosion, we
9 accepted an industry program and did very little
10 inspection of boric acid corrosion because of that
11 initiative.

12 Had we to do it over again, that would
13 have been a Type 1 initiative because there's an
14 underlying requirement. We didn't do much, again. In
15 retrospect we probably would have done more.

16 CHAIRMAN SCHULTZ: That's a good example.

17 All right. I'd like to move forward with
18 the next presentation, which is NEI. Biff Bradley has
19 come to provide NEI's perspective.

20 Just for the Committee's information, Biff
21 has indicated he's got a hard stop at noontime, which
22 doesn't leave him much time here, but I'm sure he'll
23 use that time effectively.

24 Do you need help in drawing your slides
25 up? Oh, there. There it is. You're ready to go.

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1 MR. BRADLEY: All right.

2 MEMBER STETKAR: You just have to page
3 through them yourself.

4 CHAIRMAN SCHULTZ: For the benefit of the
5 record, Biff, go ahead and introduce yourself.

6 MR. BRADLEY: Sure.

7 CHAIRMAN SCHULTZ: And the topic as
8 stated.

9 MR. BRADLEY: Biff Bradley, NEI.

10 And I appreciate the opportunity present.
11 I guess by definition I'm going to be brief, but I'll
12 try to step through this. I want to respond a little
13 bit to some of what I've heard today.

14 So go ahead to the next slide.

15 Industry has done a good job in
16 communicating their thinking on Recommendation 1.
17 They've shared a number of versions of drafts, draft
18 papers. They've devolved the approach. They've come
19 up with various sets of options, and I just want to
20 compliment the Staff on the effort they've made to be
21 open and communicative about this.

22 The latest draft we received is dated May
23 14th, and I'm commenting on -- the comments we're
24 providing here are based on that. There were earlier
25 versions out there as well.

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1 Next slide.

2 NRC has consistently in both NTTF
3 Recommendation 1 itself and every evolution of this
4 white paper has noted that there is on substantial
5 nexus to safety for this activity. I just want to
6 note that because some of the discussion I heard today
7 seemed to suggest there was some hypothetical safety
8 benefit to a PRA requirement.

9 I would note that that has not been
10 brought out, discussed in any of the papers we've
11 received from the staff. so as I understand it, based
12 on everything we've gotten in writing, the Staff
13 continues to believe there's no substantial safety
14 nexus to the approach. I just wanted to note that.

15 One thing the Staff has improved was the
16 problem statement. I think there was a lot of
17 comments from stakeholders to the effect that the
18 problem statement needed to be better articulated.
19 Well, they've made an effort at that.

20 I think the problem statement still, if
21 you look at it, how much effort it justifies is
22 arguable, given that it is a limited problem
23 statement. It's not what I would consider a
24 significant problem that's identified.

25 Something that's come up to a great degree

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1 since this activity started has been the cumulative
2 effects effort, and both the NRC and industry and
3 other stakeholders are engaged now in a process to
4 make sure that the activities we're working on are
5 safety focused and that we're prioritizing the most
6 safety important activities at the plants using the
7 finite resources that we have.

8 I think this activity has to be viewed in
9 that light and our written comments discuss that. And
10 this has really evolved since the original proposal of
11 NTF. However, this is not immune from the same
12 scrutiny that everything else should get with respect
13 to cumulative effects.

14 We believe and have stated in our written
15 comments, that we believe any framework changes should
16 be limited. One, there's a whole litany of beyond
17 design basis and severe accident regulatory activity
18 underway now, rulemakings, orders, et cetera. I even
19 have a list later in my presentation, that is
20 essentially scratching the itch of this effort in
21 terms of looking beyond the current design basis and
22 identifying all of the new areas we need to bring into
23 the regulatory envelope.

24 There was a lot of discussion of the
25 Regulatory Analysis Guidelines. That's NUREG BR0058.

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1 I would suggest you actually read the document, and I
2 think NRC may have understated today the rigor of that
3 analysis and that approach. It does include
4 quantitative and qualitative aspects.

5 Just a point of reference. The regulatory
6 analysis for the Part 26 rulemaking was 472 pages in
7 length.

8 The other thing, there was a lot of
9 discussion of stability or predictability, the need to
10 somehow avoid the need to react to future events, et
11 cetera, and obviously that will never be achieved with
12 any framework. The world is a reactive place, and we
13 will react to the events that happen.

14 NRC can evoke adequate protection. That's
15 a term that does not have a definition, and NRC
16 through a long legal history has maintained the
17 ability to invoke adequate protection as they see fit
18 irrespective of cost benefit, and that will be
19 maintained in any framework that goes forward.

20 So just a note that the idea or concept of
21 an entirely predictable framework is really not
22 achievable, given that aspect.

23 Next slide.

24 Just a quick diagram showing the current
25 framework. I think a lot of times there's a lot of

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1 confusion between design basis and licensing basis,
2 and in fact, yeah, the plants do have a deterministic
3 design basis to a stylized accident, et cetera, but
4 the licensing basis over the years has gone way beyond
5 the design basis, and there was some discussion of
6 that today.

7 I mean, a lot of the rules that are beyond
8 design basis like ATWS, SBO, others, are already part
9 of the licensing basis, and in terms of
10 inspectability, enforceability, what have you, they're
11 exactly the same as something that's in the design
12 basis.

13 So I think we need to be a little more
14 careful with some of the terminology that we're using
15 here.

16 The other thing I would note is that as we
17 move forward with all these new rules that we're
18 developing now, the licensing basis is going to extend
19 all the way to the far right of this figure, even
20 encompassing the severe accidents. So we're going
21 there right now with the post Fukushima regulatory
22 activity. So this will look different or arguably
23 looks different now.

24 Next slide.

25 These are the major elements of the

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1 Recommendation 1 proposal. We're all familiar with
2 those. So why don't we go to the next one?

3 This is the one I was alluding to earlier.
4 There's a tremendous amount of regulatory activity
5 right now aimed at addressing insights from Fukushima,
6 and as you note, practically or actually all of these
7 are beyond the design basis, but NRC's moving forward
8 to establish a regulatory footprint in all of these
9 areas. So as you can see, there are a lot of
10 activities.

11 Many of are interrelated, and it's a very
12 challenging aspect of this, is that extended loss of
13 power, severe accident capable events, all of these
14 things tend to have some interrelation to each other,
15 and what we believe is there's a need for a more
16 comprehensive, cohesive look at all of these sets of
17 requirements to make sure that they are consistently
18 and appropriately put into place.

19 And I think there's a little bit of that
20 missing from the current activities. They tend to be
21 siloed to some degree.

22 So if you go to the next slide, with
23 respect to our needs, with respect to everything going
24 on right now, we are in need of a better
25 understanding, definition, clarity with respect to

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1 regulatory treatment once we get beyond design basis
2 or severe accident space, and how all these rules
3 integrate. We've put some of this into our written
4 comments on the various rules, such as the SAMG rule
5 or the ELAP rule.

6 Regulatory treatment, there was some
7 discussion of this in the NRC slides. There are a
8 whole list of aspects of regulatory treatment that we
9 can from QA to configuration control to anything else
10 you can -- maintenance rule. It's a long, long list
11 of these things, and there needs to be some
12 consideration of how all of these things will apply
13 once you go forward out of where we are now in the
14 severe accident space, and it's a different world out
15 there. the uncertainties are much larger. These are
16 low route and low probability space where we don't
17 have designed in redundancy, things of that nature.

18 So we need to be careful to balance all of
19 this, and I'll give you an example. Recommendation 8,
20 operator training, you know, operators have a finite
21 amount of training, and how much of that you want to
22 devote to severe accidents is, you know, a challenging
23 question because you don't want to dilute the
24 operator's attention to the more frequent events and
25 transience, et cetera, that they're likely to see.

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1 Obviously, the operators under the new
2 proposed rules, under Recommendation 8, that's going
3 to be brought in, but you have to be careful with
4 maintaining that balance as we go forward.

5 Next slide.

6 Getting to the specifics of the staff
7 proposal, we're still looking. May 14th is very
8 recent. We really haven't given it a full scrutiny
9 from the industry, but looking at what's proposed
10 there, I think the Staff has moved in the direction of
11 slightly more practical solution than what had been
12 proposed before in terms of definition versus a
13 rulemaking.

14 So I think going on to the next slide,
15 with respect to the design extension, essentially what
16 the Staff is proposing now in this area is a
17 definition and a policy statement, and they have
18 spoken to the need to address regulatory treatment.
19 So I don't think we're really too far off in our
20 thinking from what the Staff has proposed in the May
21 14th paper, and we do believe that you could provide
22 a better framework.

23 The need is now. This isn't really
24 something where we need it five years from now after
25 all these rules are in place. We really have an

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1 immediate need for clarity and definition with respect
2 to all of these beyond design basis or even beyond
3 current licensing basis rulemakings.

4 With respect to DID, I listened to what
5 was proposed. I guess I've been in the industry a
6 long time, nearly I guess over 30 years, and I've seen
7 defense in depth, you know, at the conceptual level.
8 At the level discussed today is one thing, but when
9 you get into the field and try to define DID on a
10 case-by-case basis, it's very difficult, and it's
11 really a philosophy. It's a little bit like trying to
12 define "truth" or "beauty."

13 We've seen in the field DID applied in
14 1,000 different ways, and you know, personally I do
15 believe there's value in more structure and clarity to
16 DID. However, I don't believe it will ever be fully
17 accurately clearly defined in a black and white way.
18 You're dealing with things like unknown unknowns.
19 It's not as simple as quantifying the known
20 uncertainties and doing things of that nature. There
21 are other elements that come in.

22 I think we have to be careful putting DID
23 as a concept into the Regulatory Analysis Guidelines
24 absent much more clarity on the definition. So again,
25 it's conceptually a great thing, and I think there is

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1 value in having more structure. I can't really speak
2 to everything that was just proposed. However, I
3 don't think it's a panacea.

4 And, you know, a good example of the DID
5 is FLEX. We're putting FLEX in. We probably can't
6 get a big, quantifiable benefit out of that. It's
7 there to address known as well as unknown unknowns.
8 You know, we're trying to put our resources into
9 mitigation, into real safety improvement, and so, you
10 know, I think DID does have a role in that.

11 I think sometimes just mitigating is
12 better than trying to analyze something ad nauseam,
13 and so we need to be careful with that balance. But
14 FLEX for us, you know, was the industry's proposal,
15 but we looked at this from a DID perspective in coming
16 up with that approach.

17 Next slide.

18 On industry initiatives, again, we haven't
19 really vetted the latest proposals fully with the
20 industry yet. I don't want to comment too much. I
21 did want to make a couple of comments on what I heard
22 the Staff say today.

23 Many of the Type 2 or a number of the Type
24 2 initiatives that were listed, one, a number of them
25 do now have a regulatory footprint already. An

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1 example of that would be a shutdown risk where the
2 industry initiative NUMARC-9106 has gotten codified
3 into the A-4 Maintenance Rule guidance, now fully
4 inspectable under Reg. Guide 1.160. So that's one
5 example.

6 Heavy loads is also under that same
7 regulatory umbrella.

8 Also, one word was left off the slide.
9 Type 2 are initiatives for items that potentially
10 would pass the regulatory analysis, and the word
11 "potential" was left off the slide. In fact, many of
12 those initiatives were pursued. There was never a
13 regulatory analysis done. So to say that all of those
14 would have passed the regulatory analysis, in many
15 cases I think NRC actually -- you know, we take action
16 because in many cases regulatory analysis is difficult
17 or not timely or maybe it won't pass, but the industry
18 takes the initiative to do that anyway.

19 I think it's slightly misleading to
20 characterize all of those type 2 initiatives as things
21 that would have otherwise passed the regulatory
22 analysis thresholds.

23 I think we've probably oversimplified this
24 a little bit with respect to all of these types of
25 initiatives and everything, but I think clearly our

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1 view is if some activity passes the regulatory
2 threshold, whether it's adequate protection or cost
3 justified under the Regulatory Analysis Guidelines, it
4 should be a regulated activity, and by definition, you
5 know, these things we do in the industry initiatives,
6 typically something like groundwater protection, there
7 is no regulatory aspect to that.

8 So, you know, I think that's a good
9 example of an industry initiative, but if there is a
10 regulatory case to be made and you can pass those
11 guidelines. you know, I don't understand why that
12 wouldn't be just the process NRC would follow.

13 Finally, my conclusions, and it's high
14 noon here. We do believe there's some value in the
15 limited approach that the Staff described in their
16 latest paper. We're still reviewing the remainder of
17 that, and I do think, again, you know, we can't escape
18 the same scrutiny that everything else is going
19 through now. We have finite resources at the sites.
20 We're trying to put those into hardware changes, real
21 tangible mitigation, safety improvements. How much of
22 that, you know, we would potentially want to distract
23 with some kind of exhaustive analysis to look for
24 things we may not have found, you know, I think is a
25 debatable question.

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1 Given the history we've had, PRA is a
2 great tool, and by the way, some of the discussion
3 makes it sound like we don't have PRAs. Every site
4 has very good PRAs. Scopes are growing pretty much to
5 the extent that the infrastructure is capable of
6 supporting right now. Internal events is done. We
7 pretty much meet the standard across the board. We
8 have fire being developed pretty much as fast as we
9 can for 8.05 as well as other applications.

10 Even seismic PRA post Fukushima, it was
11 recognized by the Staff you can't do that all at once.
12 It has to be sequenced out. There is an
13 infrastructure limit on our ability to do this stuff.
14 So we've got to be practical in considering, you know,
15 is that the right thing to do or is it better just to
16 go try to apply some DID and fit the improved safety
17 in a tangible way.

18 So I think that will end my comments.
19 I'll take any questions.

20 CHAIRMAN SCHULTZ: Any questions by the
21 Committee?

22 Biff, I presume that the industry and NEI
23 will be provide comments as part of the public comment
24 period.

25 MR. BRADLEY: Yes, of course we will, and

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1 again, you know, I appreciate the discussion today.

2 It was interesting, and I heard things
3 here that I didn't necessarily see in the papers that
4 have been provided so far.

5 CHAIRMAN SCHULTZ: Well, thank you very
6 much for your participation.

7 MR. BRADLEY: Thank you.

8 CHAIRMAN SCHULTZ: Do you have a comment,
9 John?

10 With that I'd like to open up the
11 discussion to public comments, and I'll do that by
12 recognizing Ed Lyman from the Union of Concerned
13 Scientists. He indicated he's like to make a comment.

14 And at the same time, Hossein, if we can
15 open up the Bridge Line so that anyone on the Bridge
16 Line could make a comment as well.

17 Ed, why don't you begin?

18 MR. LYMAN: Thank you.

19 This is Edwin Lyman from the Union of
20 Concerned Scientists. I appreciate the opportunity to
21 speak on this issue.

22 I came here today to reinforce our
23 organization's strong support for the concept of
24 Recommendation 1, as was articulated by the Near-Term
25 Task Force. We were concerned that both the industry

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1 and the Staff maintain the view that the so-called no
2 action approach would actually be not doing nothing,
3 but would be doing something by continuing along the
4 path of all the various initiatives to address severe
5 accidents that are ongoing.

6 However, we think in this case the no
7 action alternative is actually doing nothing with
8 regard to what the task force envisioned, which was an
9 attempt to create a unified framework and avoid the
10 continued addition of patches to the patchwork quilt,
11 and if we just proceed along the path that we're
12 going, then you're just going to be creating larger
13 and larger patchwork.

14 And so to that extent, I think I agree
15 with what I just heard from Mr. Bradley, that the
16 variety of initiatives that are being undertaken by
17 not dealing with Recommendation 1 first, as the task
18 force had envisioned, we are proceeding along the path
19 where you have a variety of different activities with
20 potentially different definitions, and it's not clear
21 they're all consistent.

22 Is reasonable protection of equipment
23 under the mitigating strategies order consistent with
24 what -- of the capability of the severe accident
25 capable event, for example, and the protection that

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1 would be required for a severe accident capable? It's
2 not clear they're consistent.

3 So I think Recommendation 1 would provide
4 an opportunity for the unification consistency of
5 these different inferences.

6 If the Commission continues to put off
7 doing something about this, it will continue a very
8 long tradition of not dealing with this issue. If you
9 go back to the early 1980s, and I thought Mr. Johnson
10 was going to be talking about this at the beginning,
11 but he went in a different direction, there was a
12 degraded core rulemaking, advanced notice of proposed
13 rulemaking for degraded cores.

14 If you go back and read that advanced
15 notice in the *Federal Register*, you realize that a lot
16 of these issues were raised at that time. What
17 happened historically was the industry came up with
18 its E-CORE (phonetic) Program, managed to convince the
19 Commission that these were low probability events that
20 didn't require being addressed.

21 Then you have the severe accident policy
22 statement which declared by fiat that operating
23 reactors were safe and you didn't need to consider
24 generic changes for severe accidents, and that led or
25 that contributed to the patchwork situation you have

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1 today. You went through the IPs, the IPEEEs, which
2 were not done in a consistent basis because there was
3 no unifying theme or template for all the
4 inconsistencies to be -- and so the value of those
5 reviews is limited because they were not done on a
6 consistent basis.

7 So, you know, we're here, again, to urge
8 the staff to adhere more closely to what the Near-Term
9 Task Force proposed, and to that extent I'm pretty
10 disappointed with a lot of the decisions that seem to
11 have been made at least with regard to the improvement
12 activity in number one. Like I said, you made the
13 wrong decision on almost every call.

14 The thing I'm most concerned about is the
15 idea that you would grandfather; you would add events
16 to the extension category and grandfather them. It
17 seems that is not dealing with the issues that we
18 discussed where you want to at least contemplate the
19 fact that there would be changes to some of the
20 requirements based on putting them in a category
21 presumably grouped by some sort of consistent
22 criteria.

23 So just by changing the name of certain
24 initiatives to call them design basis extension events
25 without addressing the criteria is just relabeling.

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1 You're not actually doing it.

2 The other major concern along those lines
3 is the idea that you would use existing regulatory
4 guidance to evaluate these new events. That doesn't
5 make sense to me. If you're going to have a
6 consistent approach, you want to look at the
7 regulatory guidance. You want to revise the
8 regulatory guidance in accordance with your new
9 criteria for how you're going to be judging the
10 importance of these various events, and then you judge
11 the events with regard to the new criteria.

12 So just take one example. Every utility
13 that has applied for license renewal has had to do SAM
14 analysis. This is a NEPA activity. It doesn't force
15 them to actually make any changes, but they have to go
16 through a litany of changes for severe accident
17 mitigation and evaluate whether there is significant
18 or substantial safety improvements and whether they're
19 cost justified.

20 You use the regulatory analysis for SAMA
21 based on the current criterion. If you look at how
22 the PRA is used in SAM analysis, in many cases where
23 there's no external events PRA or seismic PRA, you
24 just use a multiplier on the internal events PRA. So
25 you're not recognizing or acknowledging unique

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1 external event vulnerabilities that might not scale
2 the same way internal event vulnerabilities do.

3 So just take, you know, a very simple
4 example. If you were to make a proposed change by
5 increasing the seismic resistance of a particular
6 licensee, if your PRA doesn't have the seismic
7 component, then you're changing -- your delta CDF is
8 going to be zero.

9 And so when you're thinking about the
10 application of regulatory analysis, think about how
11 it's being used in that kind of context.

12 Another point is do you use mean values or
13 do you use another statistical parameter to make your
14 value judgments. Is the use of mean values the right
15 one to capture the right level of uncertainty?

16 So, for instance, if you look at
17 Fukushima, we know that there was a concentrate plume
18 of radioactivity to the northwest that occurred
19 because the particular release coincided with a
20 particular meteorological condition that led to that
21 increased contamination. Would that be captured by
22 the kind of mean value analyses that are done in a
23 SAMA or a backfit analysis when the MAX-2 code is used
24 to generate mean values over meteorological
25 conditions?

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1 You would miss that. You would not
2 capture those kinds of outliers. So you merely think
3 you need to change your regulatory analysis first and
4 then evaluate the significance of or what you need to
5 do to really make a significant safety improvement
6 with regard to severe accidents.

7 So in that regard I agree when the Staff
8 says their Improvement Activity No. 1 is not going to
9 make a difference with regard to safety. I agree with
10 that, but I think that's because they made the wrong
11 choices in some of their decisions.

12 So I think I'll stop there. Thank you.

13 CHAIRMAN SCHULTZ: Thank you for your
14 comments.

15 Are there any other comments of members of
16 the audience in the room before I turn to the Bridge
17 Line?

18 (No response.)

19 CHAIRMAN SCHULTZ: Seeing no one come
20 forward, I'd like to turn to the Bridge Line. Are
21 there members of the public who would like to make
22 comments at this point? Now is the opportunity.

23 MR. LAUER: Yes, this is Steve Lauer, a
24 member of the public. I'm a member of NRC NRR,
25 Division of Risk Assessment.

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1 CHAIRMAN SCHULTZ: Thank you, Steve.

2 MR. LAUER: I'd just like to note one
3 thing. The NTTF Task Force was commissioned by a
4 Staff requirements memorandum to take a quick look, a
5 90-day look to determine whether there were potential
6 vulnerabilities at U.S. sites as a result of
7 considering what happened at Fukushima.

8 The SRM recognized that there would be a
9 longer term phase that would carefully look for the
10 lessons that would be incorporated or should be
11 incorporated into the regulatory structure.

12 The NTTF Recommendation 1 Working Group,
13 which I'm a part of, has had the benefit of the NTTF
14 report, the Risk Management Task Force report, and
15 we've had access to the members of both of those task
16 forces. We've had access to information that was not
17 available to the NTTF. We've deliberated for over 18
18 months. We've interacted with management and the JLD
19 Steering Committee.

20 I do not believe that the NTTF
21 recommendations should be taken as givens, but rather
22 should be considered on their merits. The proposed
23 improvement activities that we propose are consistent
24 with the principles of good regulation and should not
25 be judged solely based on whether they meet the intent

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1 of the Near-Term Task Force.

2 Thank you.

3 CHAIRMAN SCHULTZ: Steve, thanks for the
4 perspective.

5 Are there other members of the public who
6 would like to make a comment at this time?

7 (No response.)

8 CHAIRMAN SCHULTZ: Hearing none, we're
9 going to close the Bridge Line and go to the next item
10 on the agenda, which is the path forward and schedule.
11 Dick, you were going to present that.

12 MR. DUDLEY: Okay. And this is just going
13 to be a rehash. It's going to be real quick.

14 I'm going back to Slides 4 and 5.

15 As you know, our May 15 white paper with
16 the recommendations that we described today,
17 essentially the same, is publicly released. There's
18 a public comment docket open on regulations.gov.
19 We're accepting comments until August 15th on that
20 docket.

21 I want to make sure everybody in the
22 public is aware of a public meeting coming up on June
23 5th. the meeting notice went out probably this
24 morning for us. After this meeting, we'll assess ACRS
25 feedback. We'll assess external feedback from the

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1 public meeting in June and internal feedback from
2 management and others, and we'll revise and update the
3 white paper, and we'll issue a fourth version in
4 August.

5 And as I said, we'll use that paper to
6 meet with the ACRS for their meeting on September 3rd.

7 Let's go to the next one.

8 We'll prepare the SECY paper. We'll have
9 another Subcommittee meeting followed by full
10 Committee meeting in November, and we will provide our
11 SECY paper to the Commission by December 2nd.

12 Are there any questions on the schedule or
13 comments?

14 CHAIRMAN SCHULTZ: I'm just looking for
15 the SECY paper. So on the slide before, the meeting
16 for us in September is going to be on September 4th,
17 I believe.

18 MR. DUDLEY: September 3rd.

19 CHAIRMAN SCHULTZ: Okay.

20 MR. DUDLEY: September 3rd.

21 CHAIRMAN SCHULTZ: That's correct.

22 MR. DUDLEY: I believe that's the date.

23 CHAIRMAN SCHULTZ: That's when we talked
24 we might have an opportunity to expand the discussion
25 to look at the regulatory framework as well.

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1 MR. DUDLEY: You have given us some things
2 to think about, and at that meeting we'll respond to
3 the issues that you've raised.

4 CHAIRMAN SCHULTZ: Dick, in going forward
5 beyond the public comment period, are there other
6 opportunities for public meetings that are on the
7 agenda?

8 MR. DUDLEY: We haven't decided. We may
9 have time to schedule a fourth public meeting. We're
10 going to decide. We'll have the meeting on June 5th,
11 and we'll see what the interest is.

12 CHAIRMAN SCHULTZ: Good.

13 MR. DUDLEY: Also, the decision to have
14 another public meeting would be affected by how
15 substantially the paper changes from the version
16 that's public now and will be discussed at the public
17 meeting on June 5th.

18 We haven't made that decision.

19 CHAIRMAN SCHULTZ: Okay. Thank you.

20 First, I'd like to thank you, Dick and
21 Mary and Dan, for your presentations this morning.
22 they're been very informative for the Committee.

23 And then with that I'd like to ask members
24 of the Committee if they have any other comments or
25 questions they'd like to bring forward. Joy.

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1 MEMBER REMPE: As you go forward, I heard
2 a lot of discussion today about implementation and
3 questions of how Activities 1 and even 2 would be
4 implemented, and I'd like to emphasize the details of
5 the models and the uncertainties in the models. If a
6 little, using perhaps just to me, but some of these
7 things could be done that are being proposed, and I
8 would like to see the implementation focus on some of
9 the uncertainties in the models that are being used to
10 implement things.

11 CHAIRMAN SCHULTZ: At least some
12 additional discussion in the meetings that we have
13 with the Staff. We can work on adding that or
14 including that in the agenda of either the September
15 or the October Subcommittee meeting for sure.

16 MEMBER REMPE: And thank you again for
17 your presentation, and I have to go to another
18 meeting.

19 CHAIRMAN SCHULTZ: Charlie.

20 MEMBER BROWN: Yeah. I don't have any
21 more than what I've said. I did want to make one
22 observation that I thought the white paper that you
23 gave us this time in preparation for this meeting, the
24 May -- the most recent one was very helpful to me
25 since I don't have a long, long history as background

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1 of the NRC's regulatory framework, and so this really
2 helped to frame your thought process relative to what
3 you all were thinking of doing relative to this. I
4 thought it was very good from my perspective, and I
5 just wanted to thank you for getting that out before
6 the meeting.

7 CHAIRMAN SCHULTZ: Bill?

8 MEMBER SHACK: No additional comments.

9 MEMBER RYAN: No additional comments.

10 Steve, thanks.

11 CHAIRMAN SCHULTZ: John?

12 MEMBER STETKAR: Nothing more. Thanks.

13 MEMBER SHACK: Sam.

14 MEMBER ARMIJO: Nothing more. A very good
15 presentation; well prepared; good white paper.

16 MEMBER BLEY: I enjoyed the discussion.

17 I guess I just want to reiterate. You know, Activity
18 2, I'd really like seeing this get organized. This is
19 the third attempt I recall at trying to get our arms
20 around defense in depth in a meaningful way, and I'd
21 like to see that make it.

22 Activity 1, I'm a little unsettled with
23 it, as I said, and I don't know how you make some of
24 the decisions you're trying to make without PRAs, and
25 as we've heard, at least to some extent there are PRAs

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1 all around at all the plants that could let them
2 address some of these issues.

3 CHAIRMAN SCHULTZ: And Dick?

4 MEMBER SKILLMAN: No, thank you.

5 CHAIRMAN SCHULTZ: All right. I'd like to
6 close the meeting, again, with the comment related to
7 the progress that has been made on this project.

8 The group has done a good job over the
9 past several months now both in framing the issue at
10 first and then now, as we've seen -- Charlie mentioned
11 it -- in focusing the issue as we've gone forward.
12 We're really looking forward to the public comment
13 period, and we'll be working with you to examine those
14 public comments before we come to our next meeting.
15 We'll look for that opportunity.

16 Appreciate that very much and look forward
17 to the next Subcommittee meeting. With that I'll
18 close the meeting.

19 (Whereupon, the proceedings went off the
20 record at 12:19 p.m.)
21
22
23
24
25

A stylized graphic of an atomic symbol, consisting of a central sphere and three elliptical orbits, rendered in shades of blue and white. It is positioned on the left side of the slide, partially overlapping the title text.

Fukushima Near Term Task Force (NTTF) Recommendation 1: Improved Regulatory Framework

NRC Staff Presentation to the Fukushima Subcommittee
of the Advisory Committee on Reactor Safeguards

May 23, 2013

Outline of Presentations

- Overview of Recommendation 1
 - Review actions taken and planned
- Improvement Activity 1 – Establish a design basis extension category of events and associated regulatory requirements
- Improvement Activity 2 – Establish Commission expectations for defense-in-depth
- Improvement Activity 3 – Clarify the role of voluntary industry initiatives in the NRC regulatory process

Evolution of NRC Approach

- In August 2012 ACRS meeting – Described 12 potential framework improvement activities
- In December 2012 ACRS meeting - Four options
 - Described in Nov. 2 white paper (ML12296A096)
- Today we will discuss three improvement activities
 - February 2013 white paper describing different ways to implement improvement activities (ML13053A108)
 - May 15, 2013 updated white paper with working group's recommended approach (ML13135A125)

Status and Next Steps

- NEI regulatory framework comments on NRC's Feb. 2013 paper were submitted April 30, 2013
- Public comment period on NRC's May 15, 2013 white paper (www.regulations.gov) opened on May 16, 2013 – closes on August 15, 2013 (Docket NRC-2012-0173)
- 3rd public meeting on June 5, 2013
- Staff will further update white paper (4th) in August 2013 to address ACRS, external, and internal feedback from JLD Steering Committee
- Provide 4th white paper to ACRS to support subcommittee meeting on Sept. 3, 2013

Status and Next Steps (cont.)

- Prepare SECY paper; provide to ACRS mid-Sept. 2013
- ACRS subcommittee meeting on Oct. 18, 2013
- ACRS full committee meeting on Nov. 7 & 8, 2013
- Receive ACRS letter Nov. 13, 2013 (if possible)
- Evaluate ACRS comments; modify SECY as appropriate; get management approval; and provide paper to Commission on Dec. 2, 2013



Improvement Activity 1

Establish Design Basis Extension Category

Improvement Activity 1

Establish a design basis extension category of events and associated regulatory requirements

- NTTF & RMTF recommended rulemaking to establish a new category for beyond design-basis requirements
- WG evaluated 3 approaches to establish new category
 - Approach #1 - Plant-specific approach with required PRA
 - Approach #2 - Plant-specific approach without required PRA
 - Approach #3 - Generic approach (without required PRA)
- WG recommends modified version of Approach #3

Categorization Approach Involves 2 Activities

- 1. Define category**
- 2. Identify requirements** (rules and orders) that go into the category

Working Group Recommendation

- Define a generic design basis extension category in internal staff guidance
- Populate the category – forward-fit only
 - New issues/information/rules

Activity 1 – Establish New Design Basis Extension Category

- NRC regulations already include a de-facto design extension category
 - e.g., SBO, ATWS, 50.44, 50.54(hh)
 - 50.46a, risk-informed GSI-191 rule, & Fukushima rules
- Rulemaking is not required to establish a new category of events (although recommended by NTTF and RMTF)

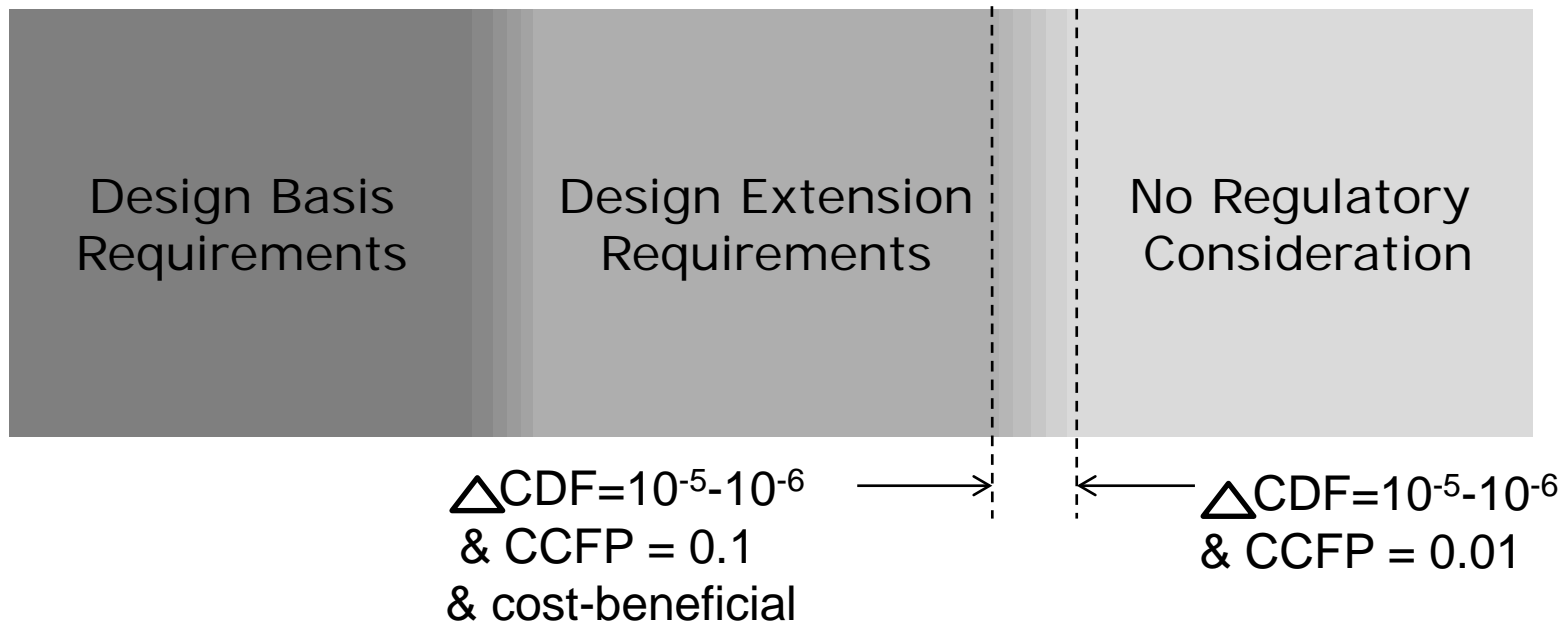
Contents of Staff Guidance

- Define “Design basis extension conditions (events and hazards)”
- Specify how to write future requirements (regulations and orders) to ensure they are consistent, coherent, and complete
 - Well-defined performance goals
 - Analysis methods & acceptance criteria
 - Treatment requirements
 - Design criteria, availability, testing requirements, QA/QC, training
 - Internal guidance would also provide general guidelines to assist staff in determining treatment requirements
 - Reporting requirements, including FSAR updating
 - Change process
 - Specify appropriate change processes (if § 50.59 not applicable) for licensee-initiated changes to SSCs utilized to comply with design extension requirements

Recommended Criteria for Inclusion in Category

Criteria for including requirements in design basis extension category:

- Adequate protection (determination not affected by this category)
- Safety enhancement - Use existing criteria in Reg. Analysis guidelines (NUREG/BR-0058, Figure 3.2)



Identify Design Basis Extension Requirements

- “Grandfather” SBO, ATWS, 50.44, 50.54(hh), etc. as design basis extension requirements
- Add ongoing/future design basis extension rules
 - 50.46a, risk-informed GSI-191 rule, Fukushima rules
- Working Group recommends not searching for additional events (NTTF Recommendation 1.4) because:
 - Ongoing rulemakings (mitigating strategies rule) and NTTF Recommendations 2 – 11 will address and investigate a wide range of safety concerns for needed safety improvements
 - NRC has processes that generically address new issues as they arise (generic issues program, ROP, petition for rulemaking process, etc.)
 - Existing plants have performed IPE and IPEEE studies
 - New reactors are required to have plant-specific PRAs
 - Current NRC resource limitations

Summary of Recommended Approach

Design basis extension category which:

- Is generic
- Addresses requirements needed for adequate protection and those justified as a cost-effective substantial safety enhancements
- Does not require a plant-specific PRA
- Is applicable to current and future licensees and applicants
- Specified existing requirements “grandfathered” without change
- Applies only to new/additional design basis extension requirements
- Can be implemented on ongoing Fukushima rulemakings
- Low cost for NRC and licensees



Improvement Activity 2

Establish Commission Expectations for Defense-in-depth

Purpose of Presentation

- To **illustrate the approach** to demonstrate there is a reasonable likelihood of success in developing policy statement on defense-in-depth and associated implementing guidance
- Not to debate the terminology or wording
 - Discussion on terminology and wording will be pursued once concept/approach is established
 - Examples are provided to clearly communicate the concept and approach

Basis for Addressing Defense-in-Depth as an Improvement Activity

- To achieve consistency in concept, approach and terminology in order to achieve a common understanding regarding defense-in-depth
- To have Commission approval regarding defense-in-depth concept, approach, and structure

Background – A Sample of the History

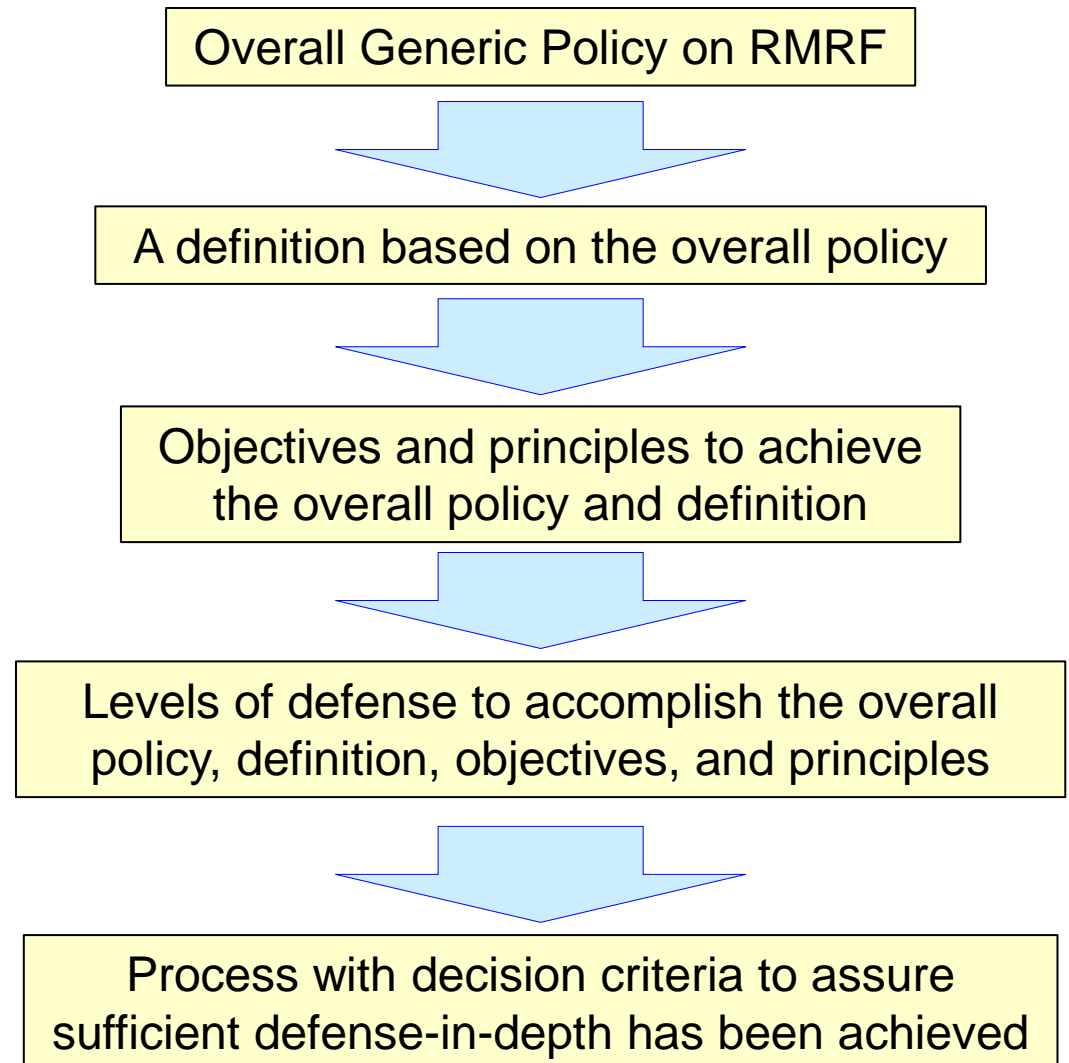
- WASH-740, 1957
- Joint Committee on Atomic Energy Hearings
- Internal Study Group
- ECCS Hearings
- WASH-1250
- 10 CFR Part 60
- Post TMI Definitions and Examples
- NUREG/CR-6042
- Commission Policy Statements
- NUREG-1537
- MIT Speech by Chairman Jackson
- Commission White Paper
- Some Thoughts on Defense-in-Depth by Tom Kress
- PSA '99 paper
- ACRS letters
- IAEA Documents (INSAG-3, 10, & 12, NP-T-2.2)
- 10 CFR Part 50, Appendix R
- Joint ACNW/ACRS Subcommittee
- A Risk-Informed Defense-in-Depth Framework for Existing and Advanced Reactors, Karl Fleming, Fred Silady
- 10 CFR 50.69
- NEI 02-02
- Petition on Davis Besse
- Remarks by Chairman Diaz
- Digital Instrumentation and Controls (NUREG/CR-6303, RG 1.152, NUREG-0800 BTP HICB-91, NUREG-0800 SRP BTP 7-19, DI&C-ISG-02)
- NUREG-1860
- INL NGNP report
- RG 1.174
- NRC glossary
- RMTF – NUREG-2150, 2012

Evaluation of History

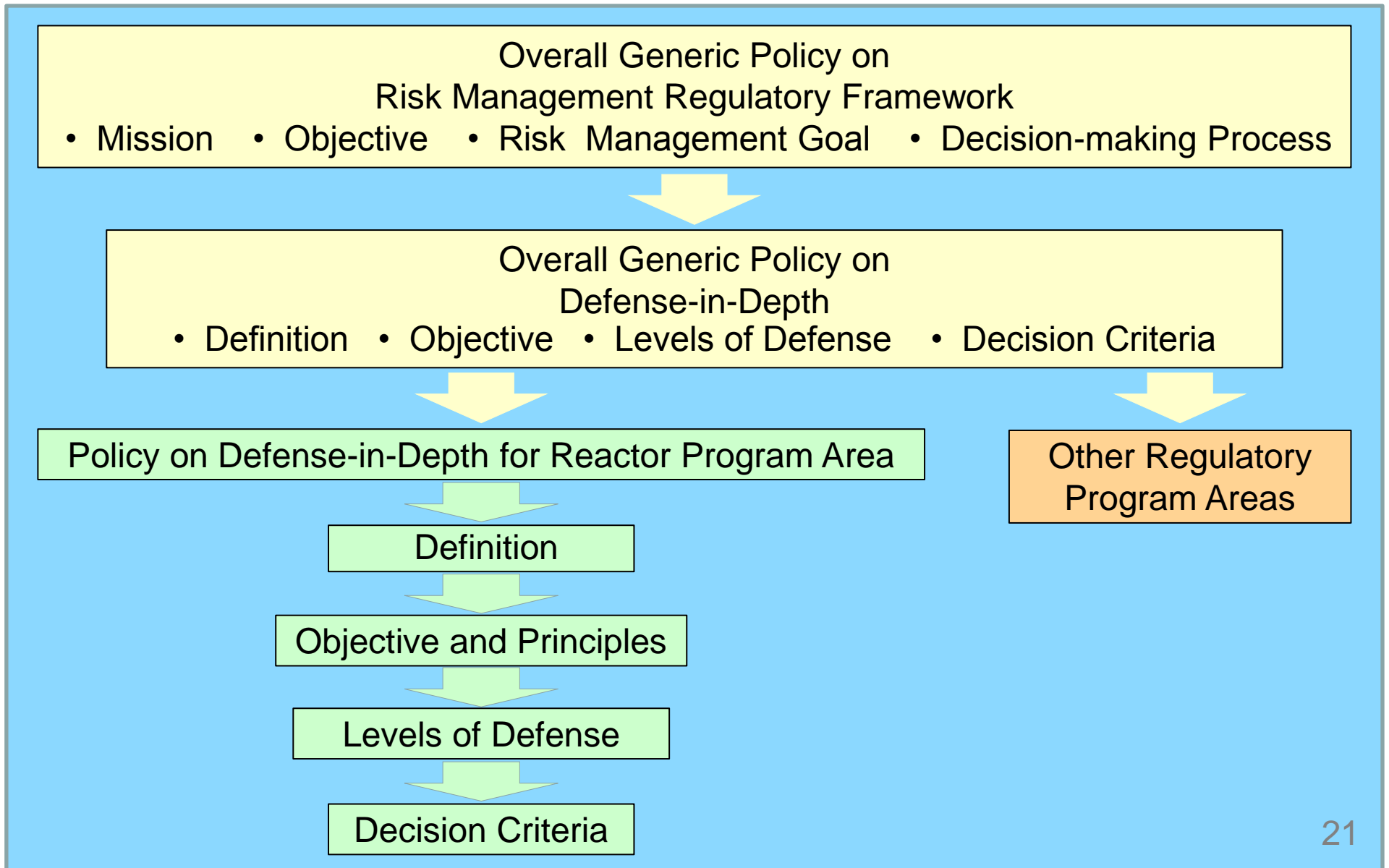
- Similar concepts and views regarding defense-in-depth
- Confusion and misunderstanding because of inconsistencies in terminology

Working Group Approach to Defense-in-Depth

- Policy on defense-in-depth will be developed in a logical, systematic manner to achieve consistency in the treatment of defense-in-depth across the agency
- Defense-in-depth approach will be based on a hierarchical structure



Example of RMRF Proposed Policy Statement



Example Policy and Definition for Reactor Safety Described in the Policy Statement

- **Example Policy**: A defense-in-depth approach is used to provide reasonable assurance of public health and safety from the operation of the reactor of a nuclear power plant.
- **Example Definition**: Defense-in-depth is a strategy that employs successive levels of defense and safety measures in the design, construction and operation of the nuclear power plant to ensure appropriate barriers, controls, and personnel are in place to prevent, contain, and mitigate exposure to radioactive material.

Example Objectives and Principles for Reactor Safety Described in the Policy Statement

Example Objectives and Principles: keep the risk to the public from the operation of the reactor of a nuclear power plant acceptably low by

- Compensating for uncertainties, including events and event sequences which are unexpected
- Making the nuclear power plant more tolerant of failures and external challenges

By implementing the following **example** principles:

- Key safety functions are not dependent upon a single element of design, construction, maintenance or operation
- Uncertainties in SSCs and human performance are accounted for in the safety analysis and appropriate safety margins are provided
- Application of conservative codes and standards
- High quality in the design, construction, and operation of the nuclear power plant
- System redundancy, independence, and diversity are part of the design and operation
- Defenses against potential common-cause failures are part of the design and operation

Example Levels of Defense and Decision Criteria for Reactor Safety Described in Policy Statement

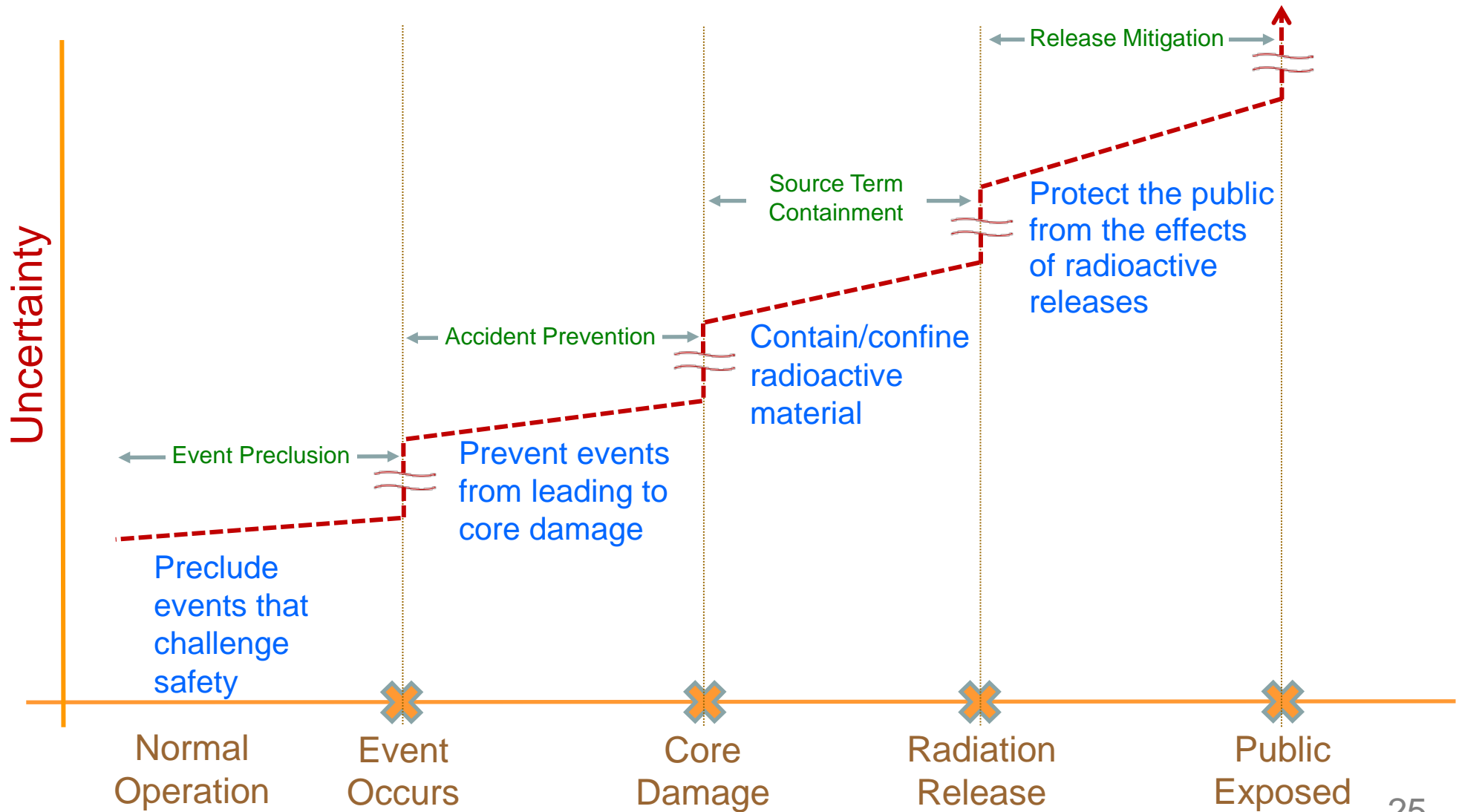
Example Levels of Defense: defense-in-depth is comprised of four successive levels of defense where each level's defense measures are applied if the previous level fails

- Event preclusion – safety measures that preclude events that could challenge safety
- Accident prevention – safety measures that prevent events from progressing to core damage
- Source term containment – safety measures that prevent radioactive release from the containment
- Release mitigation – safety measures that protect the public from the effects of radioactive releases

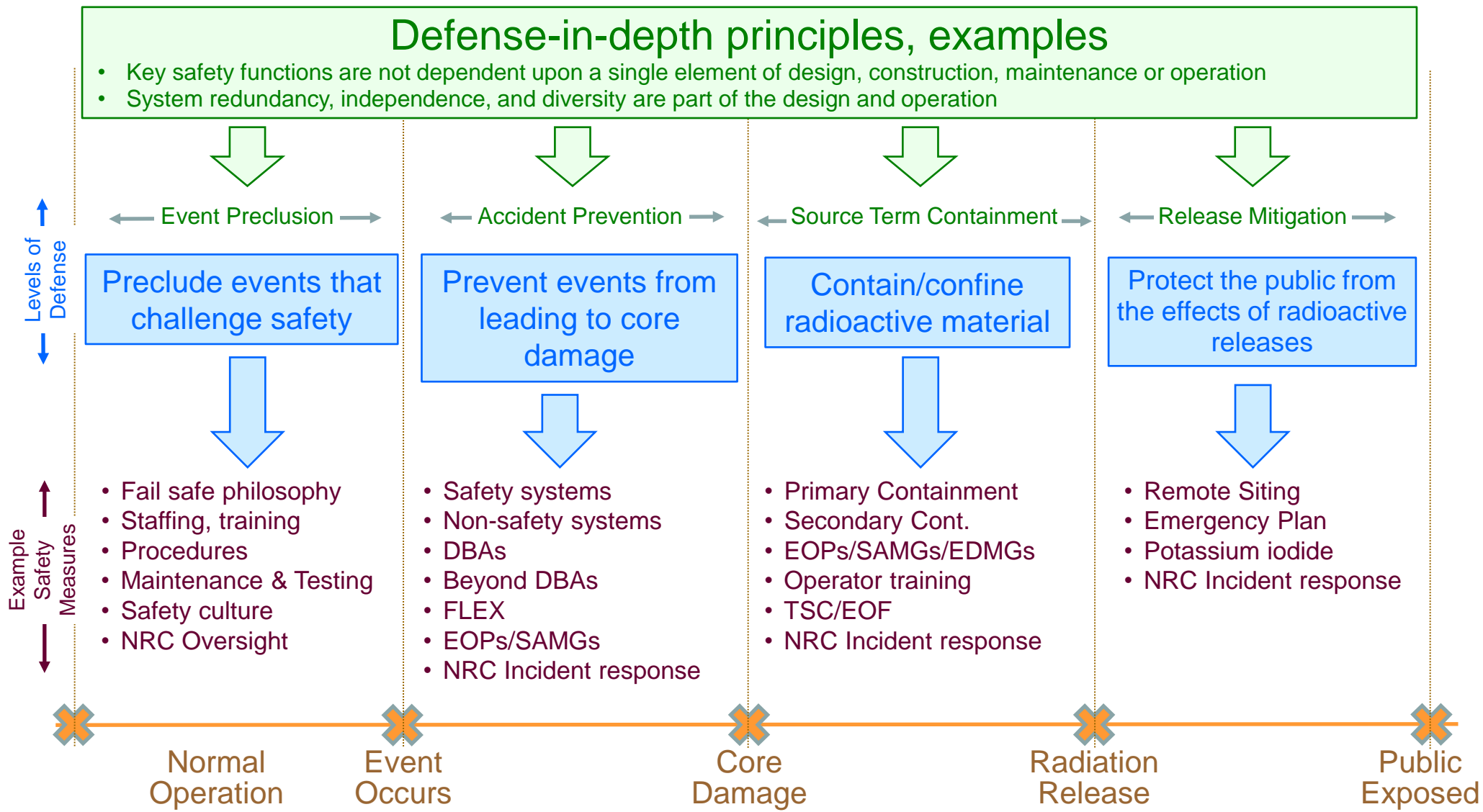
Example Decision Criteria:

- DID objective
- Safety margins
- Monitoring
- Overall risk
- Levels of defense
- DID principles
- Levels of defense safety measures
- Significance of uncertainties
- Quantitative acceptance guidelines

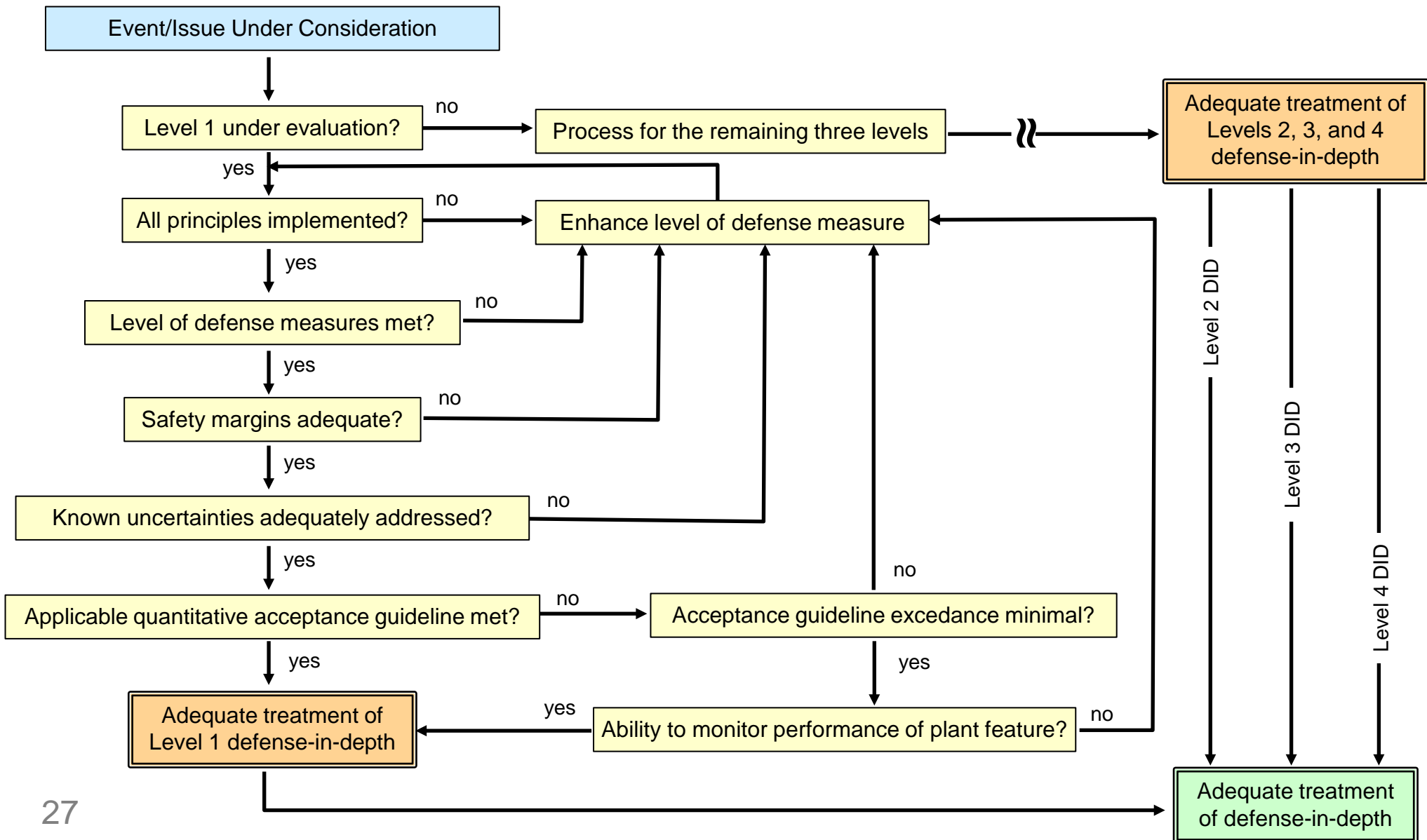
Nuclear Power Reactor Defense-in-Depth Consists of Four Levels, Defined by a Step Increase in the Uncertainty at Each Accident Sequence Stage



Examples of Reactor Safety DID Principles and Implementation Safety Measures for each Level of Defense



Draft Example Decision Process



Improvement Activity 2: Establish Commission Expectations for Defense-In-Depth

Key Decision	Options
Require Plant Specific PRA?	<input type="checkbox"/> Yes <input type="checkbox"/> No ✓ No, but use plant-specific risk insights as available
Applicability? (licensed entities)	<input type="checkbox"/> Future licensees and applicants ✓ Current and future licensees and applicants
Forward looking or retrospective (issues)?	✓ Forward looking: applies only to new issues <input type="checkbox"/> Forward looking and retrospective: applies to future issues and could also be used to identify need for additional defense-in-depth for currently operating plants

Relationship Between NTTF and RMRF

- NTTF working group (WG) providing recommendations for addressing:
 - Defense-in-depth for power reactor safety
 - Process addressing BDBEs
 - Voluntary initiatives
- RMRF WG providing recommendations for
 - A draft policy statement for a RMRF to be issued for formal public review and comment
 - addresses overall agency and each program area individually
 - defense-in-depth is a major piece
 - A detailed plan for implementing the recommendations in NUREG-2150 which include addressing Beyond Design Basis Events (BDBEs)
 - ***Voluntary initiatives not part of scope***
- RMRF WG will disposition RMRF recommendations for power reactors based on decisions made on NTTF Rec. 1 as guided by the Commission SRM
- Both groups working together, common staff on both groups to help ensure consistency and efficiency

RMRF Proposed Policy Statement

Overall Generic Policy Statement on Risk Management Regulatory Framework

- Mission
- Objective
- Defense-in-depth Approach
- Decisionmaking Process

Overall Generic Statement on Defense-in-Depth

- Definition
- Objectives and principles
- Levels of defense
- Decision Criteria

Overall Generic Policy Statement on Decision Process

- Identify Issue
- Identify Options
- Analyze
- Deliberate
- Implement Decision
- Monitor

Policy Statement on Defense-in-Depth for each Program Area

- Definition
- Objectives and Principles
- Levels of Defense
- Decision Criteria

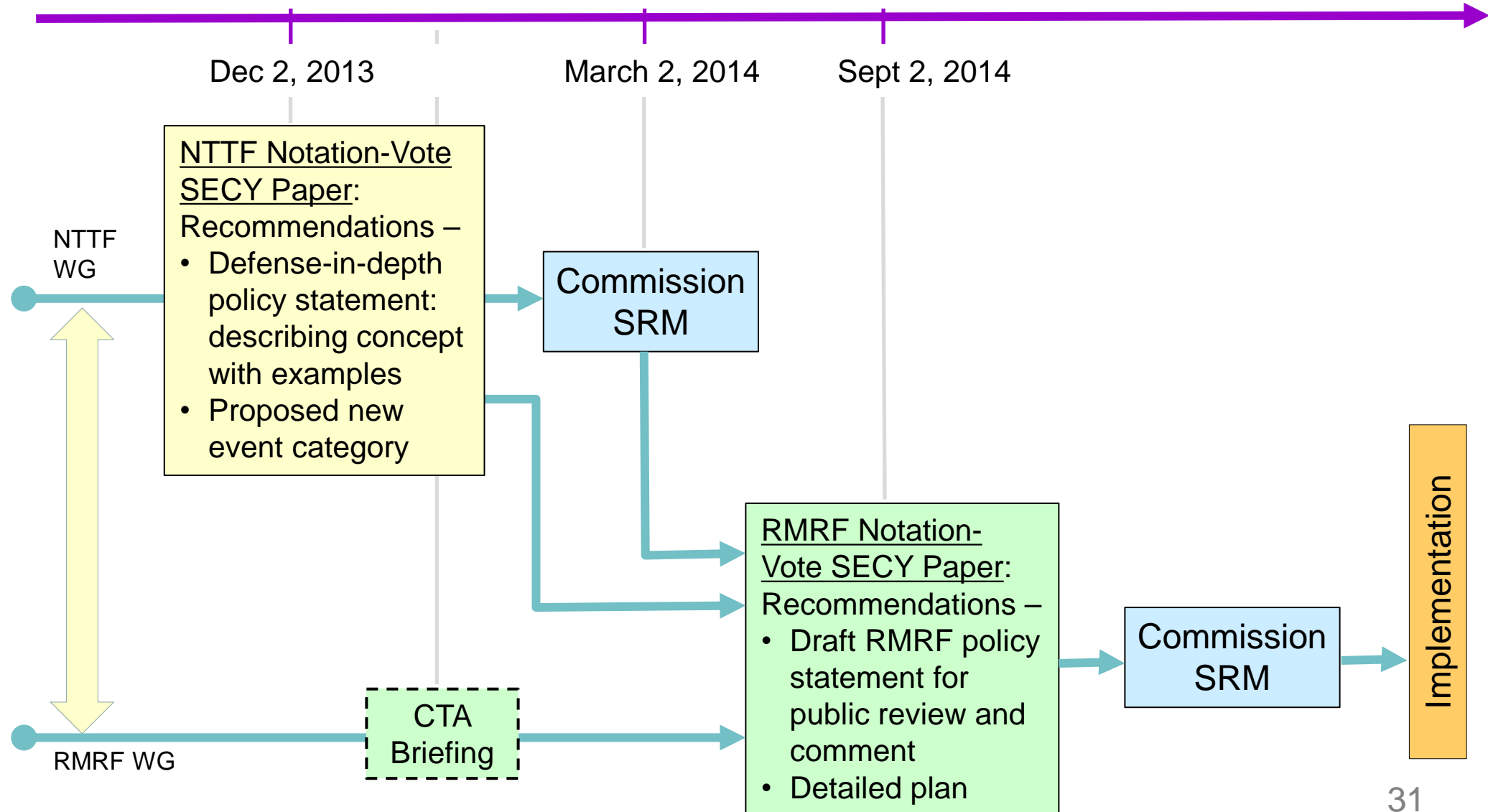
Power Reactors		Non-pwr Rxs		Materials		Waste		Fuel Cycle		Uranium Recovery		Spent Fuel		Transportation	
Safety	Security	Safety	Security	Safety	Security	Safety	Security	Safety	Security	Safety	Security	Safety	Security	Safety	Security

Implementation Guidance for Defense-in-Depth Adequacy of each Program Area

Power Reactors		Non-pwr Rxs		Materials		Waste		Fuel Cycle	
Safety	Security	Safety	Security	Safety	Security	Safety	Security	Safety	Security
Uranium Recovery		Spent Fuel Storage		Transportation					
Safety	Security	Safety	Security	Safety	Security	Safety	Security	Safety	Security

NTTF Recommendation on DID

Relationship Between NTTF and RMRF (cont'd)





Improvement Activity 3

**Clarify the Role of
Voluntary Industry
Initiatives in the NRC
Regulatory Process**

Activity 3 – Introduction

- Activity 3 would clarify the role of certain industry initiatives in NRC's regulatory processes by:
 - Re-affirming the Commission's expectation that industry initiatives may not be used in lieu of NRC regulatory action on adequate protection issues.
 - Specifying when certain industry initiatives may be credited in the baseline case for regulatory analyses
 - Providing guidance regarding what level of NRC oversight is appropriate

Activity 3 – Background

- Direction-Setting Initiative 13 (SECY-97-303) resulted in decision to develop guidelines for using industry initiatives
- SRM-SECY-99-063 stated that regulatory framework allows voluntary initiatives **except in issues involving adequate protection**
- SRM-SECY-00-0116 – directed staff to publish guidelines for using voluntary initiatives (65 FR 53050; Aug. 31, 2000)
- SECY-01-0121- Responding to overwhelmingly negative comments from public and industry stakeholders, the NRC abandons voluntary initiative program
- Fukushima Near Term Task Force Report
- Risk Management Task Force Report (NUREG-2150)

Activity 3 – Relationship to NTTF and RMTF Reports

- Fukushima Near Term Task Force Report
 - Notes that "... voluntary industry initiatives should not serve as a substitute for regulatory requirements but as a mechanism for facilitating and standardizing implementation of such requirements." The NTTF further notes that "... NRC inspection and licensing programs give ... little attention to industry voluntary initiatives since there are no requirements to inspect against."
 - Examples include SAMGs and BWR hardened vents
- Risk Management Task Force Report (NUREG-2150)
 - "The extent to which licensee activities undertaken as part of voluntary industry initiatives can be credited has been a source of contention in the Reactor Oversight Process and has reduced the efficiency of that process."

Types of Industry Initiatives

from Regulatory Analysis Guidelines (NUREG/BR-0058, Rev 4)

- Type 1: those put in place in lieu of, or to complement, a regulatory action to ensure that existing requirements are met (e.g., BWRVIP, PWR MRP)
- Type 2: those used in lieu of, or to complement, a regulatory action in which a substantial increase in overall protection could be achieved with costs of implementation justifying the increased protection (e.g., SAMGs, BWR MK-I hardened vent, Backup power for H₂ igniters)
- Type 3: those that were initiated to address an issue of concern to the industry but that may or may not be of regulatory concern (e.g., groundwater monitoring)

Activity 3 – Description

- Implement with either a Commission Policy Statement or revisions to existing guidance
- Industry initiatives may not be used in lieu of NRC regulatory action on adequate protection issues.
- Industry initiatives may not be credited in the baseline case in the regulatory analysis unless there is a high likelihood that the industry will effectively implement and maintain the initiative over time.
- Revise oversight processes (inspections, audits) to verify the implementation and effectiveness of Type 2 initiatives which the NRC believes are important from both a safety and regulatory perspective.

Activity 3 – Additional actions

- Review licensee commitments made as a result of IPE/IPEEE programs and verify that those with the highest safety significance were implemented and have been maintained.
- Modify inspection procedures to provide more oversight of the most significant Type 1 initiatives which the NRC believes are important from both a safety and regulatory perspective.

Existing Type 2 initiatives

- Low power/shutdown risk
- Severe Accident Management Guidelines
- Hydrogen igniter backup power for BWRs and ice condensers
- Industry Initiative on Underground Piping and Tanks Integrity
- Heavy load lifts
- Motor Operated valves
- Substandard Non-Safety-Related Molded Case Circuit Breakers
- Piping Erosion/Corrosion
- Station Blackout (Diesel Reliability portion)
- Oil Loss in Rosemount Transmitters
- Design Basis Programs
- Fraudulent Flanges
- Comprehensive Procurement Initiative
- Managing Regulatory Commitments
- Safety culture initiative

Activity 3 – Summary of Recommended Approach

- Develop policy statement or guidance on industry initiatives
 - Not for adequate protection issues
 - When to credit in the baseline case of the regulatory analysis
- Develop infrastructure and guidance for oversight of certain Type 2 initiatives
- Review certain IPE/IPEEE commitments
- Modify inspection procedures to provide more oversight of certain Type 1 initiatives

NTTF Recommendation 1 Industry Perspectives

ACRS Fukushima Subcommittee

May 23, 2013



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nuclear. clean air energy.



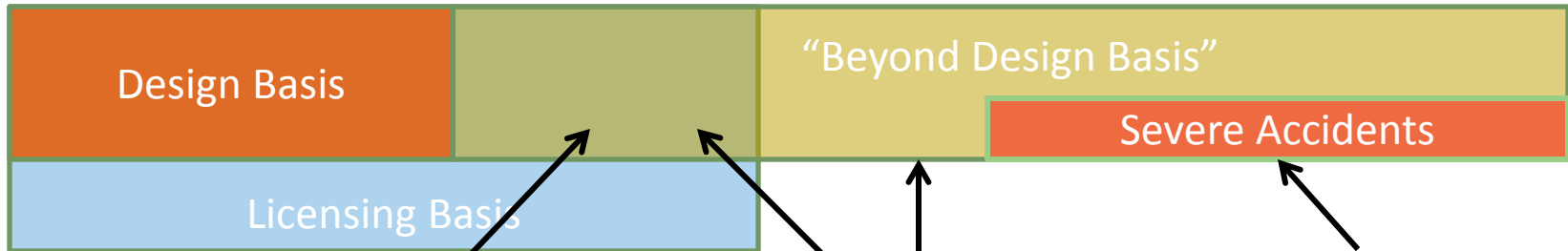
Background

- Industry has commented twice on versions of the NRC staff draft paper addressing alternatives for Recommendation 1
 - December 13, 2012
 - April 30, 2013
- This presentation addresses the latest draft NRC working group document, dated May 14, 2013

Overall Observations

- No safety basis to support framework change
- Problem statement has been better defined in response to earlier comments, but still provides limited justification
- Resource impact should be considered in light of cumulative effects
- Industry believes framework changes should be limited
 - Significant beyond design basis regulatory activity is underway now
 - Regulatory analysis guidelines appropriately consider new information and requirements
 - Adequate protection may always be invoked in any regulatory framework

Current Framework



A Plant's Licensing Basis includes, but extends outside of the plant Design Basis.

Beyond design basis (BDB) conditions are those that are outside the plant design basis. This includes both licensing basis conditions and other, more extreme conditions

Severe accidents (SA) are a subset of all beyond design basis conditions.

Recommendation 1 Elements

1. Establish a design extension category of events and Associated Regulatory Requirements
2. Defense in depth – enhanced definition and consideration in regulatory analysis guidelines
3. Regulatory Treatment of Industry Initiatives

BDB and Severe Accident Regulatory Activities

- Extended loss of AC power rulemaking (BDB)
- Filtering strategies rulemaking (SA)
- SAMG rulemaking (BDB-SA)
- Severe accident capable BWR vent order (SA)
- Reliable hardened BWR vents (BDB)
- SRM on economic consequences, reg analysis guidelines (SA)
- Recommendation 1

Industry Needs

- Consistent regulatory approach to address BDB/SA rulemakings, orders, etc.
- Integration of existing BDB and SA rulemakings with respect to content, schedule and approach
- Definition and consistency of regulatory treatment for BDB and SA considerations
- Proper balance of DB, BDB and SA expectations and regulatory treatment with respect to likelihood

Design Extension Category

- Industry did not support design extension approach in our comments
- Latest staff draft position (May 14) is under review
- Design extension is proposed as definition
- Define new category, but no rulemaking
- Prospective versus retrospective
- Generic versus plant-specific
- Address NRC policy, guidance and procedures

Design Extension Category

- If timely, a policy statement on BDB/SA regulatory approach and integration could address industry needs identified on slide 7
- Could provide framework for better BDB/SA rule integration, consistency and approach

Defense in Depth

- NRC proposes Commission Policy Statement to establish definition, objectives and principles of DID
 - DID is a philosophy
 - Experience suggests the term can never be fully defined and clarified
 - Potential inclusion in regulatory analysis guidelines problematic absent clear definition

Industry Initiatives

- Not prepared to comment on categories recommended in latest NRC paper
- By definition, industry initiatives address issues that do not reach the level of regulation
- Basis for a regulatory footprint on industry initiatives is therefore not clear

Conclusions

- Value in limited approach to Recommendation 1 to establish regulatory treatment considerations BDB/SA
- Other elements of proposal are under review, but were not supported by our written comments
- Cumulative impact if this activity should be considered given lack of safety basis