

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BRIEFING ON RISK-INFORMED INITIATIVES

PUBLIC MEETING

Nuclear Regulatory Commission
Commission Hearing Room
11555 Rockville Pike
Rockville, Maryland
Monday, January 11, 1999

The Commission met in open session, pursuant to notice, at 2:05 p.m., Shirley A. Jackson, Chairman, presiding.

COMMISSIONERS PRESENT:

- SHIRLEY A. JACKSON, Chairman of the Commission
- GRETA J. DICUS, Commissioner
- EDWARD McGAFFIGAN, JR., Commissioner
- JEFFREY S. MERRIFIELD, Commissioner

STAFF PRESENT:

- ANNETTE L. VIETTI-COOK, Secretary
of the Commission
- KAREN D. CYR, General Counsel

PRESENTERS:

- SAMUEL COLLINS, NRR
- WILLIAM TRAVERS, EDO
- GARY HOLAHAN, NRR
- ASHOK THADANI, RES
- THOMAS KING, RES
- TONY PIETRANGELO, NEI
- RALPH BEEEDLE, Nuclear Generation
- STEVE FLOYD, NEI
- DAVID LOCHBAUM, UCS

P R O C E E D I N G S

[2:05 p.m.]

CHAIRMAN JACKSON: Good afternoon, everyone. I'm pleased to welcome members of the NRC staff, the Nuclear Energy Institute, and the Union of Concerned Scientists here today to brief the Commission on the status of recent risk-informed initiatives, recent accomplishments in this area, and any areas where difficulties, challenges, or limitations have arisen affecting our ability to incorporate risk-informed approaches to our regulatory processing.

11 In August 1995 the Commission issued the
12 probabilistic risk assessment policy statement, formalizing
13 its commitment to risk-informed regulation. More recently,
14 the staff has developed a paper on risk-informed
15 performance-based regulation that defines what is meant by
16 these terms and how these concepts fit into the regulatory
17 process. This paper will be available in its final form
18 shortly.

19 Over the last two to three years the staff also
20 have developed guidance, including standard review plan
21 sections and regulatory guides on the use of risk
22 information, and the staff currently -- hello -- is
23 processing license amendment applications that use risk
24 assessments as part of their technical justifications. Over
25 the past several months significant progress on

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1 risk-informed initiatives has been made in many focused
2 areas such as technical specifications, in-service
3 inspection, in-service testing, and quality assurance.

4 At the same time -- we don't have the sound,
5 excuse me. Can you hear me? Okay.

6 At the same time the NRC has received feedback
7 from the nuclear power industry and other stakeholders that
8 some of the risk-informed initiatives may not have the
9 desired effect and that issues remain to be resolved in the
10 definition of terms.

11 Today the staff is prepared -- I think you're
12 prepared -- to discuss options for incorporating
13 risk-informed approaches into a much broader range and band
14 of the Commission's regulations governing power reactors.
15 In its September 2, 1998 briefing to the Commission on the
16 status of the PRA implementation plan, the staff proposed
17 the development of various options for risk-informing
18 requirements in 10 CFR Part 50. The staff has completed
19 development of high-level options for risk-informing Part
20 50, and these options are described in a paper that
21 currently is before the Commission. This paper has been
22 released to the public to foster discussions during today's
23 briefing.

24 The staff will cover these high-level options
25 today along with other risk-informed initiatives. The

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1 Nuclear Energy Institute and the Union of Concerned
2 Scientists have been asked to provide their views on key
3 issues that should be assessed and addressed in moving
4 forward on risk-informed regulation. I understand that
5 copies of the viewgraphs and that SECY-98-300 are available
6 at the entrances to this room.

7 I also would like to note that many of the
8 Agency's risk-informed and performance-based initiatives and
9 milestones are included in what is termed the staff's update
10 to the tasking memorandum response, which is issued monthly
11 and is available on the NRC's home page.

12 So unless my colleagues have any opening remarks,
13 Dr. Travers, please proceed.

14 DR. TRAVERS: Thank you, Chairman, and good
15 afternoon. This is the first of three Commission briefings
16 on recent staff efforts to improve some very important
17 Agency regulatory processes. Briefings on January 13 will
18 cover reactor licensing issues, and on January 20, the plant
19 oversight process.

20 Today's briefing will cover risk-informed
21 initiatives and is structured to provide an overview of the
22 overall Agency direction in that area. Included in this

23 overview are the status of the key risk-informed initiatives
24 described in my response to the Chairman's August 1998
25 tasking memo. This also includes a discussion of the recent

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1 paper sent to the Commission, SECY-98-300, on risk-informing
2 10 CFR Part 50.

3 I think it's important to emphasize that we have
4 made progress in risk-informing Agency activities with many
5 specific actions under way or planned. These efforts have
6 involved extensive interoffice cooperation and have been
7 developed in an open and deliberate fashion with significant
8 opportunities for stakeholder input.

9 However, as you will hear today, there are still
10 significant challenges and work ahead if we are to fully
11 realize the benefits of risk-informed regulation. At the
12 table with me are Sam Collins, Director of NRR; Ashok
13 Thadani, Director of Research; Gary Holahan, who is the
14 Director of the Division of Systems Safety Analysis, NRR;
15 and Tom King, Director of the Division of Systems Technology
16 in the Office of Research.

17 And now I'd like to turn it over to Ashok to begin
18 the briefing.

19 CHAIRMAN JACKSON: Please. Thank you.

20 MR. THADANI: Thank you, Bill. Good afternoon.

21 May I have the first viewgraph, please.

22 I'm going to very quickly cover a little bit of
23 the background, and then both Tom and Gary are going to get
24 into some of the specifics of the paper that we have
25 transmitted.

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1 The Commission has in fact long realized the value
2 of risk information in improving safety. Some of the
3 underlying bases for many of our current policies and
4 practices are the safety goal policy that has in it a
5 definition of quantitative health objectives as well as a
6 discussion of subsidiary objectives such as core damage
7 frequency, and they use these subsidiary objectives,
8 particularly the core damage frequency as well as the
9 containment performance in the regulatory analysis
10 guidelines document, wherein these criteria are used to
11 determine if in fact any new requirement would lead to
12 substantial improvement in safety or not.

13 Similarly we have as individual plant
14 examinations, for internal events as well as external
15 events, reports have been available. We have increased use
16 of probabilistic thinking in even areas like inspection and
17 so on, oversight.

18 As in fact the body of this knowledge and the
19 information has grown, the Commission recognized that it was
20 time to make much broader use of these insights and go
21 beyond what traditionally we had done -- when I say
22 traditionally, certainly over the past ten years or
23 longer -- focusing on generic design issues and applying
24 these techniques to operational experience. And this
25 philosophy was expressed in the Commission's PRA policy

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1 statement as you noted, Chairman, which was issued in 1995
2 actually. The key step in this regard was the development
3 of a set of risk-informed regulatory guides and the standard
4 review plans over the last year, that these documents were
5 then used in terms of assessing -- evaluating license
6 amendments, so on.

7 The other activities under way include looking at

8 currently things like baseline inspection programs,
9 assessment of plants, and certainly risk-informing Part 50
10 of our regulations -- all of these activities taking up, as
11 you well know, a significant amount of resources, and
12 particularly NRR and Research have been working as a team to
13 address these issues. It's an interoffice effort. AEOD has
14 been fairly active as well in selected portions of these
15 activities.

16 Now because there are so many activities related
17 to things like data methods and applications of risk
18 information, it was important to ensure proper focus and
19 integration. To do that we have the PRA implementation
20 plan, which includes activities, responsibilities,
21 schedules, and the need for coordination of those. We
22 provide quarterly update in terms of the status of the
23 implementation plan to the Commission, and every six months
24 brief the Commission on the status of all these activities.

25 Today we're going to focus on the key ongoing

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1 activities associated with Part 50, as well as some of the
2 reactor licensing issues. And unless you have questions,
3 I'd go to Tom King to discuss Part 50.

4 CHAIRMAN JACKSON: Let me ask you a couple of
5 quick questions.

6 MR. THADANI: Okay.

7 CHAIRMAN JACKSON: One really has to do with the
8 following question, and that is how -- you mention
9 interoffice activity -- but how are you ensuring a
10 consistent approach to risk-informed regulation, in that
11 whether you're talking plant activities or systems,
12 structures, and components, that there's a consistency of
13 methodology or approach across all Agency functions in that
14 regard?

15 MR. THADANI: In fact that is the issue of making
16 sure that we have the right infrastructure in place. An
17 example was the regulatory guides that we develop for
18 specific licensing applications, but in the Part -- as a
19 matter of fact in the Part 50 paper we had discussed some of
20 the implementation issues, and it was Attachment -- it was
21 actually I remember the last one on implementation issues
22 for risk informing Part 50 where we not only focused on the
23 need for metrics acceptance guidelines and so on, but also
24 the importance of making sure there's consistent use in
25 various areas. And it talks about conforming the need to

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1 make sure we have conforming regulatory guides and standard
2 review plans integrating with oversight activities as well,
3 and also to make sure that various rules are implemented in
4 a consistent manner.

5 CHAIRMAN JACKSON: But you've told me what's on
6 the printed page. I guess I'm really asking the following
7 question. We're going to be having a series of briefings on
8 assessment, on inspection.

9 MR. THADANI: Yes.

10 CHAIRMAN JACKSON: Et cetera. Am I going to hear
11 the same approach as the one you're taking to talking about
12 risk informing Part 50 or risk-informed licensing actions?

13 DR. TRAVERS: Yes, Chairman, you are. The same
14 management team fundamentally sitting before you is
15 responsible for assuring the kind of consistency that I
16 think you're addressing. In part Ashok referenced the fact
17 that we have a PRA Steering Committee at a very high level.
18 Sam Collins is a member of that. Ashok chairs it. So
19 we're -- NMSS as well. So we're trying to bring together

20 the principal senior management staff that are responsible
21 for bringing and assuring that very kind of consistency that
22 you mentioned.

23 CHAIRMAN JACKSON: Okay, the second and last
24 question. Along the lines of building upon the current
25 infrastructure policies and practices, I've heard that some

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1 licensees feel we're talking about a kind of a risk-plus
2 environment in which risk information leads to an additional
3 body of requirements without any concomitant reduction in
4 burden, or I've heard criticism the other way, not from the
5 industry, but from those in the public, that one will use it
6 to reduce burden without looking at the balance in terms
7 of -- or have the guts to make, you know, if there are
8 additional things that are brought up that need to be
9 focused on that we won't do it.

10 Would any of you care to comment on that?

11 MR. THADANI: Certainly. I think it's an issue
12 that's been brought up before. I think -- I'll give you my
13 views. I think if we were to risk inform our activities and
14 our regulations based on my understanding I think overall I
15 believe that would lead to a reduction in burden. I believe
16 that. But on the other hand I also think that there may be
17 areas where there may be need to strengthen, make
18 improvements, but clearly they would have to be driven, if
19 these are new requirements, they'll have to meet our
20 regulatory analysis guidelines to demonstrate in fact that
21 they would be substantial additional safety gains as well as
22 cost-effective. So my answer would be I think overall I
23 expect there will be burden reduction, I would also expect
24 there may be some areas where we have to tighten up certain
25 things.

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1 MR. HOLAHAN: Maybe it would help if I give a
2 specific example. It might have come up later in the
3 presentation, but I think it might be helpful here. I think
4 because the staff is focusing firstly on maintaining safety
5 and then as appropriate, you know, reducing unnecessary
6 burdens, we have examples like the Comanche Peak in-service
7 testing program, which we approved back in August. Out of
8 634 valves in the plant, 516 were classified low safety
9 significance and are there, you know, by that classification
10 are given reduced requirements, you know, stretched out
11 testing. Twelve out of 33 pumps were found to have low
12 safety significance and have their requirements reduced.
13 But as a part of the same analysis, 25 components not
14 covered by any of the ASME codes were identified as
15 safety-significant, and their treatment was elevated to the
16 treatment typically given to code components.

17 So that program has both reductions in
18 requirements and increases based on the safety significance
19 of the components. And that's the kind of balance that we
20 look for in these programs.

21 COMMISSIONER DICUS: Well, overall is it more or
22 less, though? Are you coming out about the same --

23 MR. HOLAHAN: Well --

24 COMMISSIONER DICUS: In these examples that you
25 gave?

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1 MR. HOLAHAN: In the examples that we've seen,
2 there is generally an improvement, an increase in safety,
3 because what we're doing is we're reducing requirements on
4 components that really have very little impact on safety.

5 And so even though the number of components that are
6 increased is smaller, you know, by their very nature they're
7 more important than the ones that you've reduced the
8 requirements on.

9 COMMISSIONER DICUS: So an increase in -- I don't
10 know if I'm on -- okay, an increase in safety and reduction
11 in unnecessary regulatory burden was achieved, or --

12 MR. HOLAHAN: In these cases -- in the examples
13 we've seen so far I think it's fair to say we have both
14 improvement in safety and a reduction in burden.

15 CHAIRMAN JACKSON: Reduction in burden -- I think
16 your point is reduction in burden is not inconsistent with
17 improvement in safety --

18 MR. HOLAHAN: That's right.

19 COMMISSIONER DICUS: Exactly.

20 CHAIRMAN JACKSON: Because of the fact that by
21 having people focus where they ought to focus and not hang
22 them up with trivia --

23 MR. HOLAHAN: Yes.

24 CHAIRMAN JACKSON: You give them the opportunity
25 to really focus.

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1 MR. HOLAHAN: Exactly.

2 CHAIRMAN JACKSON: But I think the concern that
3 people have is that the Agency will look to reduce burden,
4 but if it finds something that does require more attention
5 or should because of its risk significance, the question is
6 whether our processes are going to be structured so that
7 they get dealt with and whether in fact the staff and/or the
8 Commission is going to have the guts to in fact make it
9 happen.

10 MR. THADANI: Chairman, clearly we have an
11 obligation, we in fact have a number of activities which
12 look at operational experience and other sources of
13 information to see if there are potential problems that
14 might require attention as well.

15 CHAIRMAN JACKSON: Okay.

16 MR. HOLAHAN: I think there's another general
17 category that's a very good example here, and that is by
18 reducing requirements on diesel generator testing to allow
19 the testing to be done online, in fact what it appears is
20 that outages are being conducted safer. South Texas
21 recently had a very short outage, and during that outage,
22 they kept all of their safety equipment available, no
23 maintenance on safety equipment. And that maintenance was
24 allowed to be done online because we extended the allowed
25 outage times. And I think, you know, some of these issues

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1 inherently have in them improved safety and reduction in
2 costs.

3 CHAIRMAN JACKSON: Okay.

4 COMMISSIONER MCGAFFIGAN: Madam Chairman --

5 CHAIRMAN JACKSON: Yes.

6 COMMISSIONER MCGAFFIGAN: Can I just follow up on
7 Mr. Holahan?

8 The example you give of the Comanche Peak
9 in-service inspection, you said 25 of the components were
10 not covered currently by the rules, by the ASME code, which
11 is captured in our rule I guess at 50.55(a), right?

12 MR. HOLAHAN: Exactly. Yes.

13 COMMISSIONER MCGAFFIGAN: In a case like that,
14 having discovered this, is this a generic -- would these
15 components be important generically, and the next time you
16 do 50.55(a) would it pass backfit muster to include these

17 components as -- or words that would have the effect of
18 these components being covered by 50.55(a), or is it in this
19 case looking at this particular relief these came up, and
20 I'm just trying to understand what you're saying with regard
21 to these safety-significant components that weren't covered.

22 MR. HOLAHAN: I think it's hard to say in general.
23 When noncode components turn out to be important in a plant,
24 very often it's because of very specific circumstances that
25 they may not be generic. But the whole concept that we're

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1 going to talk about later of risk informing Part 50 would
2 automatically capture these sorts of components. In other
3 words, if we change our definition of what's important from
4 what's in the Code to those things that have risk
5 significance, these 25 components automatically come within
6 scope, and the other 500 which are less important probably
7 drop out of scope.

8 COMMISSIONER MCGAFFIGAN: The interesting thing is
9 only why the, you know, the maintenance rule uses broad
10 language, although I guess maybe the scope -- I mean the
11 thrust of the maintenance rule was to bring more things that
12 weren't directly safety into our purview, and it's
13 surprising that these items wouldn't have been caught by the
14 maintenance rule as something that either PRA or
15 deterministic analysis of the review panel had found to be
16 significant.

17 MR. HOLAHAN: Oh, I think -- and I can't speak
18 definitively on these 25 -- but I wouldn't be surprised if
19 they were captured by the maintenance rule. But remember,
20 the in-service testing requirements are much more stringent
21 than the maintenance rule. This is quarterly testing. The
22 maintenance rule is at much less burdensome level.

23 DR. TRAVERS: I was just going to point out that
24 we are talking in the paper about a number of requirements
25 that have somewhat different scopes, and the risk-informing

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1 approach that we've proposed would take those scopes
2 potentially, you know, under Option 2 and risk-informed as
3 one option for Commission consideration, taking those 50.59,
4 ASME, tech specs, QA, NIS IST, those kinds of
5 risk-informed --

6 CHAIRMAN JACKSON: The other is to come up with an
7 approach that is an overall coherent approach to defining
8 scope, which would then have a plant-specific actualization,
9 but the approach and the methodology would be the same,
10 right.

11 DR. TRAVERS: Exactly.

12 CHAIRMAN JACKSON: Okay.

13 MR. THADANI: Tom King.

14 MR. KING: Thank you. I'm going to talk about the
15 risk-informed proposals for modifying Part 50, and if I
16 could have Slide 3, please. We have got Slides 3 through 7
17 on this topic in the presentation. We wanted to spend a
18 little more time on this because of the important nature of
19 this proposal rather than just speak to it as achievement of
20 another milestone, so what I want to do is walk through what
21 we are proposing and why we are proposing it.

22 On Slide 3, to try to put this activity in
23 context, SECY-98-300 is proposing at a high level some
24 direction for risk-informing Part 50. It is not a
25 rulemaking plan and there are still a lot of details that

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1 need to be worked out, but there's enough issues and enough

2 important material that need to be dealt with upfront that
3 this is a very important paper and has some very important
4 policy decisions and recommendations in it.

5 The paper itself basically has three major
6 elements. There's changes to the scope of what's regulated
7 by Part 50, there's an option to modify specific regulations
8 in Part 50, getting into the technical content, and there's
9 a piece that deals with clarification of Staff authority,
10 which is really a parallel activity to modifying Part 50.

11 CHAIRMAN JACKSON: Let me ask you a quick
12 question. Again, you know, the paper is available, but just
13 for clarification, are you referring to the scope of Part 50
14 or its individual subparts, such as 50.59?

15 MR. KING: No, we are referring to the scope of
16 systems, structures and components that are regulated by
17 Part 50. When we talk about changes to scope, that is what
18 we are talking about.

19 CHAIRMAN JACKSON: But not on a subpart to subpart
20 or reg by reg basis?

21 MR. KING: Well, in Option 2, which starts out
22 dealing with systems, structures, and components that we
23 call those that receive special treatment, and those are
24 operational and pedigree type issues, the scope changes
25 would be limited to the regulations that deal with those

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1 kinds of things -- QA, equipment qualification and so forth.

2 If we proceed further and get into the broader
3 changes where we could actually get in and change some of
4 the design requirements in Part 50, then the scope changes
5 would extend to the design aspects as well.

6 CHAIRMAN JACKSON: So it sounds like to me you are
7 really talking about the scope of individual subparts?

8 MR. KING: Yes -- for Option 2 we are talking
9 about the scope of subparts that deal with operational and
10 pedigree type issues, yes.

11 CHAIRMAN JACKSON: And when you speak of
12 clarification of Staff authority, could you clarify that for
13 us and talk about how it relates to modification of 10 CFR,
14 Part 50?

15 MR. KING: What the paper talks about is what can
16 the Staff do for those licensees that do not wish to
17 participate in risk-informed activities, whether it is
18 risk-informed Part 50 or the Reg Guides that are out on the
19 street today. There have been a lot of internal discussions
20 in the Staff regarding what authority does the Staff have to
21 take risk information and require licensees to do something
22 different beyond what is in the current regulations, and
23 because of the amount of discussion that has taken place
24 internally and because of the fact that the Staff has been
25 faced with those kinds of situations, we felt it was

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1 worthwhile to propose that the Staff actually put down
2 guidance for the Staff as to how to treat those situations.

3 If you recall, the safety and compliance white
4 paper that the Commission issued probably about a year ago,
5 this issue was discussed there and made it clear that the
6 Staff certainly has the authority to require things beyond
7 what are in the regulations if there is a good safety reason
8 to do so, and also went further and said that guidance
9 should -- that kind of instruction should be implemented in
10 Staff guidance and in any other document that it needs to be
11 put in, and this is an attempt to also try and implement
12 what that white paper called for.

13 Another item of background that I wanted to

14 mention was the NEI Whole Plant Study, which you have all
15 heard about in the past. That is an activity that is being
16 coordinated by NEI, but it involves three pilot plants --
17 South Texas, San Onofre, and Arkansas Nuclear 1. It was an
18 initiative by the industry to take a look at the regulations
19 where plants are spending operations and maintenance costs,
20 other requirements that come about from regulation --
21 generic letters and so forth -- and to see if the risk
22 really matches the expenditure of operations and maintenance
23 costs.

24 We feel that at the time it was proposed was a
25 good activity to do. We feel now that we are talking about

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1 risk-informing Part 50, that this is an activity that can be
2 of direct use to our work in risk-informing Part 50, that
3 the types of basic information that they are developing will
4 help us better risk-inform Part 50, that these plants could
5 serve the purpose of some pilot plants in trying to test out
6 the various options and the various alternatives for
7 risk-informing Part 50.

8 We have had discussions with NEI and the Whole
9 Plants pilot plants regarding use of the Whole Plant Study
10 in that capacity and at this point we believe we have
11 reached agreement that that is an activity that -- or
12 purpose of the Whole Plant Study that makes sense, that even
13 though in the response to your tasking memo we say it's
14 subsumed into the Part 50 update, that doesn't mean that it
15 is not being done. It just means it is not being done as a
16 separate activity, that these two activities have come
17 together to support each other.

18 CHAIRMAN JACKSON: So are you saying that the use
19 of the NEI Whole Plant Study depends upon the option or
20 options chosen for risk-informing Part 50?

21 MR. KING: Clearly how the NEI Whole Plant Study
22 will be factored in to risk-informing Part 50 depends upon
23 the guidance we receive from the Commission.

24 CHAIRMAN JACKSON: Okay.

25 MR. KING: All right. With that, let's turn to

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1 Slide 4 and talk about the objectives of the Part 50
2 modification and why are we proposing to modify Part 50 at
3 all to be risk-informed.

4 The paper defines three specific objectives, and
5 these are summarized on Slide 4.

6 The first one is to enhance safety by focusing NRC
7 and licensee resources in areas commensurate to their
8 importance to safety. Now, as you talked about earlier,
9 this is a two-edged sword. This means some things could be
10 removed from regulation that aren't important and other
11 things could be brought in. In that sense, it can improve
12 safety and it can reduce unnecessary burden.

13 The second objective -- to provide NRC with a
14 framework to use risk information to take action in all --
15 it should say reactor regulatory matters, since this is a
16 reactor regulation. Again this gets back to if licensees
17 choose to use risk-informed alternatives, we feel that the
18 framework that needs to be set up in Part 50 will provide
19 the basis for NRC to document that and to factor that into
20 the inspection program, the enforcement program and so
21 forth.

22 In parallel with that activity is the one we
23 talked about on the previous slide about developing some
24 guidance for the Staff to use and how you would use risk

1 risk-informed approach.

2 Then finally risk-informing Part 50 would allow
3 the use of risk information to provide flexibility in
4 licensing and operational issues. That deals with the issue
5 that risk from plants is very plant-specific. Plants are
6 different in many respects. They have different features,
7 different practices, different operating experience. To get
8 credit for that, you really need to allow plants to use a
9 plant-specific risk assessment and one of the objectives of
10 Part 50 would be to allow that to take place.

11 CHAIRMAN JACKSON: I have a request for you, as
12 you go forward in the briefing, and then I have a specific
13 question.

14 The request is that as you talk through the
15 options I would like you to tell the Commission the extent
16 to which you feel the option under discussion in fact meets
17 these objectives, okay? And then the second, the question,
18 the specific question, is to what extent are these same
19 objectives, and maybe this is a question more for Mr.
20 Travers, being applied in our other regulatory programs --
21 that is, in the medical, the fuel cycle arenas, waste,
22 decommissioning, et cetera.

23 DR. TRAVERS: In addition to mentioning that NMSS
24 plays a role, an important role, in the PRA Steering
25 Committee, I think Carl can address -- if you want to just

1 take one minute --

2 CHAIRMAN JACKSON: Yes.

3 DR. TRAVERS: -- some of the activities that are
4 underway.

5 CHAIRMAN JACKSON: Well, it's a simple question.
6 The question is are the objectives the same. That is all I
7 am really asking -- not the activities, but are the
8 objectives the same.

9 DR. TRAVERS: They are the same generally -- well,
10 as they apply to their individual areas, whether it is
11 materials, for example, enhancing safety, safe use of
12 materials, certainly they provide a framework in which to
13 carry out and make regulatory judgments, and the use of risk
14 to provide some flexibility where it is warranted.

15 CHAIRMAN JACKSON: So you are shaking your head
16 and you agree?

17 DR. PAPERIELLO: Yes, Madam Chairman.

18 CHAIRMAN JACKSON: All right. Okay.

19 COMMISSIONER MERRIFIELD: Madam Chairman?

20 CHAIRMAN JACKSON: Yes, please.

21 COMMISSIONER MERRIFIELD: I want to go back to the
22 earlier point that Mr. King made.

23 In effect, what we are doing is we are creating
24 two classes of licensees, those who choose to be
25 risk-informed and those who choose not to be risk-informed.

1 How do we go about managing that type of voluntary
2 approach from an inspection, enforcement and licensing
3 perspective, and most importantly, have we looked at the
4 resource and training implications, not only as it relates
5 to licensees but also to ourselves, in grappling with two
6 different sets of rules?

7 MR. KING: One of the policy issues in front of
8 the Commission in this paper is the question of mandatory
9 versus voluntary.

10 The Staff has recommended that the risk-informed

11 modifications to Part 50 be applied on a voluntary basis, in
12 which case you would then have two sets of licensees, as you
13 suggest.

14 We have looked at the issue of training for the
15 Staff and the resource estimates that are admittedly very
16 rough in the paper. That kind of issue was considered in
17 putting in those resource estimates, and also recognizing
18 that licensees have to do training and rewrite procedures
19 possibly as well.

20 In terms of the inspection program, the inspection
21 program is being revised to be risk-informed today. That is
22 our program. It is not a licensee program, and that is
23 being applied or would be applied to all plants if the
24 Commission agrees. We would expect that as we proceed into
25 risk-informing Part 50 that the risk-informed changes to

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1 Part 50 would mesh very closely with the risk-informed
2 adjustments that have been made to the inspection program,
3 so in that respect these risk-informed changes to Part 50 we
4 are talking about will match up very closely with the
5 risk-informed changes that are being proposed under the
6 inspection program, but recognizing that if there are two
7 classes of licensees, the inspection program is still going
8 to be risk-informed, so it is not that we are going to have
9 two inspection programs but clearly we'll have two sets of
10 maybe design basis, if you will.

11 CHAIRMAN JACKSON: Does it come into play in
12 enforcement?

13 MR. KING: Maybe Mr. Travers had better answer
14 this than me --

15 MR. HOLAHAN: I think I can answer it. In
16 effect -- the endpoint is that each licensee ends up with a
17 current licensing basis or a licensing basis derived from,
18 you know, some set of requirements, either a risk-informed
19 set or from the traditional set. The inspection and
20 enforcement program are against the licensing basis of that
21 plant. It's an individual basis.

22 I think part of this issue we are already facing,
23 at least in a piecewise manner, if some licensees are
24 risk-informing the ISI program and the IST program, then our
25 inspection and enforcement program are already dealing with

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1 the fact that for this plant some valves don't need to be
2 tested, and not testing them isn't a violation. It is in
3 fact, you know, consistent with their licensing basis, so we
4 are dealing with dozens of unique licensing bases already.

5 DR. TRAVERS: But I think it is fair to say at
6 this stage, a propos to your first question, at this very
7 early stage we don't have detailed insights into the
8 resources. Clearly, if we set up a path or if the
9 Commission agrees to go forward with a voluntary program, it
10 is going to suggest the need for more resources, in my view,
11 to implement a program that would be responsive to both
12 those who choose to take up the risk-informed mantle and
13 those who don't choose to do that.

14 For example, plants that are nearing end-of-life,
15 not thinking about going for a license renewal of sorts,
16 those are the licensees that we anticipate and in fact have
17 told us that the investment it would take to enter into the
18 risk-informed realm would be one that they wouldn't find
19 very attractive.

20 So what we are suggesting is that in the context
21 of developing a further rulemaking plan, we would have to

22 take a more definitive look at that kind of issue.
23 CHAIRMAN JACKSON: Mr. Collins, did you have any
24 comments on this particular issue?
25 MR. COLLINS: I think it is a very important

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1 issue. It's many-faceted, however. In some instances I
2 believe our programs which are being risk-informed,
3 including to some extent the enforcement program, as that
4 progresses in the inspection program, will become more
5 coherent as they are aligned with risk-informed licensing
6 bases and the implementation of that.

7 We are almost in a pluralistic system now where
8 many of our processes are moving down the road but some of
9 the underpinnings --

10 CHAIRMAN JACKSON: -- are not there.

11 MR. COLLINS: -- of the process are not, so
12 there's not always a clean meshing of those.

13 On the other hand, I think to say that all
14 licensees would embrace a total risk-informed Code of
15 Federal Regulations is probably too optimistic at this
16 point.

17 CHAIRMAN JACKSON: Well, it is an interesting
18 point also from a legal perspective. If you risk-inform
19 Part 50, whatever that means and whatever option the
20 Commission goes for, those are the regulatory requirements.
21 Therefore, how do you keep two books?

22 MS. CYR: Under the Commission's requirements of
23 the backfit rule, if you made a change you would have to
24 maintain two sets of books. We have done that in the past.

25 CHAIRMAN JACKSON: Okay.

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1 MS. CYR: If you could not make a case that it
2 provided substantial and reasonable protection to change the
3 requirement across the board, you would maintain existing
4 regulatory requirements for those plants to which it still
5 remained applicable, and you would have a new requirement
6 which would apply to those -- it would be an option
7 available to those licensees who chose to take advantage of
8 it.

9 CHAIRMAN JACKSON: And if it did meet the backfit
10 test?

11 MS. CYR: If it did meet the backfit test, the
12 Commission could choose to apply it across the board.

13 CHAIRMAN JACKSON: Could choose to apply it across
14 the board. Okay. So as you go forward, please tell us how
15 the options -- on, I'm sorry. Commissioner Dicus had a
16 question.

17 COMMISSIONER DICUS: Yes. The Staff I think has
18 been criticized by the industry in the past for being
19 inconsistent in its inspection program and application of
20 regulations and following up on Commissioner Merrifield's
21 comment, I am concerned with the two sets of licensees and
22 setting up two sets of books that this may increase this
23 inconsistency.

24 MR. HOLAHAN: I would comment on that.

25 I think it doesn't necessarily make it worse but I

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1 think it doesn't make it better, okay? I think it's a
2 complicated situation and having multiple sets of
3 requirements perhaps would increase the likelihood of some
4 inconsistencies because there's more difficulty in training
5 people to deal with those situations, but it doesn't
6 necessarily cause that problem. It's just more difficult to
7 implement that.

8 MS. CYR: We already have situations where we have
9 multiple sets of applications and requirements. We have a
10 lot of requirements that came into place and they didn't
11 apply to plants who already had licenses. The new
12 requirements came in and we differentiated between when they
13 got their licenses or didn't. I mean depending again on
14 what the scope of the changes that the Commission makes in
15 this case, you may have a greater number of those situations
16 or not, so I don't think it is necessarily introducing
17 anything different than what we have dealt with in the past.

18 I think Gary's point, that every plant now has a
19 current licensing basis which is unique to it, depending
20 on -- based on a lot of, depending on whether it has the new
21 tech specs or the old tech specs, depending again on the
22 degree of specificity in its FSAR, so I mean it's
23 introducing some additional complexity but I don't think I
24 would get hung up on that.

25 CHAIRMAN JACKSON: I think, though -- I mean I am

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1 trying to get some clarity on the issue of risk-informed
2 versus not risk-informed license conditions -- vice
3 risk-informed Part 50, which is your fundamental Code of
4 Federal Regulations for power reactors and other reactors
5 too, but that is what I am really trying to understand here.

6 MR. HOLAHAN: Well, what we are talking about here
7 is risk-informing the Code of Federal Regulations, either in
8 Option 2 or in Option 3 to a more or less extent.

9 CHAIRMAN JACKSON: I guess I am really posing the
10 question somewhat to the Commissioners.

11 MS. CYR: I mean the existing set of regulations
12 the Commission continues to believe that that provides an
13 adequate level of protection if a plant operates within the
14 confines of that requirement. What you are proposing to do
15 is come up with, in a sense, a different set of
16 requirements, which you develop from a different basis.
17 Instead of starting out with positing your accident
18 scenarios and assessing against them, you are coming up and
19 using risk information to describe what systems you have to
20 operate at a certain level and so on -- coming at the same
21 question from a different point of view, so I mean there
22 essentially can be two answers, so the question is how could
23 you safely operate a nuclear power plant.

24 We have one that we developed over a period of
25 years, which is our current framework, and now we are saying

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1 there is a different way we could do it, because now we have
2 more information about how to quantify that and we are going
3 to come up with what may be in a sense a different or an
4 overlapping answer.

5 CHAIRMAN JACKSON: But let me make sure I
6 understand. You are saying we have a Part 50 and a Part 50
7 prime?

8 MS. CYR: Right.

9 CHAIRMAN JACKSON: Okay, so we are not really
10 replacing one set of regulations with another.

11 MS. CYR: Or may have a 50.46 and 50.46 prime. I
12 mean depending again --

13 CHAIRMAN JACKSON: That is what I was asking when
14 I said are you risk-informing Part 50 or are you
15 risk-informing subparts of Part 50.

16 DR. TRAVERS: In Option 2 we would be
17 risk-informing subparts but in addition we have proposed to
18 undertake a study to see how we might further develop I

19 think the point you are making, and that is the further
20 risk-informing of the broader set of requirements covered
21 under Part 50.

22 CHAIRMAN JACKSON: No, all I am really saying is
23 we just have to be clear.

24 DR. TRAVERS: Yes.

25 CHAIRMAN JACKSON: If in fact -- if we are doing a

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1 parallel Part 50, then that is a separate issue, and what
2 you are talking about pertains, but if you replace one
3 regulation with another that covers some aspect of our
4 oversight, then that is what exists if it passes all the
5 tests for it to come into existence, and I don't see then
6 that you have some set of regulatory requirements.

7 However that plays out in the specific case can be
8 different but there can be no confusion about the fact of
9 what the fundamental requirement is, and so that is what I
10 am saying in terms of being clear -- are we going down a
11 path where you are talking about a Part 50 and a Part 50
12 prime and you are going to have both of them, or are you
13 going to have a new Part 50, because presumably to have a
14 new Part 50 means it has to pass the backfit test.

15 MS. CYR: I think the proposal in Option 3 is if
16 you fully implemented Option 3 you would have a 50 to 50
17 prime.

18 MR. THADANI: That is correct and in fact there
19 would be -- Chairman, if I might -- I think it will raise
20 some other issues as well, and some of our recent
21 regulations like station blackout for example was backfit,
22 which was based on enhanced safety considerations and not
23 adequate protection considerations.

24 If one goes to risk-inform Part 50, one would have
25 to deal with this issue of what is adequate protection and

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1 what is the run of risk in terms of definition.

2 CHAIRMAN JACKSON: Right. I mean all I am trying
3 to say is it is an important question to be addressed.

4 MR. THADANI: Yes.

5 CHAIRMAN JACKSON: And to be clear on -- because
6 one approach is to say here is the old Part 50 or a subpart
7 of it. Here is the new one. This is all there is in this
8 arena. If that is the case, that is the law of the land.
9 We go through the right regulatory process.

10 The other way is here's the old Part 50, here's
11 the new Part 50, but the new Part 50 has a Part A, which is
12 the old Part 50, and it has a Part B, which is the
13 risk-informed Part 50 and now they are equal opportunity
14 regulations, so we just have to be clear, otherwise there is
15 confusion, there is a legal risk, and there is zero public
16 credibility.

17 MR. HOLAHAN: Let me see if I can help.

18 If the Commission decides to make either Option 2
19 or 3 mandatory, there would be one set of Part 50
20 regulations that apply to everyone. It would be just that
21 one set.

22 If the Commission decided to make it voluntary,
23 then we would have to have a mechanism for licensees to
24 choose and whether it is A-B or whether the wording of each
25 regulation inherently allows to do --

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1 CHAIRMAN JACKSON: It doesn't matter how you
2 structure it. The question is you just have to be clear on
3 what you are doing. Commissioner?

4 COMMISSIONER McGAFFIGAN: I just want to -- we are

5 probably being premature. We should have given you a chance
6 on the options first, but under Option 2 -- you earlier said
7 you were talking about risk-informing 50.46, for example,
8 and under Option 2 you are mostly working on scope,
9 right? -- scope and definitions?

10 MR. HOLAHAN: Yes.

11 COMMISSIONER MCGAFFIGAN: Is it the intent if a
12 licensee chooses to use the risk-informed scope in one
13 area -- say 50.46 -- and then there's a risk-informed scope
14 in 50.65 and a risk-informed scope in 50.59, that they take
15 the whole package? I mean I can draft language so that
16 there's a savings clause that says you take Option B all the
17 way through, you don't go back and forth depending on which
18 is most advantageous to you, or I can imagine just doing
19 50.46 and then 50.65 and then 50.59, et cetera.

20 Which is your intent? This is really the
21 Chairman's previous question. Is the intent that it is a
22 package across Part 50 or is it the intent you take each
23 item one by one?

24 MR. HOLAHAN: The recommendation is that it is a
25 package but it wouldn't include 50.46 because that is a

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1 design requirement --

2 CHAIRMAN JACKSON: That is the design
3 requirements, right.

4 MR. HOLAHAN: But the other examples -- the Staff
5 proposal is that if a licensee chooses a risk-informed
6 alternative, that alternative would include being consistent
7 in using risk information in the maintenance rule, QA --

8 CHAIRMAN JACKSON: So it is not cherry-picking?

9 MR. HOLAHAN: It's not cherry-picking.

10 MR. KING: And that gets back to your first point,
11 which is -- early in the meeting -- which is if you really
12 want to make the first objective come true, which is enhance
13 safety, which means bring some things in and take some
14 things out, you can't allow cherry-picking, otherwise it
15 will just be take things out. Really to achieve the first
16 objective it has got to be looked at as a whole package.

17 COMMISSIONER MCGAFFIGAN: May I just -- so the
18 General Counsel is clear that every time you do, under the
19 Staff proposal the language each time would say here is a
20 set of definitions and scope that we have today. Here is
21 the alternative. If you choose the alternative here, you are
22 also choosing the alternative under -- and name the list?

23 MS. CYR: I think theoretically you could do it
24 either way but it would be much more difficult to do it
25 regulation by regulation because you would have to make sure

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1 that you guarded against the thing which Tom mentioned,
2 which is that you, by permitting them to take something here
3 and not doing something here, it would become a much more
4 complicated analysis to make sure that by permitting them to
5 do that that you have not diminished safety below a level
6 which you could accept.

7 I mean I think theoretically you could get to a
8 point where you could do that. It would just be much more
9 complex.

10 COMMISSIONER MCGAFFIGAN: I am not sure that we
11 are going to make our goal for reducing the length of our
12 regulations if we do this.

13 MS. CYR: But their proposal is that if you pick
14 it one place, you pick it every place.

15 CHAIRMAN JACKSON: Right.

16 MR. KING: Right.
17 CHAIRMAN JACKSON: Commissioner?
18 COMMISSIONER MCGAFFIGAN: Well, we seem to be on
19 Option 2 and I have an Option 2 question --
20 [Laughter.]
21 CHAIRMAN JACKSON: Well, I'll tell you what --
22 let's flip the page. Let's flip the page because Option 1
23 has one dot on it --
24 MR. KING: Let's to go Slide 5 and talk about the
25 three options.

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1 Option 1 is basically sometimes called the "do
2 nothing" option but basically it is proceed with the things
3 that are ongoing today.
4 CHAIRMAN JACKSON: This will not be the "do
5 nothing" Commission.
6 MR. KING: And we have a number of rulemakings
7 that involve some risk-informed concepts in them that are
8 listed here.
9 We also have the Reg Guides that are on the street
10 and licensees would continue to be able to use those.
11 These activities under Option 1 are in the current
12 budget and rulemaking plans.
13 Option 2 now goes beyond that. It would still
14 continue the Option 1 activities but, as we discussed
15 earlier, it proposes to risk inform the scope of some
16 selected regulations that deal with systems, structures and
17 components that receive special treatment, things like
18 quality assurance, equipment qualification, seismic, those
19 kinds of things.
20 It could also apply to some processes -- for
21 example, going beyond, in 50.59, beyond the current
22 rulemaking to further risk-inform 50.59 is one of the things
23 that could be included under Option 2.
24 Option 2 would have a restriction that licensees
25 would not be allowed to physically remove the equipment from

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1 the plant. They may treat it differently in terms of its
2 quality but that they wouldn't be able to take it out.
3 The other thing we are proposing to do under
4 Option 2 is use the maintenance rule as a first step in
5 developing a risk-informed scope of what should be regulated
6 under this Option 2 and use that as a test case to see what
7 metrics we use, what criteria we use for defining that scope
8 and try it out using the maintenance rule.
9 Again the NEI Whole Plant Study plants would be
10 likely, pilot plants, to test Option 2, and the Staff
11 recommends that we proceed with Option 2 at this point. We
12 feel that there's enough information available to actually
13 start working with the pilot plants and start rulemaking
14 activity to implement Option 2. I think there would be a
15 high payoff in safety and effectiveness and reducing
16 unnecessary regulatory burden, and it would be a step toward
17 making Part 50 consistent with the risk-informed plant
18 oversight process that is being developed.

19 COMMISSIONER MCGAFFIGAN: Jeff had a question.
20 CHAIRMAN JACKSON: Oh, I'm sorry.
21 COMMISSIONER MERRIFIELD: In SECY 98-300 the Staff
22 states, and I quote, "Under Option 2 systems, structures and
23 components of low safety significance would move from
24 'special treatment' to normal industrial treatment but would
25 remain in the plant" -- would remain in the plant -- and I

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1 emphasize that -- "and be expected to perform their design

2 function without additional margin, assurance, or
3 documentation associated with high safety significant SSCs."

4 Can you explain to me the regulatory mechanism by
5 which we would prevent, the NRC would prevent licensees from
6 removing these SSCs if appropriate under 10 CFR 50.59?

7 MR. KING: Well, as a condition in approving the
8 change, if a licensee came in and said I want to do this,
9 then they would submit a proposal to do it, and as part of
10 approving that change a condition could be written into that
11 approval that those systems, structures and components are
12 to remain in the plant, documented in the FSAR, whatever the
13 right documentation is.

14 DR. TRAVERS: But more fundamentally, what we are
15 talking about dealing with are regulations that address
16 treatment as opposed to the general design criteria, for
17 example, which establish the need for these kinds of systems
18 to be in place and functional, so we are talking about not
19 altering the design of the facility or the design
20 requirements that went into our licensing judgments at the
21 time the facility was licensed but more focusing on
22 operational treatment of the equipment that is in the plant
23 and would remain in the plant and expected to carry out its
24 functions.

25 COMMISSIONER MERRIFIELD: So it is fully your
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1 anticipation that there would be no equipment change as a
2 result of this?

3 DR. TRAVERS: That is the expectation, yes.

4 MR. HOLAHAN: Well, I think what we are
5 envisioning, and the words have not been developed, what we
6 are envisioning is if equipment is to be removed from the
7 design, that would be done through a license amendment
8 process or if that equipment is called for directly in a
9 regulation through an exemption process, but these treatment
10 issues are things that licensees could do largely on their
11 own.

12 DR. TRAVERS: Right -- not through this process.

13 CHAIRMAN JACKSON: Commissioner McGaffigan.

14 COMMISSIONER MCGAFFIGAN: This follows up my
15 previous question, namely you say 50.65 might be an early
16 place where you would apply this, but from a previous
17 discussion if there's going to be -- it seems like you have
18 to do it all at once, lest the cherry-picking you were
19 talking about, you know, if you don't move entirely to these
20 different scope and definitions simultaneously everywhere,
21 if that is the Staff proposal, how do you then talk about
22 50.65 being first?

23 MR. HOLAHAN: We have had a lot of discussion on
24 this subject and I know NEI has a bit of a different view of
25 that I'm sure they will express later. I think what we have

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1 said is even though you may make the maintenance rule the
2 first place where you applied it, you wouldn't define that
3 scope until you have thought of the implications of that
4 scope on the other regulatory requirements, so you would as
5 best you could try to lay out logically what should the
6 scope be for QA, what should the scope be for maintenance --

7 CHAIRMAN JACKSON: And if you are going to do
8 that, why not do it all across the board? I mean if you
9 have got to do that degree of analysis to ensure that the
10 one thing does not damage the other -- I'm confused.

11 MR. HOLAHAN: Well, what the Staff has recommended
12 in effect is --

13 CHAIRMAN JACKSON: Unless whatever the template is
14 you work out for the maintenance rule, once we are convinced
15 that it works is immediately propagated across all the other
16 rules.

17 I mean -- but I don't believe you can just go
18 piecemeal, one-at-a-time.

19 MR. HOLAHAN: I think you have to do the logic
20 together, but then you could implement it one after another,
21 but I think that would be shortly because you will have made
22 all the major decisions.

23 CHAIRMAN JACKSON: I don't understand. Now I
24 think that is a difficult approach -- I don't know.

25 Mr. Thadani, do you have a point of view, here --

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1 Mr. PRA here?

2 MR. THADANI: It seems to me that if we do it in
3 a -- I think the issue is going to be how comprehensive you
4 are up front, and that seems to me should be driven by where
5 you're going to apply the results. If we do it fairly
6 comprehensively up front then it seems to me that we ought
7 to be able to apply it clear across, but if we're driven by
8 a narrow application, that may have an impact on how the
9 SSCs get ranked.

10 CHAIRMAN JACKSON: That's right.

11 MR. THADANI: And so my view on this would be if
12 we go at it with the view that says we're going to really at
13 some point going to option 3, let's say, for the sake of
14 argument, then I think we ought to do as good a job as we
15 can up front to rank the SSCs so we can --

16 CHAIRMAN JACKSON: Well, isn't it the methodology
17 for ranking the SSCs?

18 MR. THADANI: That's the key.

19 CHAIRMAN JACKSON: Because the SSCs and how
20 important they are, you know, I've had the example of the
21 circ water pumps, right? You can have two in one plant and
22 six in another.

23 MR. THADANI: Yes.

24 CHAIRMAN JACKSON: And how important they are is
25 really a function of the design of the plant as well as

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1 numbers and all that kind of thing.

2 MR. THADANI: Yes.

3 CHAIRMAN JACKSON: So we keep talking about a
4 scope of SSCs, but you've got BWRs, you've got PWRs, you've
5 got this vintage plant, you've got that vintage plant. So
6 there's no list for all time, there's an approach for
7 determining on a plant-specific basis what that list is. Is
8 that not correct?

9 MR. THADANI: Absolutely correct. Yes. Yes.

10 MR. KING: There's another aspect of choosing the
11 maintenance rule first, and that has to do with a point
12 Commissioner Merrifield brought up. There's a lot of
13 training and procedure rewriting and so forth that goes --
14 would take place as you start to change the scope of these
15 regulations, and a phased approach of implementation from a
16 practical standpoint might make sense. And I think what
17 we're saying here is the maintenance rule might make sense
18 as a first step in that phased approach.

19 COMMISSIONER McGAFFIGAN: I was just going to say
20 that the flip of that is if you're going to go through all
21 that training, you might as well have a higher payoff. If
22 you go through a plant and you say here are the systems,
23 structures, and components that are important for 50.65 and
24 we're now risk-informed 50.65, but by the way, here are the

25 systems, structures, and components that are important

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1 elsewhere, and it's different, you've got a pretty confused
2 plant staff.

3 So, you know, I would think that there would be
4 certain efficiencies from the point of view of the plant to
5 go through the training once and not have two sets of books,
6 one for one rule and one for another.

7 CHAIRMAN JACKSON: Yes, I don't -- I mean a phased
8 implementation in a certain sense one understands, but you
9 can't have a scope for this one and a scope for that one and
10 a scope for this one. It's a methodology, and that
11 methodology should apply across the board. Otherwise, you
12 know -- I mean, that's part of what our problem is today.
13 You've got things that are important to safety and you've
14 got, you know, safety-related, and you go on down the line.
15 And that's what, if you're going to do this, go on and jump
16 off the cliff. Hopefully you've got a parachute.

17 COMMISSIONER MCGAFFIGAN: Madam Chairman?

18 CHAIRMAN JACKSON: Yes.

19 COMMISSIONER MCGAFFIGAN: My recollection of the
20 NEI rulemaking, I think the last meeting we had on this
21 subject was like late August or early September and we had
22 just heard about the 43 NEI rule changes. But most of those
23 were to change the scope everywhere and to use words like --
24 and somebody will correct me -- but it's, you know, systems,
25 structures, and components are important, are the ones that

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1 either engineering judgment or risk analysis or something
2 else, operational experience have said are important, and
3 they were just going to put those words, proliferate them
4 all the way through Part 50 in the places they felt were
5 appropriate, and then you now have a consistent definition
6 all across Part 50.

7 I thought that was where you guys were headed
8 under Option 2 module of changes, but then you start talking
9 about going one by one, and it gets confusing, not just for
10 me, obviously. So what is the -- what does the rule change
11 look like when you're finished with Option 2?

12 MR. HOLAHAN: When you're finished -- I mean,
13 finished all of them -- I mean, it looks as you've described
14 it that a scope definition, not quite what NEI has
15 suggested, but something along those lines would apply to
16 all the regulations I think. The only distinction that the
17 paper suggests, and I don't think it's a crucial one, is
18 that presumably there will be more than one rulemaking
19 package --

20 COMMISSIONER MCGAFFIGAN: Okay.

21 MR. HOLAHAN: With a consistent set of processes
22 and logic for, you know, what's risk-significant.

23 CHAIRMAN JACKSON: Not an omnibus rulemaking.

24 MR. HOLAHAN: Not an omnibus rulemaking, although
25 it, you know, I think that's simply a pragmatic issue.

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1 There's no real policy or safety decision between the two,
2 it's just a matter of judgment as to which is the easiest
3 and fastest to get out.

4 CHAIRMAN JACKSON: What you don't want to end up
5 doing is to be stuck, you know, let me see if I can say this
6 in a kind way -- kind for us, Commission, as well as kind
7 for you and kind for the industry and kind for the
8 public-interest groups.

9 You know, there's a bit of history now, and this

10 is the new NRC, the new and improved, but there's a history
11 of things happening and taking, you know, having a degree of
12 interminability to them that, you know, even my young
13 colleagues here will have gone on to their greater rewards
14 and we will be, you know, part of the way -- I certainly
15 will be gone on to my greater reward -- we'll be part of the
16 way.

17 MR. HOLAHAN: If they're not done, we might all be
18 gone.

19 CHAIRMAN JACKSON: Well, you understand the point
20 I'm making, that in a certain sense you have an opportunity
21 when you have a Commission that is as like-minded as we are
22 to get it done. As they say, you step up, take it on, get
23 it done. But when you start down these piecemeal paths, you
24 run the risk of kind of getting stuck somewhere, and then
25 the Commission changes, some of you young bloods will have

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1 changed, and then you do have this regulatory framework that
2 is in some kind of dissonance with itself. So that's just
3 my kind of statement.

4 All right, let's move on along.

5 MR. KING: The only other thing I want to say
6 about Option 2 is it's currently not in our budget or
7 operating plans, the activities.

8 CHAIRMAN JACKSON: Let me ask you this question.
9 Are there examples where SSCs may be out of scope for the
10 maintenance rule or 50.59 but in scope for the performance
11 assessment program or license renewal?

12 MR. KING: There could be. As you mention, the
13 methodology we would apply to select the SSCs ought to be
14 the same, but that may result in some different SSCs that
15 you'd look at and maintenance versus the QA program versus
16 seismic requirements and so forth or the inspection program.
17 So that's true.

18 CHAIRMAN JACKSON: Okay.

19 MR. KING: All right, slide 6 --

20 COMMISSIONER MCGAFFIGAN: Commissioner, before you
21 get away from the passing reference to it not being in the
22 budget, the paper talks about, I just want to clarify this,
23 25 to 50 for Option 2, 25 to 50 NRR FTE over four to eight
24 years, NRR technical assistance, 250K per year, two to three
25 research FTE and 500K per year for approximately two to

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1 three years.

2 First, is the 25 to 50 a total for the four to
3 eight years, or is it per year for the four to eight years?
4 Is it total, I hope? Okay.

5 CHAIRMAN JACKSON: So you can divide it by eight,
6 roughly.

7 COMMISSIONER MCGAFFIGAN: Or four if we're fast.

8 CHAIRMAN JACKSON: Or four if you're fast.

9 COMMISSIONER MCGAFFIGAN: So are we talking about
10 six to twelve FTE per year to do this rulemaking package and
11 then implement it? Is that the notion?

12 MR. COLLINS: Roughly, yes. There will probably
13 be a graded approach, but for talking purposes, yes.

14 COMMISSIONER MCGAFFIGAN: Okay. And these are
15 budget-quality numbers here?

16 CHAIRMAN JACKSON: Give him time.

17 I'm going to help you with the Commissioner.
18 Build a good budget on this.

19 MR. COLLINS: This is the best-estimate process,
20 concurred in by the CFO. Given where we are, yes. Given
21 additional Commission direction, there may be some

22 modifications.

23 CHAIRMAN JACKSON: Right.

24 COMMISSIONER MERRIFIELD: Commissioner, it was a
25 very high-quality envelope.

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1 CHAIRMAN JACKSON: It's a very high-quality way.

2 COMMISSIONER McGAFFIGAN: If we try to do it all
3 at once, I mean the omnibus rulemaking, presumably that has
4 lots of stuff in the statements of consideration as to why
5 we felt the scope change was appropriate in this rule, that
6 rule, and the other rule, but would that require more
7 resources? You said you'd had discussions internally
8 about -- and making a practical judgment about doing it all
9 at once as I think we're questioning or doing it in a series
10 of steps that sets up some of these implementation issues
11 that we've been concerned about, but how much more resources
12 would you need if you try to do it in one -- Option 2 as one
13 omnibus scope change and a variety of regulations?

14 CHAIRMAN JACKSON: Gary?

15 MR. HOLAHAN: I don't think we really know. I
16 mean, this estimate -- it's not like we had two estimates,
17 one for, you know, four rule changes in a row and one for
18 one. And probably the range -- the ranges you see here may
19 be large enough to cover the differences.

20 COMMISSIONER McGAFFIGAN: Okay.

21 CHAIRMAN JACKSON: Um-hum.

22 MR. KING: Okay. Slide 6 discusses Option 3, and
23 Option 3 was developed assuming you implemented Option 2 and
24 Option 3 built upon it. And it's the option that actually
25 gets into the technical requirements in the rules and we get

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1 into design issues. And there are several alternatives that
2 could be used under Option 3.

3 One would be to just allow licensees, put some
4 words in the rules that would allow licensees to propose
5 acceptable alternatives to the current rules. Another would
6 be to actually go in and modify the rules themselves,
7 whether that's changing the definition of the design basis
8 accidents or the acceptance criteria or the conservatism
9 that need to be assumed remains to be seen. And then also
10 as part of that we'd look at the leading regulations with
11 little safety significance. Again, the NEI whole-plant
12 study we feel would be very amenable to being a good pilot
13 for this activity, but recognizing that this activity is a
14 very complex process, we do feel it needs some additional
15 study, and therefore that's what we've recommended at this
16 point in time.

17 And to come back to your question, Chairman
18 Jackson, the options versus the objectives of the
19 rulemaking, I think Option 1 achieves a little bit of the
20 first objective, to enhance safety decisions, because it
21 does do that in a couple of selected areas. I think Option
22 2 is a step toward meeting all three objectives, and Option
23 3 is really the full nine yards in trying to meet all three
24 objectives. So that's the way I would characterize it.

25 CHAIRMAN JACKSON: Okay. Let me ask you a

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1 question and perhaps offer you a way out of it. You know,
2 my question was that you make a statement that with respect
3 to public confidence that the staff concluded that Options 2
4 and 3 would represent high or moderate-to-high improved
5 public confidence. So my question was, what measures did
6 you use to reach these conclusions? And was it based on

7 some analysis that talked about the extent to which the
8 options allowed you -- that's the way -- you know, the
9 escape path. To the extent to which these objectives were
10 being --

11 MR. KING: It's not based on an analysis or a
12 survey. It's based upon a subjective judgment, and the
13 judgment is based on the fact that, you know, we've been
14 criticized for being inconsistent and incoherent in the
15 past, and anything that takes us along the direction of
16 having a more logical, consistent, coherent regulatory
17 process that results in better decision making is going to
18 be a step toward improving public confidence.

19 CHAIRMAN JACKSON: Okay. But what you didn't do
20 was to take the options and just overlay them with the
21 objectives you started out with, and see to what extent the
22 options met those objectives, and use that as the basis for
23 deciding that you'd have high or low or moderate-to-high.

24 MR. HOLAHAN: I think to a large extent we did
25 that, and the table in Attachment 3 to the paper effectively

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1 lays out those objectives and judgments against them.

2 CHAIRMAN JACKSON: It's real good. You got me
3 that time.

4 COMMISSIONER MCGAFFIGAN: One could point out that
5 it's not a perfect mapping of effectiveness. We've avoided
6 perfection successfully.

7 CHAIRMAN JACKSON: Right. But you would not be
8 letting perfection be the enemy of the good.

9 MR. KING: Okay. Finally on Part 50 is slide 7,
10 which lists the four policy issues that the paper contains
11 that we're seeking Commission guidance upon.

12 The voluntary-versus-mandatory issue in terms
13 which would apply to either Option 2 or 3, where the staff
14 is recommending it be voluntary, but in conjunction with
15 that recommending that if a plant volunteers to go the
16 risk-informed route, that they take the entire set of
17 risk-informed requirements that are under Option 2 or 3, no
18 cherry picking. And we discussed that earlier.

19 Exemptions for pilot plants. We think pilot
20 plants are a very key activity to end up with a good
21 rulemaking, and if we can do that through the exemption
22 process to really test out these rules, we think that's a
23 preferable way to go, and we're recommending to the
24 Commission that we allow the use of pilots and the use of
25 exemptions in those pilots.

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1 Modification to the maintenance rule scope. We
2 have a near-term rulemaking on the maintenance rule, which
3 we are proposing to continue as planned. That is, we talked
4 about earlier that we come back in and use the maintenance
5 rule as a first step in testing out the risk-informed scope
6 under Option 2.

7 And finally requesting Commission direction
8 regarding developing additional clarification of staff
9 authority to use risk-informed decision making, and that
10 would be particularly in cases where licensees are not using
11 these risk-informed options.

12 Now in summary on Part 50 we're talking about --
13 yes.

14 CHAIRMAN JACKSON: Go ahead. Go ahead.

15 COMMISSIONER DICUS: I want to go back up to this
16 exemptions for pilot plants. I think in SECY-98-300 South
17 Texas was the example where in their graded QA pilot project
18 some issues arose that this was the best way to deal with,

19 and I think my question goes to the point that if -- have
20 you looked at our other risk-informed initiatives and found
21 similar problems? And if so, what you might be doing about
22 them?

23 MR. HOLAHAN: My recollection is the South Texas
24 example was the only one where we saw this kind of
25 interrelationship among requirements, that that

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1 substantially limited their ability to implement the program
2 that they wanted.

3 I think the other initiatives, in-service
4 inspection, in-service testing, and tech spec changes were I
5 think sufficiently isolated that these sort of problems
6 didn't arise.

7 MR. THADANI: I would also expect that graded QA
8 by its very nature is programmatic and goes into other
9 things.

10 COMMISSIONER DICUS: So you don't see this as just
11 something you may run into all the time and a problem that
12 is going to have to be dealt with constantly or there is
13 going to be a plant here or maybe a plant there or a program
14 here or a program there?

15 MR. HOLAHAN: In large part, our desire to avoid
16 what we call cherry picking is because it gets you into
17 these sort of situations. If you don't have a consistent,
18 logical set of scope requirements for purchasing pumps and
19 maintaining them, then you are likely to get into these
20 difficulties.

21 MR. THADANI: As I sit here and think about your
22 question, I think there may be some places that it could
23 crop up. ISD, seismic issues. If there is a tie-in through
24 code requirements, there is a potential there, it seems to
25 me; environmental qualification. There may be some

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1 potential issues there.

2 As I think about this, I'm not so sure that it
3 wouldn't come up again.

4 MR. HOLAHAN: We have one that we are living with
5 now. The maintenance rule and technical specifications
6 don't always tell licensees to do the same treatment of
7 equipment. There are even circumstances where a maintenance
8 rule may call for a licensee to make sure that equipment is
9 kept in service even though the technical specifications may
10 allow it to be taken out. That sort of situation will also
11 be dealt with better in risk informing the regulations with
12 a comments scope.

13 CHAIRMAN JACKSON: If in fact you have a situation
14 where there is this dissonance between what the tech specs
15 say and what the rule allows, what are you going to do about
16 it?

17 MR. HOLAHAN: Right now we have to follow both or
18 the more limiting of the two, because they are required to
19 meet both regulations.

20 MR. COLLINS: These discontinuities in the
21 regulatory fabric where you have a program like South Texas
22 had that in order to derive the maximum benefits -- I call
23 benefits the balance of safety integrated approach to the
24 equipment itself -- you run into these inconsistencies. It
25 speaks to having a contiguous program as far as risk is

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1 concerned. In the aggregate, the agency has piecemeal, so
2 to speak, different treatment of equipment.

3 EQ is probably one of the best examples that South

4 Texas has run into. It doesn't lend itself towards a
5 consistent application of risk and then deriving the
6 benefits of that because of the regulatory nexus of how you
7 have to treat that equipment. I think that speaks to
8 decisions that have to be made in this paper towards the
9 options.

10 I agree with Ashok. I think the more we implement
11 these programs the more we will learn, perhaps, in the
12 application of those and in the derived benefits that are
13 yet unforeseen for some of these policies we will run into
14 those inconsistencies.

15 COMMISSIONER MCGAFFIGAN: Does the quality of PRA
16 issue come into option 2? We have talked in previous
17 meetings about needing a higher quality PRA for more complex
18 situations. If option 2, the omnibus rulemaking where you
19 change it in a whole bunch of places, that sounds like a
20 complex situation. So the quality of PRA issue would come
21 out.

22 Then if it does come out, how do you implement
23 option 2 in fact? Does somebody come with a licensing
24 amendment saying "I would like to move to option B," name
25 the 12 regulations that are tied together, and then we'd

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1 make a judgment at that point as to whether they could
2 transition to option B of the 12 regulations and that's
3 where the quality of PRA judgment would come in? How does
4 it work?

5 MR. THADANI: The quality of PRA has to come in
6 almost every application that you make. Even under option 1
7 there is always the issue of quality of PRA. What we said
8 in Reg Guide 1.174 was that there will be cases where
9 simpler analyses would be adequate because we felt the
10 impact on risk would be minimal; there was no real question
11 or uncertainties and so on.

12 As you get into applying in a broader way
13 environmental qualification or some significant areas, that
14 raises a question about the total PRA. Not a piece of it,
15 but the overall PRA. The quality is a fundamental issue.
16 We pointed out that is one of the more challenging
17 implementation issues. You will hear later on about where
18 we are in terms of the standard as well as the peer reviews
19 and the certification issue, but I think quality has to be a
20 key element.

21 CHAIRMAN JACKSON: For the Commission's
22 edification, what fundamentally determines the quality of a
23 PRA?

24 MR. THADANI: I would think that proper
25 consideration of data; proper consideration of the scope of

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1 the analyses: Does it include internal events? Does it
2 include external events? Does it include shutdown
3 conditions? There is the issue of scope. Then there is the
4 issue of where we can quantify uncertainties and where we
5 know we don't know how to quantify uncertainties. How would
6 we deal with those? That is why the whole issue of defense
7 in depth is very critical as one goes forward to really
8 clarify the role of risk assessment and the role of other
9 attributes.

10 You might recall we describe what we call five
11 basic principles that we would apply. One of those would be
12 the quality of risk assessment. We recognize up front that
13 there are limitations in the technology. Those enhancements
14 have to be made. It's going to take a while, but that
15 doesn't mean that we just wait until we get a perfect risk

16 assessment. What other factors we will consider is going to
17 be an important element.

18 CHAIRMAN JACKSON: I want the Commissioner to
19 finish his question, but I want to flesh that out relative
20 to this quality issue.

21 COMMISSIONER McGAFFIGAN: One of the things that
22 strikes me all the time is we are always dealing with the
23 folks who have made major investments in PRA and all these
24 pilot studies. So you are dealing with the higher quality
25 end of the spectrum.

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1 To go back to my question about how it would work
2 in fact, let's say it's four years from now. We have done
3 it in the four-year rather than the eight-year time frame.
4 It's January of 2003. I'm now a licensee and I want to now
5 go to option B. Let's say it's 12 different rules.

6 Do I apply for a license amendment saying that six
7 months from now I would like to transfer to option B and you
8 guys approve it and part of the approval process is
9 consideration of is this entity up to transitioning to
10 option B? Is it automatic that they can go to option B if
11 they so choose and they just give us an information note
12 saying we now consider ourselves under option B? How does
13 it work in practice?

14 MR. HOLAHAN: We have not developed that level of
15 detail as to what level of staff review and approval would
16 be involved. I think what we do know is in the pilot stage
17 for plants with exemptions, any sort of test cases, it would
18 clearly require staff review and approval of probably both
19 the PRA and how it's being used.

20 If you look at the objectives that we are trying
21 to achieve, it seems to me in the long run this ought to be
22 a process in which licensees are implementing it on their
23 own subject to an NRC inspection type oversight. I don't
24 think from an efficiency point of view we want to be in a
25 review and approval mode on every plant, every issue.

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1 Whether there would be a sort of one-time ticket to get in
2 the ball game, we haven't thought through that process. It
3 seems to me it could be done either way.

4 MR. KING: It's one of the implementation issues
5 you see in the back of the paper.

6 CHAIRMAN JACKSON: Actually, there is kind of a
7 cat chasing its tail issue. Today you could argue that
8 because we allow license amendments based on considering
9 information coming from a risk assessment PRAs, that is one
10 part of the circle. The question I have is, to what extent
11 does the quality of the PRA rest with how well you know the
12 licensing basis of the plant?

13 MR. HOLAHAN: I don't think it relates to the
14 licensing basis; it relates very fundamentally to how well
15 you understand the plant. PRA is fundamentally a logic
16 model. To understand the logic means to understand how all
17 the systems interrelate and how they react to various
18 circumstances. The licensing and design basis, the very
19 stylized --

20 CHAIRMAN JACKSON: I guess I mean the as-built
21 plant.

22 MR. HOLAHAN: It means a fundamental understanding
23 of the as-built plant. Absolutely.

24 CHAIRMAN JACKSON: Then the second part has to do
25 with this issue of the quality of the data. There are

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1 questions that relate to industry-wide or industry average
2 data versus plant-specific data. If you want to make a
3 judgment relative to a given plant, then how much are you
4 hamstrung by what you know about the various assumptions
5 that go into a PRA relative to that specific plant?

6 MR. THADANI: When I said there were voids in
7 knowledge, if documentation says one thing and the actual
8 as-built condition is different, it's very unlikely that the
9 conduct of PRA will identify that problem. There is some
10 chance, because sometimes before conducting certain parts of
11 risk assessment licensees would have multidisciplinary teams
12 walk down some areas. That could identify some potential
13 problems.

14 In general, PRA would not identify things like
15 design errors and things of that nature. That has to be
16 recognized.

17 In terms of the data, there is a variation in
18 terms of data. If one doesn't have enough data on a
19 plant-specific basis, one can use a pool of data, and then
20 there are techniques to utilize the limited plant-specific
21 information to modify the models for the use of generic
22 data. Those techniques have been known for quite a long
23 time. I don't believe there is any uniqueness in the sense
24 of using generic data complemented with the plant-specific
25 to see if any changes need to be made to things like failure

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1 rates and so on. I don't see that as a big problem.

2 MR. HOLAHAN: I think it's very important in these
3 topics to understand that we are not talking about a
4 risk-based approach and that we are not relying entirely
5 upon the PRA, its insights or its numbers to derive what is
6 important and what is not. This is still a risk-informed
7 approach.

8 In some areas where the PRA may not be
9 particularly strong, so long as that is understood, then
10 design basis information can be used to supplement that
11 situation. So what is really important is to know the
12 strengths and weaknesses of the PRA, to draw the best and
13 most valuable information out of the PRA, and valuable
14 information out of the design basis in making these
15 decisions. In part that deals with the PRA quality issue as
16 well.

17 MR. THADANI: Again, I go back to Commission
18 endorsed issuance of Reg Guide 1.174. That reg guide very
19 clearly articulates those concerns and issues. That is why
20 I go back and say there were five basic considerations,
21 quantification of results being one of those considerations.

22 CHAIRMAN JACKSON: Let me ask you kind of a
23 different question. This has to do with the maintenance
24 rule. NEI -- I'm sure they are going to talk to us about it
25 -- has indicated some concerns with the introduction of new

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1 terminology into the body of the proposed maintenance rule.
2 For example, "risk-significant configuration" and "degrade
3 performance to an unacceptable level." What progress have
4 you made in clarifying this terminology?

5 MR. HOLAHAN: I've seen those concerns and I've
6 been at some of the meetings where those concerns have been
7 expressed. The staff is looking at those concerns. It is
8 developing some alternative words for the rule or for
9 guidance documents. I think those are still in the
10 developmental process. There have been some discussions.
11 We are not at the end of that process, but I think we are
12 dealing with the issue.

13 CHAIRMAN JACKSON: Sam.
14 MR. COLLINS: To come back to the philosophical
15 issue of the unintended consequences of those proposed
16 words, I think it is important and the staff agrees with the
17 industry that there can be unintended consequences based on
18 individual licensees and perhaps even some unintended
19 confusion by our inspectors without adequate guidance to
20 accompany those words.

21 So the question becomes, is there a way to achieve
22 the goal without those unintended consequences? I think the
23 answer to that is yes. We have some alternative wording
24 that has been expressed by the staff. It is under review.
25 I think we can get there. But we do agree with the industry

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1 on the goal.

2 COMMISSIONER MERRIFIELD: In terms of the issue of
3 the scope of the maintenance rule, it's my understanding
4 that the staff has raised an issue that there may be some
5 impact on the implementation of license renewals under Part
6 54. I was wondering if you could comment on that briefly.

7 MR. HOLAHAN: I think licensees can and in the
8 case of the current applicants are using the maintenance
9 rule as part of their basis for how the plant is managing
10 aging. If the scope of the maintenance rule is changed, the
11 licensees still need to address those issues. They might in
12 part have to use other means, other parts of the licensing
13 basis, or in fact they might have to construct a separate
14 additional program to address passive aging issues. It's
15 not a crippling issue for the concept of risk informing the
16 maintenance rule, but I think it might change the strategy
17 that an individual licensee takes for license renewal.

18 COMMISSIONER MERRIFIELD: To what extent is that
19 going to complicate the license renewal process?

20 MR. HOLAHAN: Since there is a substantive review
21 and approval process, I think the time and the forum are
22 available to deal with those sorts of issues. The licensee
23 will propose how they are going to deal with these issues.
24 If it's other than the maintenance rule, they will have an
25 opportunity to submit that to the staff. On the docket and

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1 in meetings there is plenty of opportunity to understand how
2 they would deal with it without a maintenance rule.

3 CHAIRMAN JACKSON: I noted that your SECY paper
4 indicated that you felt that the potential impact of option
5 3 on Part 52 should be considered. Can you say what the
6 issue or issues were the staff was trying to identify with
7 respect to Part 52 and future reactors?

8 MR. HOLAHAN: I don't think there was a specific
9 list or a specific problem in part 52. I think it was the
10 general concept that improvements that could be made to part
11 50 and focusing them better on safety issues, that general
12 concept applied to Part 52 as well, and that there are
13 similar words in Part 52 and similar concepts that ought to
14 be made consistent. I don't believe that any of the design
15 certifications that have already been approved would
16 necessarily be changed.

17 CHAIRMAN JACKSON: But you haven't done that
18 analysis?

19 MR. HOLAHAN: We have not done that analysis.

20 MR. TRAVERS: Part 52 requires a PRA. So these
21 reactor designs were based in part on the insights obtained
22 from the required PRA development insights. I think that is
23 one reason why we are fairly confident that it wouldn't have

25 MR. THADANI: Right. That's the key. Part 52 is

1 basically a process type rule. The real substance really is
2 in Part 50.

3 CHAIRMAN JACKSON: You raised the issue.

4 MR. THADANI: It's just a completeness issue. I
5 don't think there would be much of an issue there.

6 CHAIRMAN JACKSON: Well, you raised it. Let's
7 move along.

8 MR. KING: Just to wrap up Part 50, what you have
9 in front of you in SECY-98-300 is a paper that presents some
10 high level options, some high level issues that we need some
11 direction on, and once we get your direction, we will be
12 able to proceed and develop a more detailed rulemaking plan,
13 look at resources in a more realistic fashion and deal with
14 these implementation issues.

15 With that, I will turn it over to Gary.

16 MR. HOLAHAN: In light of the time, I will try to
17 go quickly through recent progress.

18 CHAIRMAN JACKSON: You have two minutes.

19 [Laughter.]

20 CHAIRMAN JACKSON: All right. Four minutes.

21 MR. HOLAHAN: Thank you.

22 In fact, most of the information presented here is
23 also in the staff's response to the tasking memo. These are
24 sort of the things that we track on a month by month basis.

25 There have been a number of successes in the

1 in-service inspection program.

2 The Westinghouse Owners Group topical report was
3 approved last month.

4 The staff is working on the EPRI methodology.
5 They responded to our questions in November and we are
6 meeting with them next month, and I believe that we will see
7 a successful completion of that review sometime in the
8 middle of this year.

9 Safety evaluation reports have been issued
10 approving the Vermont Yankee, Surry and Arkansas programs.

11 I think the important thing to recognize is
12 in-service inspection is one of the high priority programs
13 for licensees. That's because it's something that is done
14 during outages. Any of the programs that affect outage
15 length are the programs that have major costs associated
16 with them.

17 In-service testing program. We approved the
18 Comanche Peak program. I quoted a number of changes in the
19 treatment of valves earlier.

20 We've had some mixed experience in this program.
21 It's clearly not the large safety and economic changes that
22 we have seen in the in-service inspection program.

23 The Palo Verde plant had considered being a
24 follow-on, a second pilot to Comanche Peak. They have
25 withdrawn that since they want to focus their risk

1 activities in other areas.

2 San Onofre has indicated that they are interested
3 not in a total in-service inspection program change but
4 changes in selected areas. In fact, that may be more of the
5 direction for this program, where selected changes are
6 envisioned.

7 COMMISSIONER MCGAFFIGAN: Could I ask one
8 question. It's a process question. Last Tuesday morning
9 Nuclear News Flashes mentioned that there was going to be a

10 meeting that day on how to do in-service inspection more
11 broadly, working on the Surry and the Westinghouse Owners
12 Group report, getting approved, and it said the meeting
13 hadn't been on the web page, et cetera. I looked at the web
14 page that day. It was on the web page by Tuesday. Did
15 anybody have a chance to look at that complaint as to
16 whether that meeting between the staff and the industry was
17 properly noticed? I'm pretty sure it was last Tuesday.

18 MR. COLLINS: We looked at that. The answer is it
19 was properly noticed. There was a meeting notice that was
20 put on in mid-December, as I recall.

21 COMMISSIONER MCGAFFIGAN: It wasn't mid-December.

22 MR. COLLINS: A hard copy of the meeting notice,
23 which is our guidance. This is all staff guidance.

24 The meeting notice guidance goal is ten days,
25 although we have the ability to do it on an expedited basis

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1 if necessary. There are follow-on activities, however,
2 including the toll-free number for call in. We put out a
3 consolidated list of meeting notices and make that
4 available; we put the hard copy in the PDR; and then we have
5 a web page. All of those are meant to be somewhat
6 redundant.

7 The web page is an enhancement to our normal
8 process. Clearly we have some implementation issues to work
9 through there. In this particular case we had difficulty in
10 getting the hard copy to the people who put it on the web
11 site within the normal amount of time, although eventually
12 it did end up there and it was caught by the project
13 manager, I believe, at the last minute.

14 As early as today I met with the admin staff and
15 our program staff in NRR. We will be working with the CIO
16 to try to refine that process in its EDO initiative to
17 update the management directive.

18 We are almost at a point in our effort where we
19 have processes that are almost too complicated and
20 redundant. So I think we have to take a look at those. The
21 web is the easiest but the hard copy is the staff guidance
22 or requirement.

23 COMMISSIONER MCGAFFIGAN: The specific complaint
24 was on the web page. By the time I looked at it the day of
25 the meeting it was on the public web page, not just the

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1 internal web page, but maybe it wasn't on for the sufficient
2 period of time or whatever.

3 MR. COLLINS: I think that's the case. Clearly
4 the PDR, which used to be the only tool, is now not as
5 convenient as some of the supplemental tools we have. So we
6 need to look at the priorities of which one do we want to
7 maintain given the level of effort.

8 CHAIRMAN JACKSON: I just think there is an
9 opportunity, and you've already said it, to conform whatever
10 your guidance is about noticing meetings to the electronic
11 opportunities, which is what I think the Commissioner is
12 concerned about.

13 Why don't we move along.

14 MR. HOLAHAN: Viewgraph number nine.

15 In terms of the graded QA program, we approved the
16 South Texas program in November of 1997. I think that was a
17 success conceptually. It identified that improvements can
18 be made. What South Texas found in the process of
19 implementation was that there were some limitations on how
20 far they could go with the graded QA program, and we have

21 been using that experience as part of developing the
22 thoughts for risk informing Part 50. So we already know
23 that those issues would be addressed by option 2 or option
24 3.

25 CHAIRMAN JACKSON: Either because the Commission

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1 decides the policy issue in the absence of full risk
2 informing Part 50 or part 50 is risk informed; is that what
3 you are saying?

4 MR. HOLAHAN: Either a voluntary or a mandatory
5 option 2 would allow a licensee to address those issues,
6 yes.

7 Viewgraph ten, please.

8 Grade QA inspection procedures are under
9 development. There have been discussions with the CRGR.
10 Those were developed while South Texas was implementing
11 their program. So we used that as a pilot activity. This
12 is a little behind schedule, but I think that experience is
13 working reasonably well.

14 There are a couple of other licensees who have
15 indicated an interest in graded QA. I think they are
16 waiting for the South Texas experience to sort out for a bit
17 before they move ahead with their programs.

18 CHAIRMAN JACKSON: How does this draft graded QA
19 inspection procedure and its management review play into or
20 derive from the risk-informed baseline inspection program?

21 MR. COLLINS: They were created separately. I
22 think the philosophy should be consistent, Chairman, but the
23 tracks that they were on when they were initially developed
24 were separate. We didn't have the opportunity to overlap
25 those, although there is some commonality in the people.

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1 The shortcoming in the procedure itself is a lessons learned
2 for the oversight process.

3 CHAIRMAN JACKSON: What I'm trying to say is if
4 you are going to the trouble of doing a risk-informed
5 baseline inspection program and you have this graded QA that
6 has come out of a risk-informed initiative, that goes back
7 to my first question I was asking you at the beginning of
8 this briefing, which is how are you going to ensure that you
9 aren't doing these duplicative things, first of all, and
10 secondly, that if you they are duplicative that they may in
11 fact have something that is somewhat different? How are you
12 going to have a draft graded QA procedure out of a
13 risk-informed pilot initiative that is somehow not exactly
14 tied in with the risk-informed baseline inspection program?

15 MR. COLLINS: As we develop the scope, which is
16 the next phase of the oversight process, we will determine
17 whether this is a target for review either by the industry
18 or by the agency. Then the guidelines will be developed for
19 the content of those procedures. This would be folded in
20 along with other similar procedures that are currently under
21 way. This is a little bit ahead of that effort.

22 CHAIRMAN JACKSON: Again, it's not unlike the long
23 discussion we've just had about doing things in a piecemeal
24 way vice doing the comprehensive approach.

25 MR. COLLINS: Yes.

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1 CHAIRMAN JACKSON: Okay.

2 MR. HOLAHAN: In terms of technical
3 specifications, this is an area where there has been a
4 rather large number of activities completed over the last
5 several months.

6 Five topical reports from the CE owners group and

7 one from the Westinghouse Owners Group were approved.

8 Individual plant extensions of allowed outage
9 times have been done for about ten units with diesel
10 generator changes and about 14 units getting changes in the
11 ECCS allowable outage times. So there is substantial
12 interest and activity in that area.

13 Next viewgraph.

14 Another activity we've been involved with using
15 risk information recently is reducing requirements for the
16 BWR vessel shell welds. In effect, the staff has agreed and
17 has put out guidance to licensees that would effectively
18 reduce the vessel weld inspection by about half. We've
19 identified that the circumferential welds and the axial
20 welds can be treated basically separately in the process. I
21 think that will be a substantial savings to the BWR
22 licensees, because it again is the kind of activity that has
23 a substantial effect on outage length.

24 CHAIRMAN JACKSON: Let me ask this question. Did
25 the BWR study that justified the vessel weld inspection

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1 proposal and the changes also point out vulnerabilities due
2 to cold overpressure conditions?

3 MR. HOLAHAN: I wouldn't choose the word
4 "vulnerability," but I think it identified a significant
5 issue with respect to cold overpressurization. The staff
6 identified that issue. It was included in the evaluation
7 that went to the Commission and the licensees. The BWR
8 owners group has agreed to address that issue. They have
9 given us some information on the subject.

10 CHAIRMAN JACKSON: So what are we doing about it?

11 MR. HOLAHAN: There is a meeting. I don't
12 remember the date. I think the staff and the licensees have
13 recognized the issue.

14 MR. COLLINS: Dr. Sheron can address that issue.

15 CHAIRMAN JACKSON: Thanks.

16 MR. SHERON: The evaluation showed that the
17 original numbers that were submitted by the BWR owners,
18 which were very, very small if you remember, when we asked
19 them to look at the cold overpressurization brought the
20 number substantially up, but they were still small enough
21 that we could from a risk standpoint allow the elimination
22 of the circumferential weld inspections.

23 For the vertical welds the numbers were not that
24 small. However, we thought the analysis was conservative in
25 the sense that they were only looking at welds that were in

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1 the worst location from the standpoint of flux and so forth.
2 So we have asked the owners group to go back and readdress
3 the vertical welds and to do further analyses and refine
4 their numbers and see what the final answer is. That is
5 where that stands right now.

6 CHAIRMAN JACKSON: Thank you.

7 MR. HOLAHAN: With respect to the NEI whole plant
8 study, task zero was some initial licensing activities.
9 There were three cases to be submitted. Two of them have
10 already been submitted to the staff, one on hydrogen
11 monitoring, which staff has approved through the issuance of
12 a confirmatory order.

13 The staff went on to send a copy of that order to
14 all the licensees and to ask which other licensees would be
15 interested in following on that subject. To date two or
16 three licensees have indicated that they are also interested
17 in that sort of relief. So we will go ahead and process

18 those shortly.
19 The second item on the task zero was the San
20 Onofre request effectively to remove the requirements for
21 hydrogen recombination. That issue was submitted back in
22 September. It's actively under staff review. Staff is
23 looking at some analyses of severe accidents to determine
24 the value of hydrogen recombination for some realistic
25 severe accident scenarios.

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1 We expect shortly to meet with the San Onofre
2 licensee and hopefully complete that evaluation by the
3 middle of this year.

4 I think it's important to understand that we are
5 trying to make judgments in this case which are not just
6 specific to this plant, but it would form the basis either
7 for exemptions or more likely for a rule change. Hydrogen
8 recombination is currently a requirement of the regulations,
9 and if we find that isn't necessary or is necessary in less
10 rigorous fashion, I think this issue really applies to all
11 large dry containments.

12 The suggested third task, which has to do with
13 start time for diesel generators, has not been submitted.
14 South Texas, our last information is they are still
15 considering whether to submit that or not as part of their
16 overall plans.

17 Viewgraph 12, please.

18 The issue of PRA quality was raised earlier. I
19 think Tom and Ashok mentioned that progress is being made on
20 the ASME standard.

21 CHAIRMAN JACKSON: When do you expect that to be
22 completed?

23 MR. HOLAHAN: Tom.

24 MR. KING: The final meeting of the writing group
25 is taking place today. We expect that they will release it

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1 for public comment later this month; approximately 60-day
2 public comment period. When it comes back, any changes are
3 made. It goes through the ASME approval process. We expect
4 it to be out final in June of this year. That is phase I.
5 That's the internal events level 1 full power operation. We
6 are going to embark on phase II, which picks up the other
7 pieces.

8 COMMISSIONER McGAFFIGAN: Can we ask when phase II
9 is going to be completed?

10 MR. KING: I would estimate it would take about a
11 year.

12 CHAIRMAN JACKSON: Okay.

13 MR. HOLAHAN: Viewgraph 13.

14 There are a number of staff guidance and training
15 issues that are going on to try to put consistency and
16 quality in the activities we are undertaking.

17 The PRA steering committee which was mentioned
18 earlier has met a number of times both with the staff and
19 with the corresponding group in industry.

20 We formed a risk-informed licensing panel which
21 has met numerous times in dealing with licensing type
22 issues.

23 A number of implementation guidance documents have
24 been put out. We put out some additional guidance to the
25 staff on how to deal with licensing activities.

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1 There has been continuation of the staff training
2 program. There are training courses for managers, for
3 reviewers and for inspectors. All of those are continuing.

4 In addition to that, as part of the response to
5 the tasking memo we've established a communications plan for
6 all of the risk-informed activities. So we are working
7 through that process as well.

8 CHAIRMAN JACKSON: The only comment I would make
9 is that from what I'm hearing the staff training and the
10 communications part needs to be elevated on your list.

11 MR. TRAVERS: Fundamentally, that completes our
12 presentation.

13 COMMISSIONER MERRIFIELD: I've got one last
14 question.

15 CHAIRMAN JACKSON: Yes.

16 COMMISSIONER MERRIFIELD: Going to the issue of
17 PRAs, we have a presentation that Mr. Lochbaum is going to
18 be making. He raised a question in his written testimony.
19 I was wondering if you could respond to it. He states that
20 plant-specific risk assessments are flawed because you have
21 outcomes with virtually identical nuclear power plants that
22 have widely disparate risk profiles and you need different
23 assumptions and level of detail in those. I was wondering
24 if you could comment on that and give us your response.

25 MR. THADANI: In fact, a very important element of

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1 risk assessment is to understand this is a very unique tool
2 that brings design and operational aspects together in an
3 integrated fashion. You can have similarly designed plants
4 with different results because some licensees may choose on
5 their own initiative to do more than minimally required, or
6 they have much better operational experience. An issue came
7 up earlier about how you use plant-specific data, for
8 example. It may be much better than the generic or sister
9 plant data.

10 Those kinds of variabilities in fact, in my view,
11 would be there almost all the time because of some of these
12 factors. In this country I don't believe there are really
13 any two plants which are alike. When you look at what we
14 mean by Westinghouse designed plants, that is just the part
15 of the plant that is designed by Westinghouse. There is the
16 architect-engineer. There is a larger number of --

17 CHAIRMAN JACKSON: What's the bottom line?

18 MR. THADANI: The bottom line is that I would
19 expect differences, and those kinds of things are in fact
20 addressed as part of the risk assessment. One would expect
21 to see those differences.

22 COMMISSIONER MERRIFIELD: But the fact that there
23 are differences isn't necessarily a concern?

24 MR. THADANI: Absolutely not.

25 CHAIRMAN JACKSON: Okay.

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1 For the record, I want to indicate that
2 Commissioner Diaz did raise a question. I think we have
3 addressed much of it, but I would like to read it.

4 He says, assuming that voluntary conformance is
5 established for risk-informed regulatory activities, has the
6 staff determined the usefulness and effectiveness of a few
7 risk-informed rules and regulations, that is, 50.59 and the
8 maintenance rule versus a plan that phases in a
9 risk-informed Part 50? Essential to the success of such a
10 plan would be to establish the hierarchy of pertinent rules
11 and regulations.

12 Any commentary?

13 MR. KING: I think the options we have laid out
14 are consistent with the feedback we have gotten from

15 industry regarding what are the ones that received the
16 biggest safety payoff as well as unnecessary burden
17 reduction which deals with those rules that we call special
18 treatment. That is the way we have laid out the sequence,
19 to hit those first and then go into the others.

20 CHAIRMAN JACKSON: Okay. Thank you very much.
21 Let's hear from NEI.
22 Good afternoon. Mr. Beedle, Mr. Floyd and Mr.
23 Pietrangelo. Happy New Year.

24 MR. BEEDLE: Happy New Year to you.
25 I think the audio system has achieved day one

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1 status in the maintenance rule.

2 CHAIRMAN JACKSON: Yes. I think you're right.
3 MR. BEEDLE: We'd like to talk about two issues
4 relative to the discussion that you've just completed. Not
5 to belabor the points, but we would like to talk a little
6 bit about the rulemaking under risk-informed regulation and
7 also talk about the maintenance rule. Steve Floyd is going
8 to talk about the risk-informed rulemaking.

9 Steve.

10 MR. FLOYD: Thank you, Ralph.
11 Chairman and Commissioners, we do have a few
12 general remarks to make about the proposed SECY paper.
13 First of all, we are in, I would say, substantial agreement
14 with the NRC staff's suggested approach. We think option 2
15 with option 3 as a follow-on is a logical sequence to
16 pursue.

17 I'd like to emphasize a point that I think Mr.
18 Holahan made. This is not a risk-based approach; it truly
19 is a risk-informed approach; and we are in total agreement
20 with that. We know that there is some concern about whether
21 or not the actual plant as-built is reflected accurately in
22 the PRA models.

23 That is a legitimate concern, but I would point
24 out that that concern also exists today with the
25 deterministic set of analyses and deterministic set of rules

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1 that we have. To the extent that the plant has been
2 licensed and has been judged to be able to respond to
3 certain events is also highly dependent upon whether or not
4 the as-built plant meets what those deterministic
5 requirements were. So I think you have the same problem
6 with basically the same result occurring. So it's important
7 whether you use a deterministic approach or a risk-based
8 approach.

9 CHAIRMAN JACKSON: Risk-informed.

10 MR. FLOYD: Risk-informed. Excuse me. I just
11 violated my own rule here.

12 We do believe that it is appropriate to
13 concentrate on the scope issues. First, we think that would
14 allow for the maximum closure, if you will, and consistency
15 between what is being developed under the assessment process
16 and the move to make Part 50 more risk-informed.

17 COMMISSIONER MCGAFFIGAN: On that point, do you
18 have an opinion about -- I will use an analogy -- if there
19 are 12 rules that have the scope change whether that happens
20 all at once or in a series of rulemakings?

21 MR. FLOYD: Yes, sir. We think there is and
22 should be one definition for what constitutes the scope of
23 SSEs to which the body of regulations apply. However, we
24 do, for implementation reasons, mostly resource constraints,
25 see the need to have some phasing, but we really don't see a

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1 multiple phasing.

2 We see two approaches. One is to test out the
3 overall concepts under the maintenance rule because that's
4 the rule that we believe we have the most experience with
5 both in terms of the agency and the industry in applying
6 risk insights, but then to take this broader set of what I
7 think has been referred to here today as the interlocking or
8 interlaced regulations that really go to the pedigree to
9 which the regulation should apply that could be addressed in
10 the next set of requirements. Again, that would largely
11 address the concerns that were raised in the South Texas
12 project graded QA pilot activity.

13 CHAIRMAN JACKSON: The staff's approach is to
14 continue the ongoing rulemakings to change parts of 10 CFR
15 part 50. You are suggesting that one should be holding up
16 the promulgation of the maintenance rule to define this
17 scope?

18 MR. FLOYD: I'm going to defer that question to
19 the second half of our presentation and we will address that
20 point specifically.

21 CHAIRMAN JACKSON: Okay.

22 MR. FLOYD: We agree that voluntary implementation
23 is the proper way to proceed at least initially. One of the
24 concerns that the industry certainly has is, is the benefit
25 really going to be here with the adjustment to risk-informed

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1 regulation? We think the voluntary approach is the right
2 way to go to demonstrate that the benefits do indeed exist
3 and that we do get an improvement to safety with less burden
4 coincident with that.

5 We do believe, as I mentioned earlier, that
6 changing the scope of the maintenance rule should be an
7 early part of the reform effort once we reach a consensus or
8 decision on what is the proper scope of SSEs to which the
9 regulation should apply, largely for the reasons that it's
10 the one regulation that we have the most risk insights
11 available and most experience with applying risk insights.

12 Next slide, please.

13 I do want to report to you that we are developing
14 a new executive working group that has exclusive focus on
15 following risk-informing the regulations. We got the
16 agreement from our executives in December to form this
17 group. We sent out a request to the licensees for their
18 participation as members of the working group, which is
19 fairly standard practice.

20 I have to tell you we've been quite overwhelmed by
21 the amount of response that we have gotten. About half of
22 the utilities thus far have indicated a desire to
23 participate on this working group either at the executive or
24 senior manager level. I think it speaks to the promise that
25 this holds in risk informing the regulations and the benefit

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1 that at least the industry thinks could be derived from
2 this. So there is a great deal of interest in this.

3 I know there has been some concern expressed by
4 the agency as to whether or not there is wholehearted
5 support within the industry for this type of approach, and I
6 think the response that we have gotten says that there is
7 certainly a great of interest but that we still have to
8 complete the show-me part of it, and that's an important
9 piece.

10 COMMISSIONER MERRIFIELD: One quick question. We
11 talked a lot earlier about our two-track approach. Do you

12 have any sense at this point as to the number of plants that
13 would choose to go down the track of being risk-informed
14 versus those that would choose the more traditional approach
15 under Part 50?

16 MR. FLOYD: No. I think it is difficult to get an
17 accurate count at this point. I think we probably have
18 three or four plants that are interested in being pilot
19 plants to test out the concept right now, but I think the
20 rest are pretty much waiting to see what are the benefits
21 from it.

22 I think one of the things that has added to the
23 amount of interest in this area is the success that Mr.
24 Holahan talked about on the ISI and the IST pilots as well
25 as the tech spec pilots. I think the word is starting to

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1 get out within the industry that there were indeed some
2 benefits in pursuing those initiatives. I think that is
3 helping to spark further interest, but I don't have an
4 accurate count as to how many would go down one path. I
5 think the obvious answer is if turns out to be cost
6 beneficial to go down the risk-informed pathway, the
7 majority of the industry would certainly go down that
8 pathway.

9 We really see this working group as being a
10 counterpart for the NRC's PRA steering committee chaired by
11 Mr. Thadani. In fact we formed this working group
12 specifically with that thought in mind.

13 We will be conducting our first meeting early in
14 1999, and we do see a number of industry task forces,
15 certainly the various pilot activities, as falling under the
16 purview of that working group.

17 The goals that we have with the working group are
18 to work with the NRC in the public forum to develop an
19 approach for defining both what we mean by the
20 safety-significant scope to which the regulations should
21 apply in part 50 as well as risk significant configurations.
22 We really see the need to make this consistent with the
23 approaches that are being defined and outlined in the
24 assessment and overall reactor oversight process.

25 One thing I think is interesting is we had a lot

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1 of discussion here a little bit earlier about the need for
2 plant-specific PRAs and the quality and certification of
3 PRAs that you would have to have to go down the
4 risk-informed pathway. Yet I would point out that at least
5 on the assessment area most of the risk information that has
6 been applied thus far has been using generic risk insights
7 from across the industry with very little plant-specific
8 insight fit into that process. It seems to be more of a
9 bracketing approach, which may be a lesson learned that we
10 can apply in this approach and not have to perhaps get so
11 involved in the details of the plant-specific PRA, depending
12 on how we structure the process as we go forward.

13 We do intend and do agree with the staff
14 recommendation to use the whole plant pilot plants to test
15 the approaches. As was mentioned, there are three willing
16 plants today that want to participate in that effort. We
17 have put out the word that we are looking for a boiling
18 water reactor, which is currently not one of the mix of
19 plants, to round out the types of plants that would be
20 involved in that study. We do expect to have a boiler
21 participate in the study.

22 We look forward to establishing the rule changes
23 to codify the new definitions and the changes to the

24 requirements to allow the balance of the industry to adopt
25 these changes once the pilot studies and insights are

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1 completed.

2 That concludes my remarks.

3 CHAIRMAN JACKSON: Mr. Pietrangelo.

4 MR. PIETRANGELO: Thank you, Chairman. I want to
5 start out by talking a little bit about why the maintenance
6 rule is important to this whole risk-informed Part 50
7 effort. When the rule was promulgated in 1991 there was a
8 lot of talk and intent about it being the first
9 risk-informed, performance-based regulation. We've put a
10 lot of resources into it from both NEI and industry
11 perspective in terms of developing the guide and sending
12 people out in teams to look at maintenance rule
13 implementation and such. We really saw it as a new way of
14 defining what the regulatory framework would be. We've
15 talked to it as our flagship.

16 The implementation has not worked out that way.
17 We've gotten a lot of feedback from our members that the
18 baselines were principally programmatic inspection; they
19 weren't performance based; risk was used to some extent to
20 determine the level of monitoring, but yet the scope of the
21 rule was still very, very broad and what we have determined
22 as deterministic-plus.

23 At this point in the progression toward risk
24 informing Part 50 we don't think it has fulfilled its
25 original intent or promise yet, but we still think there is

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1 a tremendous opportunity to do so.

2 What we are hearing from our members is that risk
3 informing the scope of the rule is the place to start. It
4 provides for the proper focusing given that we are going to
5 have a new assessment requirement.

6 It would codify in fact what the current
7 assessment models and tools we are using in the industry are
8 today. When the staff in the SECY that described the
9 proposed revision to the maintenance rule talked about some
10 of the weaknesses in the programs, to a large extent they
11 were weaknesses with regard to what do you do when you come
12 off your risk model or risk matrix for all the rest of the
13 SSCs. There is a potential here to exacerbate that problem
14 if the scope is not addressed in this current rulemaking.

15 Getting to Commissioner Merrifield's question
16 about participation and what Steve talked about a little
17 bit, we are starting to kind of fill out the foundation with
18 successes and the things Gary talked about in in-service
19 inspection and IST and QA and tech specs. But they've been
20 on a handful of pilots. It hasn't been the whole industry
21 participating in those efforts. That's why we think the
22 maintenance rule is one that can get the whole industry
23 moving in this direction versus just a handful of utilities
24 who have already made a big investment in this. We think
25 it's the right way to do this in terms of risk informing

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1 Part 50.

2 Next slide, please.

3 This slide pretty much summarizes our comments on
4 the proposed revision. You've already talked to some degree
5 about some of the new terminology that would be introduced
6 in the rule. There hasn't been implementation guidance
7 developed to define these terms yet.

8 In fact, when we were trying to revise NUMARC 9301

9 in anticipation of this rulemaking this summer, a lot of the
10 iterations we went through with the staff was how to do deal
11 with the rest of the scope in the assessment process and we
12 never did nail that down.

13 When we were discussing this with the staff, our
14 tack was to take issue with the words that the Commission
15 put in the SRM in terms of risk-significant configuration
16 and try to come up with some other words. Quite frankly,
17 the words we came up with weren't any better.

18 We have changed tack since then and believe that
19 rather than argue the scope issue through these different
20 words that the scope ought to reflect what the intent of the
21 process is. That is, we don't argue with the premise that
22 you shouldn't place the plant in a risk-significant
23 configuration as long as that is well defined and
24 understood, but the scope to which you apply that assessment
25 also ought to be risk informed to make those processes match

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1 up.

2 CHAIRMAN JACKSON: Do you believe that "minimal"
3 in 50.59 is better defined?

4 MR. PIETRANGELO: Yes.

5 CHAIRMAN JACKSON: How so?

6 MR. PIETRANGELO: We have Reg Guide 1.174 which
7 deals with permanent changes. There is no parallel criteria
8 that deals with configuration changes. You cannot use the
9 criteria in 1.174.

10 CHAIRMAN JACKSON: Is 1.174 being used to define
11 "minimal" in 50.59, Gary?

12 MR. HOLAHAN: No. We haven't really said that it
13 should. It seems to me there are some insights you could
14 derive from 1.174, but I don't think we have equated those
15 at this time.

16 MR. PIETRANGELO: We're going to talk about 50.59
17 on Wednesday, and I can tell you how we are going to do it
18 for this particular rulemaking.

19 CHAIRMAN JACKSON: How you hope to do it, not how
20 we do it.

21 MR. PIETRANGELO: I'm saying what our guidance
22 document says. That's what I'm referring to. In fact, we
23 are not preparing to change it at all. We'll talk about
24 that Wednesday.

25 MR. FLOYD: I would like to add one point to that.

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1 Going back to the work that the staff has done on the
2 overall assessment process, there may be a fairly, not
3 lengthy path to resolution on this issue.

4 To the staff's credit, I think they have come up
5 with a very interesting approach under the assessment
6 process for taking inspection findings and trying to judge
7 the significance of inspection findings consistent with the
8 thresholds that have been established at least in draft with
9 the performance indicators. What it really looks at is
10 three parameters: What's the duration of the condition?
11 What is the likelihood that that particular piece of
12 equipment or system would be needed? And what is the degree
13 of redundancy or backup capability for that function?

14 Through a matrix fashion it tries to characterize
15 whether it's risk significant, significant or not
16 significant in terms of its configuration or condition.
17 There may be some very good translatable lessons from that
18 over into this.

19 CHAIRMAN JACKSON: Hence my comment that the
20 various things we are trying to do do need to be consistent

21 with each other.

22 MR. FLOYD: I couldn't agree more, Chairman.

23 CHAIRMAN JACKSON: Secondly, we need to be equally
24 comfortable or equally uncomfortable with undefined terms as
25 we go across the regulatory spectrum. If one looks like it

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1 has more to it than you want to do and therefore the lack of
2 definition is a problem, then from my point of view, from a
3 public policy point of view, not having sufficient
4 definition, even if it allows you to do less under the rule,
5 is an equally important issue. So it can't be an issue
6 because of the potential to have you do more than you want
7 to do and not be an issue if it allows you to do less than
8 you heretofore have had to do. I'm just telling you kind of
9 an operating caveat from my point of view.

10 MR. PIETRANGELO: Right. Before we get to the
11 next slide, let me comment that I think from our perspective
12 you ought to have them all defined so you know what it is
13 when you do the rulemaking. At least with the other rule we
14 are going to talk about Wednesday with regard to
15 consequences there are options that the staff provided in
16 the proposed rulemaking to define what minimal means. I
17 think there is a contrast here.

18 The second bullet on here, I think this came up in
19 the previous discussion about other places where there could
20 be conflicts between a risk-informed approach versus the
21 existing deterministic. I think Gary touched on that, this
22 reconciliation of the existing technical specifications with
23 this new assessment provision in the maintenance rule.

24 Yes, licensees would have to live with the
25 minimum, but I think that is kind of what has been feared

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1 all along, that you take the most restrictive things out of
2 a risk-informed approach and the most restrictive things out
3 of a deterministic approach, and that is what the licensee
4 has to live with. If that's the case, you're not going to
5 get many takers from a licensee perspective.

6 COMMISSIONER MCGAFFIGAN: Madam Chairman.

7 CHAIRMAN JACKSON: Yes, please.

8 COMMISSIONER MCGAFFIGAN: When we started the
9 "should" to "shall" stuff sometime ago Ken Rogers was still
10 on the Commission. I remember a meeting where we almost
11 voted to change "should" to "shall" as we were sitting here
12 after Ken made an intervention. The notion was that there
13 was already NUREG-9301 guidance that really went beyond the
14 rule, in all honesty. It almost changed the "should" to
15 "shall" and there were a lot of people out there acting as
16 if "should" were "shall" and so it was not going to be any
17 big deal to changing "should" to "shall." We did something
18 more. We introduced these terms which came from the
19 statements of consideration of the rule that everybody was
20 already following.

21 Is it the transition into the rule of the terms
22 having previously been in the statements of consideration
23 and the "should" to "shall" that suddenly leaves this
24 concern that we had better make sure everything is darn well
25 defined?

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1 MR. PIETRANGELO: Yes.

2 COMMISSIONER MCGAFFIGAN: I was a little
3 disappointed. You said you tried last summer. We gave the
4 staff very specific instructions in the SRM to work with the
5 industry to be in a position to update. I guess you are on

6 Rev. 2 or 3 of NUREG-9301.

7 MR. PIETRANGELO: Rev. 11, in draft form.

8 COMMISSIONER MCGAFFIGAN: That we would be in a
9 position in our 1.160 -- I hope it's not Rev. 11, but it
10 must be -- to endorse yours. We've broken that off for the
11 last three months.

12 MR. PIETRANGELO: In retrospect, Commissioner, I
13 think had we not been as sensitive to the words in the rule
14 and just went ahead and developed the criteria, both
15 quantitative and qualitative for that, we probably would
16 have been better off, but again our tack was to try to
17 propose different words.

18 To sum it up, the words the Commission proposed in
19 the SRM call for a judgment: don't place the plant in a
20 risk-significant configuration. What does that mean? The
21 way the configuration risk management program that people
22 have been committing to to get their extension in their AOTs
23 for tech specs is more of an action oriented requirement:
24 you will have provisions for this, this and this if you
25 enter the AOT, and it's less judgmental in terms of having

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1 them develop the criteria.

2 We are gearing up to do this now. We should have
3 probably been working more on the criteria than arguing with
4 the words in the rule.

5 COMMISSIONER MCGAFFIGAN: The problem with the old
6 rules even without the "should" to "shall," we've always
7 told you to do an assessment, but we always told you to do
8 something more to take it into account. The rule that is on
9 the book says you should take it into account.

10 I think as we parsed that old sentence, which was
11 a monstrosity, we were trying to figure out what do you do
12 beyond just doing an assessment. What do you do with the
13 results? What are you supposed to do with the results?

14 So you had this sentence that came from the old
15 statements of consideration and you tried in the current
16 Rev. 11 or whatever it is of 9301. This particular chapter
17 hasn't changed a lot. You tried to tell people what to do
18 with the results and you used words almost like "avoid
19 risk-significant configurations."

20 I'm just a little frustrated that we haven't come
21 together on what these words mean and in the last few months
22 we have sort of started down this other path.

23 MR. PIETRANGELO: To be honest, I don't think we
24 came to the conclusion that the scope change was needed
25 until well after a lot of that discussion to get over the

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1 hump that we couldn't get over this summer.

2 CHAIRMAN JACKSON: Yes, and the hump when we were
3 talking about 50.59, which you know is a neuralgic point
4 with me about scope, because it's the same issue in the end
5 at a fundamental level.

6 MR. PIETRANGELO: I'd agree with that, Chairman.

7 CHAIRMAN JACKSON: I understand your point.

8 MR. PIETRANGELO: I think that's enough on the
9 maintenance rule.

10 [Laughter.]

11 COMMISSIONER MCGAFFIGAN: You skipped a slide.

12 MR. BEEDLE: We talked about all these enough that
13 I don't think it's worth belaboring.

14 CHAIRMAN JACKSON: Okay. We're not trying to cut
15 you short.

16 MR. PIETRANGELO: That slide kind of speaks for
17 itself.

18 MR. BEEDLE: I think the plan that Dr. Travers
19 described along with members of his staff this morning
20 clearly represents an opportunity for the Commission and the
21 industry to move farther down the line of safe operation for
22 these nuclear plants.

23 Our thrust and scope and the maintenance rule and
24 50.59 has all been an effort to try and capitalize on an
25 opportunity to move in that direction. Whether it gets done

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1 today or tomorrow, probably sooner the better. I think I've
2 heard those words before. It is one of those things where
3 if we make the maintenance rule change today, I hope that it
4 doesn't forestall making another rule change that would get
5 this scope problem resolved for us.

6 CHAIRMAN JACKSON: Let me ask you two questions.
7 I'm chastened by how long we've been talking about margin
8 and minimal. Do you have a sense of how long it would take
9 to come to some concurrence on the definition of terms.

10 MR. PIETRANGELO: For scope, we think we can do it
11 within six months. The reason, Chairman, is that every
12 licensee under their current maintenance rule implementation
13 has to take a cut at this in terms of establishing the level
14 of monitoring in the rule, and that used both risk insights
15 and an expert panel process. So we are not starting from
16 ground zero.

17 We had experience at each licensee that has gone
18 through this. The work South Texas has done as far as their
19 graded QA effort I think we are intending to incorporate in
20 the development of this. I think it's an approach. You are
21 not going to get a set. It's an approach that has to be
22 used. I think we are very close to defining what that
23 approach is.

24 CHAIRMAN JACKSON: But because you have this issue
25 of linkages across the board, you may want to take the

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1 maintenance rule as a laboratory relative to risk informing
2 Part 50, but when you really have to go through and do the
3 kind of analysis that will ensure that that consistency
4 exists, while you may feel comfortable that within a certain
5 time frame you could do it for this specific rule, when you
6 are going across the board, then I think you are talking an
7 inherently longer time frame.

8 I have a question for you in terms of a compromise
9 kind of approach. If the Commission went forward with the
10 maintenance rule as it is proposed but it did not become
11 implemented until these definitions in the new form were
12 resolved and that could form the basis of the full
13 risk-informed rulemaking whether the maintenance rule is the
14 first part of that or part of an omnibus one, would that not
15 go some way toward addressing what the greatest concerns or
16 fears are?

17 MR. BEEDLE: I think if the Commission goes
18 forward with a maintenance rule that leaves some ambiguity
19 and puts that off until some subsequent guidance is issued,
20 it would serve the purpose, if it was accompanied by
21 guidance to the staff, to resolve the scope and the risk
22 implications. Then I think it would have some value. If it
23 doesn't direct the staff to deal with the scope issue, then
24 I'm not sure that it would serve a useful purpose.

25 CHAIRMAN JACKSON: I understand.

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1 MR. BEEDLE: It's either the purpose of changing
2 the rule or it's a signal to the staff and the industry that

3 the Commission is intent on changing the direction of the
4 regulations.

5 CHAIRMAN JACKSON: Okay.

6 Commissioner.

7 COMMISSIONER MCGAFFIGAN: Last Friday, unless it
8 was disrupted by the snowstorm, there was a meeting on 50.59
9 between the staff and the industry to go over the industry
10 comments. It was a public meeting.

11 MR. PIETRANGELO: It was not disrupted.

12 COMMISSIONER MCGAFFIGAN: It was well noticed.
13 There is also described in some of the literature I saw an
14 effort at convergence on this margin of safety issue where
15 scope considerations also come in.

16 Would there be any value in having similar
17 meetings with the staff on the maintenance rule as they try
18 to deal with your comments and see if there is a convergence
19 path?

20 MR. PIETRANGELO: We had a convergence meeting
21 even before Friday on that very issue, Commissioner. I'm
22 not saying it can't be done. Clearly, though, being very
23 candid with the Chairman's question, our preferred
24 alternative is to do it in a one-step process. If we don't,
25 then we are going to have these kind of meetings trying to

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1 address maintenance rule guidance and define those terms.
2 We don't have that many resources either to divert and say,
3 all right, we want this group working on the importance to
4 safety scope and another group trying to finesse the
5 maintenance rule guidance and this assessment provision. It
6 almost puts us on a two-track path.

7 We'd prefer to do it starting with the scope issue
8 in terms of risk informing Part 50 and then apply it to the
9 maintenance rule. From a licensee perspective and thinking
10 through this, even if we did say, all right, let's finesse
11 this in the guidance, then six months later you come up with
12 a scope change to the rule and say never mind about all that
13 stuff, it's done; it's not even in the rule anymore.

14 COMMISSIONER MCGAFFIGAN: As I understand it,
15 saying, yes, we will look at risk-significant configuration.

16 MR. PIETRANGELO: That one we could start working
17 on right away.

18 COMMISSIONER MCGAFFIGAN: That primarily means the
19 more safety-significant or the risk-significant systems.
20 That's what gets modeled in the PRA and engineering
21 judgments are made on and operational experience gives you
22 information on. At the moment I think the concern of the
23 industry, as I hear it, is that if it isn't de-scoped in
24 this round and we go for another round of comment because it
25 would be a significant change from what we proposed, then

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1 people will be chasing their tails looking at whether
2 changing this lightbulb that burned out somewhere is risk
3 significant.

4 That's not our intent. I think we could make that
5 clear in the guidance, but if that is the fear, then the
6 later rule change will absolutely clarify that beyond
7 whatever clarification we provide in the guidance today,
8 that we are really looking at times when core damage
9 frequency for a period of time gets into ten to the minus
10 two, ten to the minus three for a few hours or something. I
11 thought from the discussions last summer it was clear that
12 that is what we were talking about, and screwing a lightbulb
13 in isn't going to affect that.

14 MR. PIETRANGELO: We never had any question about

15 the intent of the staff in trying to do the right thing.
16 That's not it. From our perspective the cleanest way to do
17 it is to do it in the scope of the rule, because it's
18 risk-informed regulation risk informing Part 50. I know we
19 can risk inform guidance.

20 It's message-sending by the Commission too in that
21 regard. This rule was the flagship. It ought to be the
22 example.

23 COMMISSIONER MCGAFFIGAN: But then you get to the
24 discussion we had earlier. Say we are going to make this
25 change and say it's your change, the famous 42 rule changes

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1 which are really mostly one, which is to change words, the
2 definition of "important safety" in numerous places in the
3 regulations and conform them all so that they are all the
4 same scope for this set of regulations that bears on
5 operation. The words are "operating experience," "PRA
6 insights," or "engineering judgment." Those are the things
7 that will determine what is important to safety.

8 Does it make sense to do it in the maintenance
9 rule first or does it make sense to do it everywhere in a
10 comprehensive approach so that you don't have one scope for
11 the maintenance rule and one scope for all these other
12 rules?

13 MR. PIETRANGELO: Let me clarify that. Steve,
14 please chime in.

15 I think our intent is to do it once and for all.
16 That's just the definition. There would be an approach
17 behind that definition as to how you get there.

18 COMMISSIONER MCGAFFIGAN: Those are big words.
19 There would be a desperate need for guidance mutually agreed
20 between you and the staff as to what those words mean in
21 practice.

22 CHAIRMAN JACKSON: So you are willing to put the
23 50.59 rulemaking on hold to do that also?

24 MR. PIETRANGELO: No, we're not, Chairman. There
25 is a whole separate reason for that 50.59 rulemaking. They

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1 are not the same.

2 CHAIRMAN JACKSON: They are the same.

3 MR. PIETRANGELO: There is a stability question in
4 50.59.

5 CHAIRMAN JACKSON: Don't tell me about the design
6 basis rule and all that in terms of a fundamental
7 risk-informed approach to changes, tests and experiments in
8 the plant and dealing with degraded. Don't get me started.

9 [Laughter.]

10 MR. BEEDLE: We are really pleased to see the
11 NRC's approval of a number of specific risk-informed
12 activities, and we thank you very much.

13 [Laughter.]

14 CHAIRMAN JACKSON: Thank you. Any further
15 questions?

16 [No response.]

17 CHAIRMAN JACKSON: I think we understand your
18 point. We have to kind of weigh this.

19 MR. BEEDLE: Let me make one observation. The
20 effort that the staff has put in to dealing with this
21 assessment process has been, I think, Herculean in nature.
22 I think they have come a long way in trying to resolve those
23 problems. I'd like to take some credit for the industry's
24 contribution, but I think the real bulk of the effort was on
25 the part of the staff. They've come up with a lot of good

1 ideas. Given the same approach to solving the scope issue
2 on these complex rules and regulations that we deal with, I
3 think it is something that is achievable in a relatively
4 short period of time.

5 CHAIRMAN JACKSON: Thank you.

6 We will now hear from Mr. Lochbaum from the Union
7 of Concerned Scientists.

8 MR. LOCHBAUM: Good afternoon.

9 Slide two, please.

10 The Nuclear Regulatory Commission must resolve
11 three key issues before proceeding any farther down the road
12 towards risk-informed regulation. Two of these issues deal
13 with technical deficiencies in the plant-specific risk
14 assessments. The third issue is regulatory effectiveness.

15 Slide three, please.

16 Plant-specific risk assessments are flawed because
17 of the way they handle, or more accurately, the way they
18 ignore passive design problems. Examples of recently
19 reported passive design problems include the severed pipe
20 from the sodium pentaborate tank to the reactor vessel at
21 Big Rock Point, the undersized emergency core cooling piping
22 at Haddam Neck, the inadequate cooling water system for
23 emergency equipment at Maine Yankee, a handful of problems
24 affecting the recirculation spray system at Millstone Unit
25 3, and the inadequate ventilation system for the emergency

1 diesel generators at Davis Besse.

2 COMMISSIONER MCGAFFIGAN: Can I ask a question?

3 CHAIRMAN JACKSON: Sure.

4 COMMISSIONER MCGAFFIGAN: The point was made
5 earlier that this is also true for deterministic analyses.
6 Gosh knows we don't want equipment that is inoperable for
7 long periods of time like Big Rock Point, but presumably a
8 deterministic analysis also counted on that system working,
9 not just the PRA.

10 MR. LOCHBAUM: The difference is that under
11 risk-informed regulation if you are just swapping equal, it
12 wouldn't matter, but along with the swap to risk-informed
13 regulations the reduction in testing frequency, inspection
14 frequency, what you look at, there are a lot of things that
15 are associated with the risk-informed regulation. It's not
16 just a change in the name of the regulatory model.

17 COMMISSIONER MCGAFFIGAN: To stay on that Big Rock
18 Point case, if we had determined that that was a
19 risk-significant item, whatever testing requirements we have
20 today didn't capture that system. It was so inaccessible
21 that they made the judgment that they wouldn't go and see
22 that that pipe had been severed. But if it turns out in a
23 risk-informed approach that the item turns out to be
24 important, then maybe you make a judgment. This is all
25 hypothetical. Maybe it would have made a judgment that, by

1 gosh, we'd better go in and make sure that thing is really
2 working because it's a critical backup system in accident
3 scenario Q.

4 CHAIRMAN JACKSON: Or conversely, there could be a
5 requirement relative to systems like that and maybe a robust
6 risk analysis would indicate it is not as important as we
7 might have thought it was. So the real issues is to
8 rationalize the decision making. I guess the real question
9 has to do with trying to get at the root of the criticism.
10 Is it something that you feel is fundamental with
11 risk-informed regulation or does it have to do with how NRC

12 implements its regulatory program, period?

13 MR. LOCHBAUM: I think it's a little of both. I
14 don't think it's quite as easy as just answering one.

15 You asked a question earlier about as-built plant.
16 The Commission has made several attempts to get the industry
17 to comply with that requirement, with mixed success. If we
18 had that foundation, knowing that the plants' as-built
19 configuration matched their design requirements, then you
20 could go to risk-informed regulation because you are looking
21 at the right things. We would think that would be a good
22 move. Our concern is that we don't have that assurance.

23 This proposed change would allow lesser degree of
24 safety at the plants because you are looking at things less,
25 what you are looking at is less, all those things. Besides,

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1 we are already stuck with what we have. We are concerned
2 that this would be going from what we have, which has
3 problems with it, to something that is of lesser safety
4 margin. Our recommendation would be to take the resources
5 it would take to go to this approach and fix the first
6 thing, which is that the as-built plants are not good.

7 CHAIRMAN JACKSON: Do you feel that the NRC's
8 prescriptive approach, if implemented in the sense that you
9 mean, is fundamentally sound?

10 MR. LOCHBAUM: Yes. I look at it not only from my
11 own experience, but I look back at UCS's experience back to
12 the creation of at least the Nuclear Safety Department. We
13 very seldom question the rule itself, but we are almost
14 always concerned that the adherence to the rule is suspect
15 or problematic. I think that would be the problem we have
16 with the current regulatory scheme.

17 CHAIRMAN JACKSON: Okay.

18 MR. LOCHBAUM: The current plant-specific
19 assessments account for mistakes made by operators. The
20 probability of an error is based on an extensive human
21 performance database. Thus, although these mistakes have
22 been made and remedial training has been conducted to
23 prevent recurrences, plant-specific risk assessments
24 conservatively assume that the errors will be made at the
25 same rate as they have been in the past.

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1 The same applies to active equipment failures.
2 Examples are valves that fail to close or open when needed,
3 pumps that fail to start or stop prematurely when needed are
4 treated like operator errors. There is a large database of
5 equipment failures, and even though this equipment has been
6 fixed and preventive maintenance programs have been upgraded
7 to address these things, the risk assessments assume that
8 they occur at the same rate as they have in the past.

9 Slide four, please.

10 CHAIRMAN JACKSON: Let me ask you a question. I'm
11 going to ask Mr. Thadani. Is this true? If it's not true,
12 then how do we understand that it's not true? If it is,
13 then what are we going do about it?

14 MR. THADANI: First of all, yes indeed, Mr.
15 Lochbaum is correct. When there is a problem identified,
16 the problem is corrected and you would hope that at least at
17 that particular facility that failure mode or cause is not
18 going to lead to some problem down the road. This whole
19 process is a random process. At least that's how we treat
20 it, as a random process.

21 There are several contributors to any given
22 undesired state. When you use either plant-specific data or

23 generic industry data, if the corrective action has led to a
24 reduction in repeated failures, that will show up in the
25 database, and that would then be accounted for to that

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1 extent.

2 In the development of the fault tree the cause
3 would still be identified but the data that goes into it
4 would be different.

5 CHAIRMAN JACKSON: Except that Mr. Lochbaum, if I
6 am correct, is saying that in point of fact there isn't this
7 updating.

8 MR. LOCHBAUM: There is no feedback for design
9 failures, just active component failures.

10 CHAIRMAN JACKSON: There is no feedback for design
11 failures, just for active components.

12 MR. THADANI: For design failures that is correct.
13 That is an area that is not dealt with in the risk
14 assessments. That's a recognized weakness.

15 CHAIRMAN JACKSON: So how do you handle that?
16 What do you do about that?

17 MR. THADANI: Design failure is like -- pardon me
18 for using this language -- a blunder in my view. It's not
19 really a random issue. At a plant there is or is not a
20 design problem. It is not the sort of thing you can deal
21 with in a probabilistic manner.

22 CHAIRMAN JACKSON: But you can in the sense of
23 evaluating its importance.

24 MR. THADANI: We use what we call importance
25 measures. Thank you for saying that. There are different

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1 types of importance measures we use. One, which is called
2 risk achievement worth, we assume a system is unavailable
3 and then rack it up in terms of what would be the impact in
4 terms of safety if that system were just not available,
5 period. The conditional probability is one for that system
6 not being available. What is the impact on safety?

7 You can rank order, and we do, the systems in
8 terms of their importance to say protection system appears
9 in sequences, but if you assume protection system is not
10 available, say for a design problem, it would show up
11 immediately.

12 CHAIRMAN JACKSON: What about the severed line at
13 Big Rock Point? Actually, one that is of more interest to
14 me is the piping failure in the fire protection piping that
15 leads to internal flooding.

16 MR. THADANI: It would show up in the database. A
17 failure that leads to internal flooding would show up in the
18 database. The distinction I'm trying to draw is not knowing
19 for that specific plant that that condition exists. In the
20 case of that specific plant the probability is pretty high,
21 and the only way you can get at it is through things like
22 importance measures.

23 CHAIRMAN JACKSON: Are those importance measures
24 systematically used?

25 MR. THADANI: It's difficult for me to say that we

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1 have systematically used them in the past, but it is an area
2 that we have said the evaluations have to look at,
3 sensitivities and sensitivities coming through the kinds of
4 things we are talking about. I would note that it is driven
5 by the relative application, the relative importance of some
6 of these issues there.

7 CHAIRMAN JACKSON: Thank you.

8 MR. LOCHBAUM: Slide five, please.

9 The final example of passive design problems is in
10 the fire protection area. It's our understanding the
11 plant-specific risk assessments assume that fire barrier
12 penetration seals are 100 percent effective in preventing a
13 fire from propagating from one fire area into an adjoining
14 fire area.

15 The information in NUREG-1552, either the original
16 or the supplement, demonstrates that these assumptions are
17 non-conservative. Many penetration seals have been found to
18 be improperly installed. Others have been found not to be
19 installed at all. Thus it is absolutely wrong for the risk
20 assessments to model these barriers as being 100 percent
21 effective. Reality doesn't support that assumption.

22 The NRC needs to clearly define how passive design
23 problems are to be handled within plant-specific risk
24 assessments and then conduct evaluations to ensure that
25 plant owners are meeting those expectations.

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1 Slide six.

2 Plant-specific risk assessments are seriously
3 flawed because virtually identical nuclear plants can have
4 widely disparate risk profiles due to different assumptions
5 and level of detail.

6 As UCS will document in an upcoming paper on risk,
7 having the highest core damage frequency at one plant is not
8 even among the top five events at a sister plant. A Boeing
9 737 aircraft with United painted on its side is not orders
10 of magnitude safer or riskier than a Boeing 737 aircraft
11 with Delta painted on it. Yet a Westinghouse PWR operated
12 by utility X can, on paper, appear to be much safer than an
13 identical PWR operated by utility Y.

14 CHAIRMAN JACKSON: Their being identical really
15 has to do with the nuclear steam supply system, right?

16 MR. LOCHBAUM: The plants that we are looking at
17 is Calloway and Wolf Creek, which were built as SNPPS
18 plants. They paid a premium to be identical. So we are
19 going to look at those two plants and show that there is a
20 widespread difference. The reason the difference is
21 significant is that if I was making a change to the plant or
22 a procedure that controlled the plant, I would tweak the
23 input parameters to my peer and get any number I wanted to
24 out of it, up, down, sideways, whatever. There is that much
25 float in the numbers. And I've done it before. So it's not

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1 a theoretical basis. I did it at Indian Point.

2 CHAIRMAN JACKSON: You did?

3 MR. LOCHBAUM: Yes.

4 CHAIRMAN JACKSON: This is when you were on the
5 licensee side?

6 MR. LOCHBAUM: That's when I was paid with a
7 different thing, yes. It was recently done again at Indian
8 Point 3 with the HPSI ADS submittal. There was some very
9 interesting work done on that one.

10 The concern is that the risk assessments have such
11 large uncertainties and so much float that you can change
12 them to get any answer you want. You could double the
13 actual risk at the plant with a proposed change, alter the
14 number and show that it's actually in fact safer if you do
15 that. Or you could show that it's the riskiest thing you've
16 ever done in your life. The whole thing is smoke and
17 mirrors.

18 CHAIRMAN JACKSON: Let me back you up here. Even
19 if it were smoke and mirrors, isn't the point of a

20 risk-informed approach that it's not just this smoke and
21 these mirrors, that in fact you are using the risk
22 assessments within a larger context that involves the use of
23 deterministic and other engineering analyses?

24 MR. LOCHBAUM: That should be the approach. I
25 think our concern is that it won't be the approach; it will

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1 be loosey-goosey, and thus you could do anything you
2 virtually wanted to and justify it with the math. That's
3 what our concern is, how it has been done in the past and
4 how it is headed right now.

5 CHAIRMAN JACKSON: Gary Holahan's job depends on
6 that not happening.

7 MR. LOCHBAUM: I wouldn't trade jobs with him for
8 anything.

9 COMMISSIONER MCGAFFIGAN: I'm trying to understand
10 the difference between getting a license amendment that is
11 deterministic. David Lochbaum's work and firm are pretty
12 good at manipulating deterministic analyses too. Is a
13 deterministic analysis any less, in your view, smoke and
14 mirrors than PRA analysis?

15 We had the ACRS in front of us. The ACRS tells us
16 the benefit of a risk-informed approach, use of more risk
17 insights is that a typical PRA at least makes these things
18 transparent, whereas a deterministic analysis, the argument
19 goes, there is a tendency to have a certain degree of
20 opaqueness.

21 You are saying that good staffers and industry can
22 make PRAs as opaque as deterministic, but we're trying to
23 make a judgment: stay purely deterministic, which is not
24 what the Commission decided in 1995, or bring in these risk
25 insights. Presumably the staff is not quite as

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1 loosey-goosey as you suggest. Is there greater transparency
2 or not in the risk-informed approach as opposed to the
3 purely deterministic approach?

4 MR. LOCHBAUM: We don't think so. If we were the
5 Union of Concerned Scientist Fictionists, we would love this
6 approach. Based on what we know about how these are being
7 used, this is not good science. Not yet. It might be some
8 day. Once you correct the problems with the design basis
9 and the other things we are pointing out, they might be very
10 great tools, and they should be, but right now they are so
11 flawed that they are not transparent when you are neglecting
12 that reality. I will go into some of that a little bit
13 more. When I initially made these comments I didn't have
14 98-300 in front of me.

15 CHAIRMAN JACKSON: How much do your comments
16 relate to the numbers as opposed to the logic of the
17 approach?

18 MR. LOCHBAUM: I don't think you can separate the
19 two.

20 CHAIRMAN JACKSON: Yes, you can.

21 MR. LOCHBAUM: I can?

22 CHAIRMAN JACKSON: I think you can.

23 MR. LOCHBAUM: I know I can't. Let's put it that
24 way.

25 CHAIRMAN JACKSON: Come around and see me.

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1 MR. LOCHBAUM: We're concerned about the numbers
2 more so than the logic. If we corrected the problems of the
3 deficiencies, the logic is pretty sound.

4 CHAIRMAN JACKSON: I understand.

5 MR. LOCHBAUM: Slide seven.

6 The third issue that we feel needs to be resolved
7 before moving any further is regulatory effectiveness. By
8 that I'm referring to the public perception of your
9 effectiveness as a regulator. The current regulatory scheme
10 is prescriptive and rule based. To the public that implies
11 a system with clearly defined lines between what is allowed
12 and what is not allowed.

13 Given that impression, you might understand why
14 the public lacks confidence in the NRC's regulatory ability.
15 After all, if the rules are black and white, why did the NRC
16 sit and watch while things at Millstone, Salem, D.C. Cook,
17 Clinton, Lasalle, Indian Point Three, Crystal River get so
18 bad that multiple year outages were required to restore the
19 safety margins?

20 What do these perceptions have to do with
21 risk-informed regulation? The public believes that the
22 nuclear industry favors moving to this performance-based,
23 a/k/a touchy-feely system, because it wants to continue
24 enjoying the benefits of non-regulation while losing the
25 disadvantages of appearing on the cover of Time. Why should

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1 the public believe that the NRC would be more effective
2 protecting them using a touchy-feely system than it has been
3 in the past using the prescriptive system?

4 It's a rhetorical question. After all, adequate
5 nuclear safety margins can be maintained in theory using
6 either regulatory scheme. But theories are immaterial.
7 What matters is that the public feels that the agency has
8 not been effective using the prescriptive regulatory scheme.
9 The public also senses that this agency is being dragged
10 kicking and screaming by the nuclear industry and being
11 shoved by the U.S. Senate towards risk-informed regulation.

12 I also would cite the culture survey that was done
13 by the inspector general's office last year that would seem
14 to indicate that there is a big break between senior
15 management and the working --

16 COMMISSIONER MERRIFIELD: I've only been here for
17 eight or nine weeks. You again quote from your written
18 testimony that the NRC is being dragged kicking and
19 screaming by the nuclear industry and congress towards
20 risk-informed regulation. In the conversations I've had
21 with the Commissioners I certainly don't believe that that
22 is the case. In the conversations I've had with staff I
23 haven't found that to be indicated either. Are there
24 particular staff actions that you have that would lead you
25 to the perception, or is that just an anecdotal perception?

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1 MR. LOCHBAUM: It was based largely on the culture
2 survey that was done by the inspector general's office last
3 summer. It noted that the senior management at the NRC has
4 embraced risk-informed regulation but everybody else is a
5 little more skeptical or is a little doubtful that it will
6 be a productive path. That's the larger number of folks.
7 That's the data I'm basing that conclusion on, and those are
8 the folks I talk to most often.

9 COMMISSIONER MERRIFIELD: They haven't made me
10 informed of it. I don't know if the other Commissioners
11 have been aware of that.

12 CHAIRMAN JACKSON: I think it's fair to say that
13 when one is migrating the regulatory paradigm that there is
14 a cultural issue, and that issue exists not only within the
15 NRC but outside of the NRC, and would daresay even with our
16 licensees. You have varying levels of comfort and

17 understanding of what the approach is meant to accomplish,
18 which is why definitions and working together to resolve
19 differences, whether everyone gets exactly what he or she
20 wants, is an important part of that migration. That is why
21 we are all here.

22 MR. LOCHBAUM: I've been at plants where a
23 substantial change in direction was made. It takes a while
24 for everybody to face in the same direction. I recognize
25 that as reality. That culture survey is a little bit larger

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1 than I guess I would have expected at this stage of the
2 game.

3 COMMISSIONER DICUS: My understanding is that some
4 of the concerns expressed by the staff on the issue really
5 had to do with ensuring that on the one hand they have the
6 training that they need to buy into this issue and have the
7 support of management. I don't think I would characterize
8 that as kicking and screaming, being dragged to a certain
9 position. I think they were expressing some sound concerns
10 and we are addressing those concerns.

11 MR. LOCHBAUM: We've heard some feedback from
12 various inspectors that under the current system if they
13 find a problem in the plant, it has to go up through NRC
14 ranks to either get a finding or not a finding. They feel
15 that it's difficult to do that now and it would be a greater
16 burden to show a finding as a concern in the future under
17 this new system. So they are reluctant to go to something
18 that reduces the value of their job function. Those are the
19 concerns that affect me the most, because I guess I identify
20 myself most closely with the resident inspectors or the
21 people in the field. I guess I am echoing their concerns.

22 COMMISSIONER MCGAFFIGAN: We talked earlier about
23 the new assessment process. My understanding is you've been
24 involved in it. Don't the same issues come up? It's
25 supposed to be performance based, and you indeed, if I

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1 recall, have urged us to focus on most important things and
2 have clear indicators and these cornerstones and all that.
3 It's risk-informed to some degree also, isn't it, the new
4 assessment process?

5 CHAIRMAN JACKSON: Yes.

6 COMMISSIONER MCGAFFIGAN: Why is it okay in
7 assessment and inspection but when we apply it to rulemaking
8 and to the scope of rules and all that it becomes
9 problematic?

10 MR. LOCHBAUM: I think it's problematic from the
11 standpoint of the amount of resources it will take in order
12 to get to risk-informed regulations, which I will get to a
13 little bit more. There are no safety benefits, according to
14 your staff. So it's all burden reduction.

15 COMMISSIONER MCGAFFIGAN: Our staff said earlier
16 today that there are potential safety benefits. The
17 specific example was Comanche Peak. While giving relief in
18 two areas they added 25 components to the enhanced testing
19 regime that wouldn't have been captured by the current
20 version of Part 50. That was the result. So there is a
21 safety benefit. We deregulate to some degree and we capture
22 a bunch of systems that were not previously captured as a
23 result of a more thorough analysis.

24 MR. LOCHBAUM: In Attachment 4 to that SECY paper
25 the staff says, "More fundamentally, it may be very

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1 difficult to show that the risk-informed changes, in any
2 form, either will result in a substantial increase in the

3 overall protection of public health and safety or common
4 defense and security, the initial backfit threshold finding,
5 or are necessary for adequate protection."

6 In other words, they couldn't apply the backfits
7 that will make people do that.

8 COMMISSIONER MCGAFFIGAN: Right, but the backfit
9 rule is a different test than a cost benefit. A substantial
10 increase is very high threshold. Those words are a term of
11 art in this agency. That is different from saying that
12 there isn't a benefit.

13 Like they said earlier, those 25 systems, when I
14 asked the question, aren't necessarily going to be the same
15 25 in another place. So they can't do a generic rule that
16 says those 25 systems are important and incorporated in the
17 ASME code, but yet they felt they got a benefit out of it.

18 It will not pass a 109 substantial benefit test,
19 but it passes at the margin a cost-benefit test, and from
20 the licensee's perspective, because they are getting the
21 deregulation, they are happy to give the additional
22 oversight over those 25 systems. So it's a win-win
23 situation, properly done. That's what I heard earlier.

24 CHAIRMAN JACKSON: To be fair, I think there are
25 two points that do come out from your comments. I think one

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1 is one has to be very careful in language. I've actually
2 talked with the staff about this. The language has been
3 burden reduction and not unnecessary burden reduction or
4 definition of appropriate burden. So when you start down a
5 path and you are describing it as burden reduction as
6 opposed to unnecessary burden reduction or defining
7 appropriate burden, you are going to lose part of your
8 people from the beginning.

9 The second part, which is the pregnant question,
10 and the Commissioner spoke to it at least in the specific
11 instance, and that is again, is the agency prepared and are
12 all those involved prepared to understand that it is a
13 two-edged sword and will structure regulatory processes and
14 act accordingly? That relates to your credibility issue.

15 MR. LOCHBAUM: Exactly.

16 I have a few final comments I saw on 98-300 that
17 came out since I prepared the earlier comments. NUREG-1560
18 came out a few years ago that summarized all the IPEs that
19 were done. Figure 3-11, for example, illustrates the core
20 damage frequencies for Babcock & Wilcox plants.

21 This figure is very tough to see and almost
22 impossible for the people behind me to see.

23 The range is anywhere from three in 10,000 years
24 to less than one in 100 million years per reactor year for
25 core damage frequency for all the Babcock & Wilcox plants.

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1 But there are some data missing from this table. TMI Unit 2
2 operated for one year and had one core damage event. That's
3 a core damage frequency of one per reactor year, but that
4 data point is not included. If my bad test scores had been
5 tossed out when I was in school, I would have been a
6 straight A student.

7 This morning I added up the operating lifetimes of
8 every U.S. reactor that has ever been licensed. That total
9 through this morning is 2,392.15 reactor years. That
10 doesn't exclude time that the plants were shut down; that's
11 the entire operating lifetime. So far we have experienced
12 one reactor core damage event in 2,392 reactor years. That
13 reality is not reflected in this document.

14 That goes back to our concern that we are cherry
15 picking the data, let alone the systems and what rules we
16 follow, and throwing out the stuff that tends to look a
17 little bad or a little risky.

18 Addressing the concern of design basis issues,
19 section 14.2 of this document describes the general elements
20 of a full-scope PRA. "The following assumptions are usually
21 found in a quality PRA: The plant is operating within its
22 technical specifications and other regulatory requirements;
23 the design and the construction of the plant are adequate."

24 The evidence of the last couple years would show
25 that one or both of those assumptions are flawed and the

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1 PRAs are not quality PRAs because those assumptions cannot
2 be considered valid. Until those assumptions are made valid
3 and the PRAs are then quality PRAs, we shouldn't be
4 progressing any further, and UCS would recommend option 1 on
5 the staff's statement.

6 The SECY paper talked about, and it was discussed
7 in the earlier session, the potential for improving safety
8 decisions and increasing public confidence. We were kind of
9 interested in seeing how this came about, but you've already
10 asked the questions. We didn't think there was a survey or
11 a checklist or anything. Those are really nice attributes,
12 and I thought it would be good to throw in there, which we
13 agree with, but we are not sure how that would be
14 accomplished.

15 Thank you.

16 CHAIRMAN JACKSON: Thank you.

17 Let me thank you, Mr. Lochbaum, from the Union of
18 Concerned Scientists, the Nuclear Energy Institute, Mr.
19 Beedle, Mr. Pietrangelo and Mr. Floyd, and the NRC staff for
20 a very informative briefing. It's a long briefing because
21 of us.

22 As we have heard, there are some significant
23 accomplishments that have been made in the area of
24 risk-informed regulation.

25 Nonetheless, there do remain, first, some

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1 implementation issues on the risk-informed pilots that are
2 being addressed, and second, several policy issues overall
3 have been identified for Commission consideration. Some of
4 them are examples that Mr. Lochbaum has raised.

5 Also the issue of the proposed modification of the
6 scope of the maintenance rule which received a lot of
7 discussion today should perhaps be looked at closely in
8 concert with a risk-informed scope of another important
9 rule. You know which one I'm talking about.

10 Nonetheless, the Commission will provide guidance
11 on these policy issues shortly, and I hope that all feel
12 that today's meeting has provided for an open discussion
13 regarding proposed direction as well as cautions that need
14 to be considered.

15 Whatever difficulties may lie ahead of us, the
16 fact that we are proceeding in these directions I think
17 bodes well for the future as we do sharpen our focus on
18 those things that most significantly impact public health
19 and safety and let go of those things that do not, but, as
20 Mr. Lochbaum has told us, with the right focus on
21 follow-through.

22 Unless any of my colleagues have any further
23 questions or remarks, the meeting is adjourned.

24 [Whereupon at 5:05 p.m. the briefing was
25 concluded.]