

# **NUCLEAR REGULATORY COMMISSION**

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Advisory Committee on Reactor Safeguards

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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MEETING WITH THE ADVISORY COMMITTEE  
ON REACTOR SAFEGUARDS (ACRS)

+ + + + +

WEDNESDAY,

DECEMBER 5, 2001

+ + + + +

ROCKVILLE, MARYLAND

+ + + + +

The Committee met at 1:30 p.m. at the  
Nuclear Regulatory Commission, One White Flint North,  
Room O, 11555 Rockville Pike, Dr. Richard A. Meserve,  
Chairman, presiding.

PRESENT:

RICHARD A. MESERVE, Chairman

GRETA JOY DICUS, Commissioner

NILS J. DIAZ, Commissioner

JEFFREY S. MERRIFIELD, Commissioner

ACRS PRESENT:

GEORGE APOSTOLAKIS, Chairman

MARIO V. BONACA, Vice Chairman

F. PETER FORD, Member

THOMAS S. KRESS, Member-at-Large

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1       ACRS PRESENT: (CONT.)  
2               DANA A. POWERS, Member  
3               STEPHEN L. ROSEN, Member  
4               WILLIAM J. SHACK, Member  
5               JOHN D. SIEBER, Member  
6               GRAHAM B. WALLIS, Member

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

(1:47 p.m.)

CHAIRMAN MESERVE: Why don't we get started? I have to apologize to the Advisory Committee that we were testifying, or I was testifying this morning and fortunately, I had lots of reinforcements behind me, namely my colleagues here at the table and it went considerably longer than we had anticipated.

We do have two minor business items we need to clear up first, two affirmations.

Madam Secretary, you may proceed.

SECRETARY VIETTI-COOK: The Commission is being asked to act on a Memorandum and Order responding to an appeal by the Connecticut Coalition Against Millstone in a Standing For Truth About Radiation Foundation of the Atomic Safety and Licensing Board's decision in LBP 0110 which found the Petitioner's sole contention to be inadmissible. The Commission had voted to approve a Memorandum and Order which affirms the Board's decision LBP 0110. Would you please affirm your votes?

(Ayes.)

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1 Commissioner McGaffigan had previously  
2 agreed to this order and had he been here he would  
3 have affirmed his vote.

4 The second item, the Commission is being  
5 asked to act on a Memorandum and Order responding to  
6 Connecticut Yankee Atomic Power Company's request for  
7 Commission review of the Licensing Board's decision in  
8 LBP 0121. The Commission has voted to approve a  
9 Memorandum and Order which concludes that the request  
10 does not meet the standards for interlocutory review  
11 and denies the petition for directed certification.

12 Would you please affirm your votes?

13 (Ayes.)

14 And again, Commissioner McGaffigan had  
15 previously approved this order and had he been here he  
16 would have affirmed his prior vote.

17 CHAIRMAN MESERVE: Thank you very much.  
18 On behalf of the Commission I'd like to welcome you to  
19 today's meeting with the Advisory Committee on Reactor  
20 Safeguards. As I think you all know and as the  
21 audience knows, we do meet about every six months with  
22 the ACRS to hear about issues of current interest or  
23 near term concern. Why don't we get underway?

24 Dr. Apostolakis?

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1 DR. APOSTOLAKIS: Thank you, Mr. Chairman,  
2 Commissioners, as always, we are very pleased to be  
3 here to discuss with you topics of current interest to  
4 the Commission. These topics today are the Reactor  
5 Oversight Process, regulatory challenges for future  
6 plan designs, ACRS activities associated with core  
7 power uprates and the status of ACRS activities and  
8 license renewal.

9 Last time, Mr. Chairman, we went through  
10 the presentations and then we had questions. Do you  
11 wish to do the same this time?

12 CHAIRMAN MESERVE: Yes, that will be the  
13 process we will follow today.

14 DR. APOSTOLAKIS: Okay. We'll start with  
15 the Reactor Oversight Process. My colleague, Mr.  
16 Sieber, is the cognizant member.

17 MEMBER SIEBER: Thank you, Dr.  
18 Apostolakis, and good afternoon. Two and a half years  
19 ago, the Commission instructed the staff to implement  
20 a new revised Reactor Oversight Process. This new  
21 oversight process was to be performance-based and  
22 risk-informed to the extent possible. The object of  
23 the revised Reactor Oversight Process was to develop  
24 a process that was objective, understandable,  
25 scrutable, timely, and visible to the public.

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1           The staff has developed and implemented to  
2           a great extent such a process and we believe the staff  
3           has done a good job in many of the goals set before  
4           it.

5           We are also impressed that the staff has  
6           done an excellent self assessment and if the findings  
7           from that self assessment, along with our own comments  
8           are implemented, that will result in an excellent set  
9           of improvements to the process.

10           In April 2000, the Commission tasked the  
11           ACRS to review the new Reactor Oversight Process and  
12           you asked us two questions. Specifically, you asked  
13           us to review the use of performance indicators in the  
14           Reactor Oversight Process to ensure that the PIs  
15           provide meaningful insight into aspects of plant  
16           operation that are important to safety and review the  
17           initial implementation of the Significance  
18           Determination Processes and assess the technical  
19           adequacy of the SDP to contribute to the Reactor  
20           Oversight Process.

21           We provided our response in an analysis to  
22           you by our Letter of Report dated October 12, 2001.  
23           We concluded that the current PIs do provide  
24           meaningful insight into plant operations and plant  
25           performance. However, specifically with regard to

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1 performance indicators adopted for the use in the ROP,  
2 we found that sound performance indicator thresholds  
3 for the white/yellow and the yellow/red thresholds  
4 were initiating events and mitigating systems are not  
5 meaningful.

6 For example, for these two categories, the  
7 green/white thresholds are based on peer group  
8 comparisons where about 5 percent of the licensees  
9 might fall into the white category. As we move  
10 further down these categories, for example, the  
11 white/yellow and the yellow/red thresholds, the  
12 performance indicator thresholds are based on risk  
13 significance.

14 In the case of initiating events, since  
15 plants are designed to accommodate initiating events  
16 and tolerate them, risk does not increase very much  
17 with the occurrence of a specific initiating event  
18 unless other complications occur. So, for example, it  
19 would take more than 20 reactor trips per year to  
20 effect the initiating event risk category in a  
21 sufficient amount to cause a licensee to enter the red  
22 band.

23 Clearly, 20 trips in a year is far worse  
24 than industry performance has been for at least four  
25 decades to my memory.

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1           It would take over 2000 loss of heat sink  
2 events over a 3-year period or more than two per day  
3 to enter the red category for the loss of heat sink  
4 events.       Clearly, these are not particularly  
5 meaningful.    The same patterns occurs in the  
6 mitigating system category.

7           The use of risk-based thresholds for PIs  
8 has a deeper, more intractable flaw. Specifically, it  
9 focuses on the change in CDF that result from changes  
10 in a single isolated parameter, assuming that all  
11 other factors that affect CDF remain constant. The  
12 realistic assessment of the change in CDF cannot be  
13 related to the change in a single PI.

14          There is a difference between the  
15 definitions of terms like unavailability as used by  
16 INPO and WANO in the Reactor Oversight Process as  
17 compared to the definitions used by the former AEOD  
18 function of the Agency and by PRA practitioners. The  
19 multiplicity of definitions can lead to confusion. In  
20 the current definitions as used in the ROP are  
21 inconsistent with other Agency uses of these terms and  
22 are deficient in terms of being applicable to later  
23 more expensive analysis. We believe that it would be  
24 better to use the former AEOD definitions in the ROP

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1 process rather than the WANO definitions which are  
2 currently the definitions incorporated into the ROP.

3 We believe that the Agency should consider  
4 other related work that the Agency does when defining  
5 the performance indicators. We would also like to  
6 point out and believe that unreliability of mitigating  
7 systems should be added to the performance indicators.  
8 There's an important difference between unavailability  
9 and unreliability.

10 The most immediate and pressing need for  
11 the ROP is to improve the SDP tools. We note that the  
12 SDP tools are incomplete in some areas or are overly  
13 optimistic. We continue to believe that the technical  
14 adequacy of risk-based SDPs depends on the  
15 availability and the quality of a relevant PRA. We  
16 therefore believe that the SDPs for at-power  
17 situations are adequate, but not yet complete for  
18 every licensee. And the threshold values for risk-  
19 based SDPs appear to be appropriate and meaningful.

20 However, SDPs for nonreactor-based issues  
21 are not risk-informed generally, but are  
22 deterministic, and are more difficult to justify. An  
23 example is the SDP for fire production. We find this  
24 SDP to be overly simplistic and subjective.

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1           An SDP based on low power or shutdown PRA  
2           or other management tools like ORAM which is an EPRI  
3           outage management tool is needed. Risk continues when  
4           a plant is in a shutdown mode and a significant  
5           percentage of incidents requiring significance  
6           determination occur in the shutdown mode. In all of  
7           these situations agglomerate into the total risk  
8           profile of the plant. While the worksheets in the  
9           SPAR models are adequate for the purposes of  
10          estimating risk from individual events, a document and  
11          review of the worksheets in the SPAR models is  
12          necessary to validate them and maintain licensee and  
13          public confidence.

14                When we look at the action matrix there is  
15          an assumption embedded in the action matrix where  
16          there is an equivalence between the white band PI  
17          versus a white band SDP. There is also an assumption  
18          that two whites equal a yellow and so on. We have not  
19          found documentation of the arguments that would show  
20          that these assumptions are valid. We believe that the  
21          derivation of the implied equivalency of PIs versus  
22          SDPs should be documented. We also suggest that the  
23          process of formal decision making could be helpful in  
24          resolving some of these problems.

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1           We continue that the ROP is an evolving  
2 process and that more work needs to be done. We  
3 believe that the staff has done an excellent job so  
4 far in establishing and implementing the Reactor  
5 Oversight Process. We believe that this new process  
6 is supervisor to and more objective than the former  
7 oversight process.

8           We looked at training, communications, the  
9 displays on the NRC website, the availability and  
10 understandability of public information and we believe  
11 that all of these factors have been done very well by  
12 the staff. We understand that the regions have played  
13 a large role in making this process role with  
14 licensees, with their own staffs and with the public.  
15 We believe that the staff's implementation of the new  
16 Reactor Oversight Process so far has been a job well  
17 done.

18           Thank you.

19           DR. APOSTOLAKIS: Thank you, Jack. Next  
20 topic is regulatory challenges of future plan designs.  
21 That will be discussed by Dr. Kress.

22           DR. KRESS: The title may be just a little  
23 misleading. This is mostly a summary report of the  
24 workshop on this issue that the ACRS sponsored and  
25 held back in early June.

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1           Holding such a workshop is somewhat of an  
2           unusual thing for ACRS to do, but we thought it would  
3           be beneficial mostly for the ACRS itself so that we  
4           could become more acquainted with the design features  
5           of the various concepts in Gen IV and the other  
6           advanced things and become acquainted with the  
7           potential policy and technical issues that we may be  
8           called upon at some time to give you our best advice  
9           on.

10           We also thought it would be helpful for  
11           the staff and the industry to engage in this dialogue  
12           also. They had already engaged in dialogue, but this  
13           would be additional help and was more of a discussion  
14           forum than anything.

15           The workshop, I think, all the attendees  
16           that we were able to talk to afterwards thought it as  
17           highly successful, that it accomplished some good  
18           purposes. There were over 100 stakeholders that  
19           attended and we had presentations from basically the  
20           whole variety of stakeholders including those listed  
21           on the slide. I don't need to name them, but it's the  
22           full list of people who we selected and invited to  
23           participate.

24           I did want to thank Commissioner Diaz for  
25           a very nice keynote speech that he gave and he set a

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1 very good tone and we thank him very much for that.  
2 Everyone thought it was a very useful start in the  
3 meeting.

4 The purpose, as I said, was to see if we  
5 could identify what the major regulatory challenges  
6 might be for licensing these future reactors. We did  
7 develop such a list in the meeting. Several of the  
8 ACRS Members went through the minutes of the meeting  
9 and all of the presentations and the discussions and  
10 gleaned out of that what we thought were the major  
11 challenges that were identified. We put those  
12 together along with all the presentations and the  
13 questions and answers in the Panel discussions into a  
14 proceedings which is now ready to be issued as a  
15 NUREG. We've finished all of our reviews. It does  
16 include this list of regulatory challenges. There  
17 were more than two dozen of them, but we didn't  
18 prioritize them, so they may not all be as important  
19 as others. It makes an interesting list that I think  
20 is worth looking at and may serve as a good place for  
21 ACRS, at least, to focus some of its attention and  
22 even for the staff might benefit by looking at it.

23 We have continued activities in this area,  
24 of course. A couple of the ACRS Members participated  
25 in the workshop sponsored by the Office of Research in

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1       October. Looking at the research needs for the high-  
2       temperature, gas-cooled reactor and developing a list  
3       of these needs and at that time we did priorities on  
4       some of these.

5               We also have met with the NRC staff and  
6       Exelon to discuss a number of things. One, we  
7       discussed the readiness of the staff to conduct their  
8       licensing activities. We discussed Exelon's proposed  
9       licensing approach for the PBMR and we also discussed  
10      the staff's reaction to that proposed approach.

11             We intend to have additional meetings. We  
12      haven't written a letter on the subject yet because we  
13      haven't fully looked at the staff's SER on that issue.  
14      We intend to take several of what we think are the  
15      more important challenges that we identified and  
16      discussed them at much more length at our coming  
17      retreat that we have scheduled for January and arrive  
18      at some sort of ACRS position on these and perhaps at  
19      some time after that we will look for a report to the  
20      Commission.

21             DR. APOSTOLAKIS: Thank you, Tom. Our  
22      next topic is our activities associated with core  
23      power uprates. The lead member is Professor Wallis.

24             MEMBER WALLIS: One of our major  
25      activities right now and in the near future concerns

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1 applications for core power uprates and so it's a very  
2 current topic. The impetus comes from industry that  
3 sees considerable advantages to uprating the power and  
4 believes that they can do it safely. Many licensees  
5 are planning or have initiated these power uprate  
6 programs.

7 In the early 1990s, General Electric  
8 initiated a generic power uprate program for BWRs and  
9 Westinghouse and Combustion Engineering have recently  
10 approached the staff regarding our uprate plans for  
11 PWRs. We have not yet received these applications for  
12 PWRs so my presentation concerns BWRs only.

13 The first step that G.E. made was an  
14 uprate program that was initiated in 1991 which  
15 limited in scope to 5 percent typically power uprates  
16 and what happened then was they made use of the margin  
17 which was already built into the design. The designs  
18 had been licensed for power slightly below what they  
19 were capable of. And the potential for uprate was  
20 essentially already there. So this was not that big  
21 a step.

22 Most of the operating BWRs will use this  
23 program. The power uprate program that concerns the  
24 ACRS at the moment is what's called the Extended  
25 Uprate Program which goes by the acronym EPU. These

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1 uprates are substantial, up to about 20 percent. They  
2 are achieved by an improved design, by advanced fuel,  
3 by very sophisticated tailor-made fuel and by advanced  
4 management of that fuel, the way it's put into the  
5 reactor, where it's put in, when it's renewed and so  
6 on.

7 This is achieved by meeting all the  
8 regulatory criteria in place and changing as little as  
9 possible the key conditions. For example, the  
10 pressure of the reactor vessel is not changed as a  
11 result of this power uprate. The key -- the maximum  
12 rod power is not changed. But some other things have  
13 to change such as the steam flow rate in order to get  
14 the power and the turbine has to be changed. So there  
15 are some balance of plant changes.

16 The ACRS reviewed the lead plant for  
17 Monticello in 1998, 6.3 percent uprate and at that  
18 time we recommended that although this was not a  
19 risk-informed application that the staff from the  
20 applicant should review the impact on plant risk and  
21 let us know what those impacts were, that there  
22 insights to be gained from so doing and this is what  
23 actually has happened.

24 G.E. laid the basis for these uprates by  
25 producing typical reports which have been approved by

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1 the staff and they provided generic basis for how to  
2 go about evaluating an EPU.

3 I want to discuss a few of the technical  
4 issues that we addressed. ATWS, because there is more  
5 power and we're concerned about whether or not this  
6 plant will recover from ATWS and so we needed to  
7 carefully examine the calculations of their bases for  
8 what happens during an ATWS and what the operators  
9 have to do to get out of it and assure ourselves in  
10 that which could be successfully managed.

11 This has been done by the IGE and the  
12 licensee. The licensee has paid particular attention  
13 to enhanced training programs for the operators so  
14 that they know just what to do, when to do it.

15 Core instability is a feature of BWRs.  
16 The core instability region, because the power flow  
17 rate map is more extensive, the core instability  
18 region is more extensive. We have to be assured that  
19 instability could be avoided during normal operation,  
20 that if instability did occur it would be detected.  
21 There was proper instrumentation for detecting it and  
22 the operators could handle it.

23 We also had a concern with the effect of  
24 core instability and also the oscillations following

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1 an ATWS and the peak heat during one of these  
2 oscillation is actually put into a fuel rod.

3 We were concerned that we addressed the  
4 material degradation issues such as irradiation and  
5 stress corrosion cracking and the embrittlement of the  
6 pressure vessel. This is necessary because the  
7 neutron flux distribution is different with this new  
8 fuel design. So we had to be reassured that indeed  
9 the vessel flow was not significantly changed and the  
10 embrittlement of the pressure vessel was not an issue.

11 Because of the greater flow rates in the  
12 feedwater there is more flow assisted corrosion. We  
13 are satisfied that it is manageable and within limits  
14 and that inspection procedures will detect it before  
15 it becomes serious. Because of greater flow, steam  
16 associated with power, there is a small potential for  
17 flow induced vibration of steam driers, for example,  
18 and this could lead to fatigue. Again, we addressed  
19 this issue and it was satisfactorily responded to.

20 The containment response, because there's  
21 more power and more decay heat, the containment does  
22 experience somewhat enhanced pressures and  
23 temperatures during the loss of coolant accident.  
24 These are within the regulatory requirements to meet  
25 the regulations.

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1           We wrote a letter on Duane Arnold's  
2 application. This is a significant core operator of  
3 15.3 percent and we recommendation approval of that  
4 application in October.

5           We are currently addressing the Dresden  
6 Quad Cities power stations' applications which are for  
7 17 and 17.8 percent and we hope to finish our letter  
8 to you in the next few days.

9           I'd like in concluding to make a few  
10 general observations that the ACRS has on how these  
11 reviews are conducted and then I'll turn to my  
12 colleague, Dana Powers, to expand on these  
13 observations.

14           The staff rationale for its decision is  
15 reflected in the Safety Evaluation Report. This is  
16 the document which explains the staff's decision and  
17 what we notice is that this relies very heavily on the  
18 applicant's analysis, the applicant's presentation,  
19 the SER, the Safety Evaluation Report, tends to  
20 reiterate the rationale submitted to the staff and  
21 then there's usually a rather short statement that the  
22 staff finds is acceptable.

23           And the way -- the question is well, why  
24 did they find it acceptable? And the way the ACRS  
25 determines this is to meet with the staff, ask a lot

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1 of questions and satisfy ourselves that the staff had  
2 good rationale for making this decision.

3 I think we have thought about whether or  
4 not the Safety Evaluation Report should be more  
5 explicit, make it clearer to someone who doesn't know  
6 some of these reasons that the staff has, just why  
7 they've reached this decision.

8 This might be of help to the Standard  
9 Review Plan. There isn't a Standard Review Plan for  
10 power upgrades and the staff has good reasons for not  
11 having the Standard Review Plan, but if there were one  
12 it might be clearer just what the staff is looking  
13 for, what the criteria are and so on. That might be  
14 useful.

15 Another observation we have is that  
16 thought might be given to when the questions that are  
17 addressed by the staff are important enough or when  
18 the answers are uncertain enough it is advisable to  
19 make independent evaluations rather than relying on  
20 submission from a licensee.

21 And so staff needs to be clear just when  
22 it needs to ask for confirmatory analyses or make  
23 confirmatory analyses of its own. This would  
24 certainly help public confidence if there were  
25 independent assessments of some of the -- if one could

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1 identify some key issue just needed to be evaluated  
2 independently.

3 In the case of the power uprates we've  
4 reviewed so far, this was done for the Duane Arnold  
5 containment analysis, but I think that's the only case  
6 where the staff felt the need to make an independent  
7 confirmatory analysis.

8 I'd like to ask my colleague, Dana Powers  
9 to continue.

10 DR. POWERS: Well, I think in our  
11 examinations of these power uprates that we've looked  
12 at so far, we did conclude that the staff has done an  
13 adequately detailed analysis of the applications.  
14 They do seem to have learned the lessons that have  
15 come from the Maine Yankee incident. They have, for  
16 instance, done a very thorough examination of some of  
17 the licensees' calculations, but on site, looking at  
18 the inputs and the details the way the analyses were  
19 done.

20 On the other hand, they don't have a  
21 standard review plan for these activities and that  
22 raises the question of whether this kind of detailed  
23 analysis that's been accorded the first and the second  
24 applications will be accorded to the fifteenth and  
25 sixteenth of these applications. And is the process

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1 going to be sufficiently transparent to both the  
2 licensees and the public to have confidence in.

3 You can contrast this approach that the  
4 staff has adapted on the power uprates to the much  
5 more disciplined and documented approach that they've  
6 accorded the license renewal process. They have a  
7 similarity in that they both involve the extended  
8 generation of nuclear power.

9 The documentation that the staff provides  
10 and it's a standard in the Safety Evaluation Report  
11 has been a challenge to us. We would rely on heavily  
12 to guide our review and when we don't have the  
13 rationale for the staff accepting it, we of course  
14 have to impose additional burdens both on the staff  
15 and the licensee to delve into in some depth. But I  
16 think there's a more important issue associated with  
17 the Safety Evaluation Reports. That is, as written in  
18 their summary fashion right now, they really don't  
19 contribute to the Commission's goal to engender  
20 greater public confidence in the NRC's examination of  
21 these licensing actions.

22 It may well be we need to think about  
23 considering returning to an earlier era when our  
24 Safety Evaluation Reports that the NRC produced really  
25 were engineering evaluation documents and provided the

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1 kind of detail that would give one confidence that the  
2 NRC had done a very thorough examination of the  
3 applicant's analysis.

4 DR. APOSTOLAKIS: Thank you, Graham and  
5 Dana. And the last topic is the status of ACRS  
6 activities on license renewal to be discussed by Dr.  
7 Bonaca.

8 DR. BONACA: The purpose of my  
9 presentation is to provide you with a brief update on  
10 the license renewal activities.

11 Since the last Commission meeting we have  
12 performed a number of reviews. First of all, we  
13 evaluated whether revisions to 10 CFR Part 54 are  
14 required. We also completed the final reviews of  
15 Arkansas Nuclear 1 and Hatch applications and we  
16 performed an initial review of Turkey Point. I would  
17 like to note that Hatch application is the first BWR  
18 application that we reviewed and that the Turkey Point  
19 is the first Westinghouse. With these two reviews  
20 behind us, we have then reviewed one plant of each  
21 type of reactors run in the U.S., a BMW plant, a CE  
22 plant, a Westinghouse plant and the boiler plant. And  
23 so we have a significant experience behind us in  
24 different types of reactors.

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1           Regarding 10 CFR 54 and possible need to  
2       revise it, we concluded that 10 CFR part 54 is  
3       effective and efficient. We feel that it is effective  
4       because it allows the implementation of the rule,  
5       leads to the identification of safety important  
6       components that need to be managed for aging and also  
7       leads to the identification of adequate management  
8       programs.

9           It is efficient also because it utilizes  
10       existing established categorization processes of  
11       components and relies on existing processes to the  
12       extent possible, also from aging management, so it is  
13       an efficient system. It doesn't create something that  
14       we know. It just relies on existing processes.

15           We have learned a lot over the past two,  
16       three years in license renewal and I believe the staff  
17       and the industry have done a significant effort in the  
18       guidance documents. Therefore, we feel that we need  
19       to maintain these processes stable and avoid any rule  
20       making that will, in fact, destabilize the process as  
21       we need to do.

22           There are still differences between the  
23       staff and the industry. They are technical and their  
24       resolution can be accommodated in the upcoming updates  
25       of the generic license renewal guidance documents.

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1 The first update will be next year. So for two years  
2 are there.

3 Regarding Arkansas 1 and Hatch  
4 applications, we completed our reviews in May 2001 and  
5 November 2001, respectively. And we felt for both  
6 applications that the requirements of 10 CFR Part 54  
7 were effectively implemented. In those cases, in both  
8 cases, we found that the staff had performed an  
9 effective review of the applications. The SERs are  
10 extensive. They go into high detail and good  
11 analysis. We found that the resolution of the open  
12 items was appropriate and essentially we concluded  
13 that adequate programs have been established to manage  
14 the effects of aging, so that these plants can be  
15 operated safely and in accordance with the licensing  
16 basis for the extended plant operation.

17 A couple of observations I would like to  
18 make for Arkansas 1 and Hatch. First, the Arkansas 1  
19 application was completed five months ahead of  
20 schedule. Well, we noted already that before, but one  
21 of the reasons is that there were only six open items  
22 in the interim report. Clearly, there is a  
23 convergence of understanding between the staff and the  
24 applicants between what needs to be done. And so, in  
25 fact, for Arkansas 1, we didn't feel that we needed to

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1 write an interim letter because simply there were very  
2 few open items to be dealt with.

3 For Hatch, there were many more open  
4 items. And the staff performed a significant SER.  
5 They also included in the SER significant notification  
6 of some of the main issues of contention, especially  
7 the seismic 2/1 issues. They were very highly  
8 discussed in the SER. They provided significant  
9 information. We recommended that those clarifications  
10 be included in the guidance documents because they  
11 will prevent the same issues to become contended  
12 issues on future applications.

13 Turkey Point, as I mentioned, we only  
14 reviewed the interim application which is very  
15 complete. The document was very scrutable. By  
16 scrutable, I mean very easy to understand through the  
17 document how you lead to the selection of components  
18 and scope, how do you go about looking at the aging  
19 and the draft SER was comprehensive. Again, on this  
20 application we have only four open items. Of those,  
21 only one has some significance, including seismic  
22 piping issue. The other three can be readily dealt  
23 with, I believe. And because of that, again, we chose  
24 not to have an interim report and as you know, we will  
25 be issuing a final report on Turkey Point in the

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1 spring of 2002. We plan to visit the site in March  
2 2002 and have the whole final subcommittee meeting for  
3 this application at the site or close to the site.

4 A couple of observations before I complete  
5 my presentation. The point was that the applications  
6 are becoming more scrutable and complete and again I  
7 define the use of the word scrutable in just you can  
8 understand what's happening and how you get to the  
9 conclusions. And we expect this strength to continue  
10 in those applications following the generic license  
11 renewal guidance documents. We hear that San Onofre  
12 will submit in the upcoming year the first application  
13 which is developed in the standard format and so we  
14 have high expectations that that would be facilitating  
15 a review further.

16 To conclude my presentation, for 2002 we  
17 plan to review Surry, North Anna, McGuire, Catawba and  
18 Pitch Bottom applications and to also perform the  
19 final review of Turkey Point, Surry and North Anna.

20 In addition to that, we plan to review  
21 revisions to the generic guidance documents. So we  
22 have a full table and to cover this pretty large scope  
23 of applications, in a fair way, we will develop two  
24 license renewal subcommittees starting at the  
25 beginning of 2002 and that practically will involve

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1 every Member of the Committee on one of the two  
2 subcommittees.

3 With that, this completes my presentation.

4 DR. APOSTOLAKIS: Thank you, Mario. This  
5 completes the formal presentations. I hope it's  
6 evident to the Commission that in addition to  
7 completing the reviews of the license renewal  
8 applications in record time, the Committee also  
9 managed to complete its presentation in record time.

10 (Laughter.)

11 So now we are open for questions.

12 CHAIRMAN MESERVE: Thank you very much.  
13 Clearly, you have been very busy and we appreciate, as  
14 always, all the help that you offer us.

15 Let me turn first to Commissioner  
16 Merrifield.

17 COMMISSIONER MERRIFIELD: Thank you very  
18 much, Mr. Chairman, and I compliment the Chairman of  
19 the ACRS in the precision of the testimony and  
20 certainly you have set a standard which will be  
21 difficult to meet, one of which I'm certain you will  
22 in the future.

23 The first question goes to Mr. Sieber and  
24 it relates to Slide 8 of the presentation. In the  
25 most recent monthly update on the tasking memo, our

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1 staff indicated the selected risk-based performance  
2 indicators for unreliability and unavailability will  
3 be incorporated into a pilot program in early 2002 for  
4 potential enhancements to the current set of PIs.

5 Does that recommendation or that comment  
6 meet what you set out in your second bullet and I'm  
7 wondering the extent to which they may or may not have  
8 briefed you recently on risk-based performance  
9 indicator efforts and if so, do you have any particular  
10 insights you'd like to share on that?

11 MEMBER SIEBER: Well, the last time we  
12 were briefed as in September, early in September, so  
13 that isn't real current. We knew at the time that  
14 they were considering these, but we felt an obligation  
15 to put it in our letter report to reinforce the fact  
16 that they would continue to redefine their PI process.

17 On the other hand, I'm not aware of  
18 specifically what it is the staff is going to do.  
19 Maybe I can ask Dr. Apostolakis if he has any more  
20 insights than I do.

21 DR. APOSTOLAKIS: Well, I was at that  
22 meeting too. I don't know anything after that what  
23 happened, but I think it was encouraging that the  
24 staff was aware of the main difficulty that Mr. Sieber  
25 identified that you can't really have risk-based

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1 performance indicators by looking at one event, like  
2 initiating events only.

3 Now whether we will be successful in  
4 identifying risk-based performance indicators is open  
5 to question. We really don't know, but clearly, you  
6 cannot look at one event. You have to look at a  
7 number of events and the staff was aware of it when  
8 they came before us.

9 COMMISSIONER MERRIFIELD: What this leads  
10 me to thinking is perhaps the staff having had that  
11 encounter has had further thinking on the topic and  
12 there may be usefulness in their getting back together  
13 with all of you to update you in terms of where  
14 they're going and so that you can --

15 MEMBER SIEBER: I think that would be a  
16 good idea.

17 COMMISSIONER MERRIFIELD: At the last  
18 Commission meeting that we had with the staff on our  
19 new oversight process, the staff had similar views  
20 that you have in slide 9 relative to the SDP and the  
21 need to improve the SDP tools. Late September, they  
22 did complete plant-specific SDP notebooks for all the  
23 plants.

24 MEMBER SIEBER: Well, that's good.

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1 COMMISSIONER MERRIFIELD: And I'm  
2 wondering if you had a chance to look at any of those  
3 and if so, if you have any reflection on their value?

4 MEMBER SIEBER: I have not had an  
5 opportunity to do that, but we intend to look at some  
6 examples and discuss those at our January meeting. We  
7 have a session planned for four hours to look at SDPs.

8 COMMISSIONER MERRIFIELD: I guess similar  
9 to my last question, it's positive you've got a  
10 meeting schedule that would be instructive to get some  
11 understanding of the value that you think those may  
12 have for us moving forward in terms of addressing it  
13 and concerns you have in Slide 9?

14 MEMBER SIEBER: It was my understanding  
15 that there were some. There are 13 SDP types all  
16 together. Some are based on operating plant. Some of  
17 them are radiological control and effluents and you  
18 know, containment, and so forth.

19 Not all those are complete and some that  
20 are complete could stand a little more work. And so  
21 I think it's going to be a while before the staff gets  
22 everything done. In fact, they may never get  
23 everything done because as they use this process over  
24 and over again in different situations, I'm sure that  
25 they will realize that there are ways to improve the

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1 process and I encourage that kind of an attitude on  
2 the staff's part.

3 DR. APOSTOLAKIS: I suppose that they will  
4 never be done, that we will have something adequate at  
5 some point, if that's what you mean.

6 COMMISSIONER MERRIFIELD: It will never be  
7 perfect. None of us are. We all struggle with that.

8 MEMBER SIEBER: I think right now though  
9 the revised reactor oversight process is superior to  
10 the old process.

11 COMMISSIONER MERRIFIELD: Right.

12 MEMBER SIEBER: In that it's more  
13 objective and I guess I' like to say I was very much  
14 impressed by the communication of the process, the  
15 public meetings that all the regions had, the NRC  
16 website which the last time I looked wasn't there, but  
17 I guess it's being revised right now, but all these  
18 additional factors add strength to the oversight  
19 process the way it is and when I read the initial  
20 goals, I think the staff has met them.

21 COMMISSIONER MERRIFIELD: Dr. Kress, in  
22 October, the staff provided the Commission an  
23 information SECY paper, SECY 01-01-88 with the staff's  
24 readiness to review applications for licenses and to  
25 inspect new plants. In that report, the staff

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1 outlined some of the research that will be needed,  
2 some of the staff skill gaps and some of the  
3 inspection and technical challenges we have before us.  
4 I'm wondering if you could give us any thoughts in  
5 terms of your views on that report?

6 DR. KRESS: I thought the staff did an  
7 excellent job in putting together what their needs  
8 were there and they did find some substantial gaps.  
9 We haven't had a chance to develop a committee  
10 position on this, but I personally thought they hit it  
11 pretty much right on the button. It was a good job.

12 COMMISSIONER MERRIFIELD: Okay, in the  
13 presentation, you mentioned some of the activities  
14 that you all have been working on relative to the  
15 pebble-bed modular reactor and I'm wondering if you  
16 can comment on where you are relative to keeping  
17 abreast of matters associated with AP-1000 and General  
18 Atomics gas reactor.

19 DR. KRESS: We need another committee  
20 meeting on that subject. Our new subcommittee  
21 chairman on that is Professor Wallis. I don't know  
22 what his plans are for near term.

23 MEMBER WALLIS: Well, we're meeting. We  
24 have set some preliminary presentations on AP-1000 and  
25 we're waiting for the substantial ones.

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1           The question is we did approve AP-600 and  
2       there were questions are there other such scaling  
3       differences, are there significant differences between  
4       AP-600 and AP-1000 that need to be addressed. There  
5       may be a few of those.

6           COMMISSIONER MERRIFIELD: Yes, to the  
7       extent to which -- I think the direction of my  
8       question was to make sure that although there is a lot  
9       of notoriety about the pebble-bed modular reactor  
10      effort, there are a number of utilities out there that  
11      are exploring a variety of reactors and certainly the  
12      AP-1000 and the General Atomics reactor are also  
13      reactors which have gotten licensee attention. I  
14      think not only is that information that we get, but  
15      obviously it's out in the trade press as well. I just  
16      wanted to make sure you're keeping your focus on not  
17      merely one reactor design, but a myriad of designs --

18          MEMBER WALLIS: We're well aware of AP-  
19      1000. We've been collecting information. We're  
20      really waiting for the staff and Westinghouse to come  
21      through with the hard nosed presentation.

22          COMMISSIONER MERRIFIELD: Maybe you need  
23      to press them in terms of setting --

24          MEMBER WALLIS: I'm not sure it's our role  
25      to press Westinghouse.

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1 COMMISSIONER MERRIFIELD: Well, at least  
2 in terms of our staff.

3 DR. KRESS: Yes, certainly.

4 COMMISSIONER MERRIFIELD: I think there's  
5 an expectation on the part of the Commission that we  
6 as a Commission be ready to review those reactors and  
7 --

8 MEMBER WALLIS: That was our expectation  
9 too and I'm not quite sure why we haven't seen it a  
10 little earlier. I think we do have to wait until we  
11 get to the proper submission.

12 DR. POWERS: It's my understanding that  
13 the staff and Westinghouse are now going through a  
14 decision process to decide the extent and content of  
15 the review that will accord the reactor and I think  
16 we're waiting the outcome of that decision process.

17 COMMISSIONER MERRIFIELD: One last quick  
18 question directed toward Dr. Wallis, you talked a  
19 little bit about the Duane Arnold power uprate, in the  
20 latest monthly report, the Tasking memorandum, it did  
21 reflect that the ACRS comments had required  
22 substantial changes to the safety evaluation. And I'm  
23 wondering sort of the driver behind that, you did have  
24 a bullet on slide 35 in which you spoke about the need  
25 for confirmatory analysis and improved guidance

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1 required from the staff on safety evaluations. And  
2 you did comment about standard review plan. So I'm  
3 trying to get those things together and just have a  
4 quick sense of where you are.

5 MEMBER WALLIS: We have an on-going  
6 discussion with the staff about these issues. The  
7 staff doesn't believe they need a standard review  
8 plan, although the Maine Yankee lessons learned  
9 reports said there should be one for power uprates.  
10 They believe they have enough information, there's  
11 enough precedence being set, they're going to learn by  
12 having to learn from Duane Arnold. They can keep  
13 learning and this is an evolutionary process which is  
14 as effective as trying to put together a standard  
15 review panel at this point.

16 On the need for confirmatory analysis I  
17 think what we're really saying is you need to get it  
18 clear what the criteria are for you to decide whether  
19 or not you need a confirmatory analysis and make that  
20 clear. This is perhaps the hardest part, be more  
21 specific. I mean a standard review plan will be more  
22 specific and clear and if there could be sort of  
23 criteria established that these are the kind of  
24 situations where you really need to do something

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1 confirmative, rather than just accepting what you see.  
2 I think that would hep.

3 So they've gone through the rationale  
4 process which we can understand is transparent. The  
5 licensees can understand it and it's clearer. I think  
6 that's what we're suggesting there might be a need  
7 for.

8 COMMISSIONER MERRIFIELD: Thank you, Mr.  
9 Chairman.

10 CHAIRMAN MESERVE: Thank you. To Mr.  
11 Sieber, I'd like to come back to this issue you raised  
12 about the thresholds for the initiating events and  
13 mitigating systems and particularly the white/yellow,  
14 yellow/red thresholds and the problem of making those  
15 risk-based and viewing them in isolation means that  
16 you've got these huge number of events before you  
17 cross a threshold.

18 MEMBER SIEBER: That's right.

19 CHAIRMAN MESERVE: And I'm curious about  
20 -- I read from your letter that you sent -- the ACRS  
21 sent us that there's a role for our expert judgment in  
22 setting those thresholds.

23 I am curious about how you think through  
24 that problem. I mean we have said we want to base  
25 those thresholds on risk has been something that the

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1 ACRS has supported and urged in a central theme that  
2 has been one that I think the Commission has been very  
3 responsive to and it would seem to me that if you're  
4 going to make those departures from the one at a time,  
5 you'd have to think about what other things could be  
6 happening at the same time as these other events,  
7 what's the probability of those. It seems to be an  
8 enormously complicated issue that one would have to  
9 address to set the thresholds at some other level and  
10 I wonder at the end of the day if you're really going  
11 to be able to say that they're based on risk rather  
12 than some other criterion.

13 You've raised an issue that's a legitimate  
14 one. I just don't know how to solve it in a way  
15 that's consistent with the philosophy that you've  
16 advocated and that we have accepted.

17 MEMBER SIEBER: Well, I think to start off  
18 with, it's even more complicated than you describe  
19 because when you go through that process and not look  
20 at performance indicators in isolation, all the  
21 thresholds end up being plant-specific and that adds  
22 another degree of complexity to it.

23 It would seem to me that the further away  
24 that you get from the current method of doing it which  
25 gives answers that are thresholds that aren't

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1 particularly meaningful, the less risk-based you  
2 become. But I concede to myself in thinking through  
3 this problem is that really what the reactor oversight  
4 process is is a management tool to identify and  
5 escalate performance that isn't up to par and once  
6 it's identified through the inspection process or by  
7 crossing into a white threshold that puts you into the  
8 action matrix where additional attention occurs, and  
9 until I get to red thresholds, the Commission  
10 ordinarily would not be taking an action by issuing an  
11 order or something of that nature.

12 So I think that the oversight process even  
13 the way it is right now will function. The question  
14 is when the public or the technical community look at  
15 these thresholds or licensees, do they have that  
16 hidden smile on their face and we really have to be  
17 bad before you get to this level.

18 Perhaps Doctor, you may want to add to  
19 this --

20 DR. APOSTOLAKIS: Mr. Chairman, the bottom  
21 line of our recommendation is that at this time anyway  
22 the performance indicators for initiating events and  
23 mitigating systems should be decoupled from risk.  
24 There will be measures of performance where  
25 performance is defined as -- it was defined by the

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1 original -- I believe it was 007 or 0007 report,  
2 namely, they looked at the performance of all the  
3 plants, of all the units and they took the 95th  
4 percentile. They said if you are below this, your  
5 performance is acceptable.

6 This is the message we're getting from the  
7 performance indicators and what we're saying is you  
8 define this green/white threshold that way, but then  
9 when you went to white/yellow you switched the risk.  
10 Don't do that. Find another way related to  
11 performance to define these additional thresholds  
12 which creates now some inconsistency between the  
13 performance indicators and the significance  
14 determination process which is risk-based and that's  
15 why it's really very important to make sure that we  
16 all agree that the white in the initiating event  
17 performance indicator means similar things as a white  
18 in the SDP because they are treated interchangeably in  
19 the action matrix.

20 I'm not saying it's an easy problem, but  
21 essentially the answer to your question is yes, we are  
22 decoupling the performance indicators from risk.

23 DR. KRESS: And one of the reasons for  
24 that is we have searched for ways to actually do this  
25 risk significance and I think you put your finger

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1 right on it. It virtually is impossible to do it at  
2 this time. We cannot come up with a technical way to  
3 relate to sample of things to the actual change in  
4 risk that you would get. That's a very difficult  
5 problem.

6 DR. APOSTOLAKIS: Of course, in an ideal  
7 world one would have a PRA, get the input and then get  
8 it on the CDF.

9 (Laughter.)

10 But even though the work is not ideal --

11 CHAIRMAN MESERVE: That's a great unified  
12 theory.

13 DR. APOSTOLAKIS: Well, they've been  
14 searching for it for 60 days.

15 (Laughter.)

16 CHAIRMAN MESERVE: But it seems to me that  
17 you've solved this problem, but then you've shifted in  
18 the whole of the action matrix is sort of premised  
19 that these thresholds have a risk basis, and so now  
20 you've got two of the categories performance  
21 indicators where you're admitting up front they don't  
22 have a risk basis.

23 How do you say you've acted in a fashion  
24 that's consistent in applying those nonrisk-based  
25 performance indicators against other things you're

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1 getting out of the significance termination process  
2 that are all guided by risk to show consistency?

3 DR. APOSTOLAKIS: And this is related to  
4 recommendation for checking the consistency of the  
5 colors. How to do that, well again, it will be an  
6 expert judgment process, but at least you will be  
7 asking the right questions. We didn't, I hate to say,  
8 we didn't supply the answer because Commissioner Dicus  
9 will use it against us, but this was the issue really.  
10 I mean maybe we have to revised the action matrix.  
11 Some of us felt that we should, but the Committee's  
12 position was not to say anything about it.

13 DR. KRESS: Well, some of us felt that in  
14 the significance determination process it is possible  
15 to determine the risk and that maybe that ought to be  
16 risk-informed and a different set of considerations  
17 than the performance indicators and that was one thing  
18 we discussed was the possibility.

19 DR. APOSTOLAKIS: But also -- I'm sorry.

20 DR. KRESS: Go ahead.

21 DR. APOSTOLAKIS: Even if you look at it  
22 now, I believe the actions are really driven by the  
23 SDP findings. Is that true, John?

24 MEMBER SIEBER: I think so too.

25 DR. APOSTOLAKIS: It's not the PIs.

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1                   MEMBER SIEBER: And I don't really see an  
2                   inconsistency by having part of the Reactor Oversight  
3                   Process as performance-based and not necessarily  
4                   risk-based and another part of it being risk-informed  
5                   because it's supposed to have elements of both. I  
6                   think that that's a legitimate approach. I think you  
7                   will accomplish your overall goal of management if  
8                   that's where it is we ultimately end up.

9                   DR. APOSTOLAKIS: There were some ideas  
10                  discussed around this, but we failed to have a  
11                  committee position, unfortunately.

12                 CHAIRMAN MESERVE: One other issue that  
13                  has come up in our previous discussions of performance  
14                  indicators in various contexts, and you haven't  
15                  mentioned at all which is the issue of leading  
16                  indicators versus trailing indicators and ideally,  
17                  we'd like to have lots of leading indicators. Is this  
18                  something that you're continuing to evaluate. Do you  
19                  have any advice for us?

20                 MEMBER SIEBER: We haven't given you any  
21                  specific advice and I guess I can only speak from my  
22                  personal appearance. In order to develop some kind of  
23                  leading indicators in a real actual power plant, you  
24                  end up looking at 200 to 300 indicators to say I see  
25                  declining performance here and sooner or later this is

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1 going to lead to trouble. When you do that, you get  
2 into observation of administrative factors and how  
3 managers manage and that's really not practical for --  
4 in my view anyway, a regulatory agency to be in there  
5 attempting to manage the plant. So I think that with  
6 the white thresholds and performance indicators you  
7 will have some idea that a plant is headed for  
8 problems just because of the way they're set and this  
9 is the way the industry groups do it also. But  
10 perhaps without getting into all this detail down in  
11 the functioning of various departments in the plant,  
12 you would -- might be the best thing, you know, the  
13 best you can get out of the set that you have. They  
14 are not leading indicators in my opinion, except to  
15 the extent you can tell a plant this performance is  
16 declining.

17 CHAIRMAN MESERVE: Dr. Kress, you gave us  
18 a summary of where you are. And let me push you just  
19 in one area. Are there any issues that came out of  
20 your examination of gaps or problems and our capacity  
21 to deal with advance reactors of which the staff is  
22 not aware?

23 DR. KRESS: No.

24 CHAIRMAN MESERVE: I mean is there  
25 anything we should push you to raise with us now?

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1 DR. KRESS: No. I'm absolutely certain  
2 the staff is just as aware of the various issues as we  
3 are. So I don't think we came up with any new ones  
4 that -- we may put different priorities on them than  
5 the staff --

6 CHAIRMAN MESERVE: Good. Thank you.

7 DR. POWERS: Well, I think it's fair to  
8 say more than that, we did participate in one of the  
9 staff's workshops to share information to assure that  
10 there's a pretty good consensus of what the issues  
11 are.

12 DR. KRESS: Yes.

13 CHAIRMAN MESERVE: Dr. Wallis and Dr.  
14 Powers, I'd like to just take you one step further.  
15 You got right to the threshold of saying you think  
16 there should be an SRP. Didn't quite say it. Should  
17 I push --

18 DR. POWERS: Well, we think there's an  
19 SRP.

20 CHAIRMAN MESERVE: Okay, thank you.

21 CHAIRMAN MESERVE: Commissioner Dicus.

22 COMMISSIONER DICUS: Thank you. I had  
23 three short and easy questions but he just asked one  
24 of them so now I only have two. I was going to push

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1 you to the threshold too, but you bumped up against it  
2 and you didn't quite step over it.

3 On future plant designs on the NUREG you  
4 said you identified perhaps a couple of dozen  
5 regulatory issues. I want to ask you to elaborate  
6 beyond that. I think you want us to read all about  
7 it, so I'll wait to read all about it. But involved  
8 in there, were there any policy issues?

9 DR. KRESS: Oh yes.

10 COMMISSIONER DICUS: So the regulatory  
11 issues are policy issues?

12 DR. KRESS: It's policy and technical  
13 issues.

14 COMMISSIONER DICUS: Okay. Well, maybe I  
15 will push you a little bit then. We'll wait and read  
16 about it.

17 DR. KRESS: I have the list with me but I  
18 hated to pick out any one because we haven't  
19 prioritized them. In general, it seems like what is  
20 the role of a prototype test in the regulatory area.  
21 It's really broad issues. How do you deal with  
22 defense-in-depth and a system like the pebble-bed  
23 modular reactor. It's the standard list, but I think  
24 having them all written down in one place is going to  
25 be helpful.

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1 COMMISSIONER DICUS: And I guess the only  
2 other question then I will have is you mention that  
3 there had been quite a few open items on the Hatch  
4 renewal application. Was that the -- if you want to  
5 go into it, something with the kind of application of  
6 the fact that it was the first BWR?

7 DR. BONACA: No. There really wasn't much  
8 to do with the fact of the BWR. It just simply -- I  
9 think the licensee first of all took an approach in  
10 the scoping process that was different from the one  
11 used afterwards. It was function based. Therefore,  
12 it made it very difficult for a reviewer to understand  
13 what components were in scope and which were not.  
14 There was the beginning of the difficulty there.  
15 Since it was function-based and the function  
16 identified may not be the principal function of the  
17 system, okay the system may have been in scope, but  
18 then was put within the function that was normally not  
19 thought about, so that caused a couple of problems.  
20 One is the significant number of RAIs that the staff  
21 had to go through.

22 And then of course, there were other  
23 issues of interpretation that the applicant made. I  
24 think in part seems to me, at least as a personal  
25 observation, it depends very much on how an applicant

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1 has gone after the previous application and look at  
2 success criteria to determine which way they're going  
3 to go and how an applicant may choose, in fact, to  
4 challenge that resolution and to go its own way. So  
5 that was, I believe more of a choice of the applicant  
6 than anything else.

7 COMMISSIONER DICUS: Okay, thank you.  
8 That's it.

9 CHAIRMAN MESERVE: Commissioner Diaz.

10 COMMISSIONER DIAZ: Mr. Chairman, what a  
11 pleasure to be in front of you again. It seems like  
12 it's been a long time. Let me start with where the  
13 Chairman was dabbing at in the PIs and the significant  
14 determination process and of course, having been a  
15 professor, I like to preface things with a statement.  
16 Heterogeneity is not bad. Not bad at all. In fact,  
17 I don't know anything homogeneous that functions well,  
18 not a reactor core, not a transistor, not a society,  
19 so having one part that is essentially  
20 performance-based and one part that is risk-based or  
21 risk-informed, actually seems to complement each and  
22 is the total that we look at and not any one of the  
23 parts.

24 Any comments?

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1 DR. APOSTOLAKIS: We have not said  
2 anything in the letter that would make you say things  
3 like that.

4 (Laughter.)

5 We fully agree and in fact that's why  
6 decision theory has been developed to deal with  
7 multiplicity of attributes and that's why the  
8 Committee, in fact, decided not to state what would be  
9 the way to do that. But when you have heterogeneity,  
10 as you identify them, you have to have some internal  
11 consistency. White here must be the same as there,  
12 unless your action matrix doesn't something else. The  
13 way it is now though, all it says is if you have two  
14 whites here under the same -- what is it, goal -- or  
15 if you have a yellow, no matter where they come from,  
16 do this. Well, the question is then because of the  
17 heterogeneity, are we sure we want to do that? And  
18 white has been the same thing -- that's all we're  
19 saying. And I think we can think about it and come up  
20 perhaps with different bands or something. But there  
21 is nothing new. You're absolutely right about this.

22 COMMISSIONER DIAZ: Yes. And I think what  
23 we should try to do is from my viewpoint is to  
24 strengthen that process, not make it homogenous,  
25 actually make sure we understand when we are in one

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1 mode and in the other mode and when the total gets  
2 together, that it has the proper strength.

3 I think this -- we need to understand this  
4 as a regulatory tool, so it's not just a management  
5 tool.

6 DR. POWERS: I think that's a very  
7 important point to bear in mind before you devote huge  
8 amounts of resources to resolving issues of two whites  
9 and their equivalency or lack of -- the outcome of the  
10 action matrix, the NRC doesn't say anything about the  
11 plant unless it happens to hit red and then you guys  
12 get -- you're so involved, I don't think you need the  
13 action matrix at red. But short of that, really  
14 deciding on how you marshal your internal resources  
15 from the action matrix and whether you want to devote  
16 enormous amounts of effort to assuring out to three  
17 significant digits who have consistency across these  
18 definitions, maybe you don't need to have that kind of  
19 --

20 COMMISSIONER DIAZ: But we need and I  
21 agree, we need to be able to understand them and be  
22 able to say which one is in which base and then I  
23 think that's important.

24 DR. APOSTOLAKIS: And I think,  
25 Commissioner, you're managing now to push us to the

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1 point where internal disagreements will start  
2 surfacing.

3 (Laughter.)

4 So you have another question, I would  
5 really appreciate it.

6 (Laughter.)

7 COMMISSIONER DIAZ: See, I have never been  
8 known to do that.

9 (Laughter.)

10 But I might start in the future.

11 DR. APOSTOLAKIS: But it's something we  
12 are agreeing with you or you are agreeing with us.

13 COMMISSIONER DIAZ: I'm agreeing with you,  
14 of course. Yes. All right. I might make a comment  
15 in here. Just to make a point that the brief duration  
16 presentation was appreciated. I think it was directly  
17 proportional to the fact that the Chairman's comments  
18 were very short.

19 (Laughter.)

20 DR. APOSTOLAKIS: As opposed to the past  
21 Chairman here?

22 (Laughter.)

23 COMMISSIONER DIAZ: All right, let me to  
24 go the next one because I think we're all getting  
25 tired and punchy in here. On the issue of the

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1 conclusions regarding plant design and the Chairman  
2 touched on it. There was no specific recommendation  
3 that you have on that issue?

4 DR. KRESS: Not at the moment.

5 COMMISSIONER DIAZ: On the issue of the --  
6 getting an SDP for low power and shutdown, an issue  
7 that I know is close to your hearts and not so much to  
8 mine, have you narrowed down something that is  
9 specific and simple and doable in getting an SDP for  
10 low power and shutdown which does not include the  
11 rulemaking? Have you narrowed that down to a point  
12 where you could say yes, there is something that can  
13 be done that is meaningful and that will serve the  
14 Commission?

15 DR. APOSTOLAKIS: Dr. Powers?

16 DR. POWERS: We have not. The viability  
17 of doing that though, we're confident in, because the  
18 tools that licensees are using to organize their  
19 shutdown processes have this color component to them  
20 of rating the various levels of risk that they're  
21 tolerating, even though it's qualitative. It's  
22 clearly doable. Whether you have all of the  
23 regulatory handles that you might want to have to  
24 address that is probably something that I'm not  
25 competent to answer. I suspect you don't, but on the

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1 other hand, I suspect you have sufficient licensee  
2 enthusiasm that they may be able to come forward with  
3 their own approach on this and an NEI approach on  
4 here's an indicator that our shutdown operations are  
5 indeed proceeding safely for you, because they're  
6 having tremendous success, as you're well aware and it  
7 appears that these tools are suitable for controlling  
8 a process and they would be equally suitable, I think,  
9 for evaluating the process.

10 So the doability exists. We haven't done  
11 it.

12 COMMISSIONER DIAZ: Okay.

13 DR. KRESS: The point I'd like to make  
14 there is when you have an event during shutdown, you  
15 do have one point snapshot in time configuration of  
16 the plant that you can identify and you can determine  
17 the risk significance of that through normal PRA  
18 processes. When we complained about not having the  
19 risk implications of shutdown, it's different than  
20 that. It's considerably different. What you're  
21 interested in there is over the lifetime of the plant,  
22 during all of its shutdown configurations, how much  
23 risk does it add to the system? Those are unknown  
24 configurations and they're different at each snapshot  
25 in time and it's not something you can simply stick in

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1 a PRA. So the two conditions are quite different from  
2 each other. We think a significant determination  
3 process can be done with current PRA technology. It  
4 just has to be done.

5 COMMISSIONER DIAZ: Which, of course,  
6 brings to heart the issue of the quality of the PRA,  
7 keeps coming back. We heard that before, the quality  
8 of the PRAs. That's something that will be raised in  
9 the near future.

10 Let's go back to the public involvement in  
11 the license renewal process. As you know, we're all  
12 now struggling with the fact that in the new -- after  
13 September 11th, there are things that really don't  
14 appear to be appropriate or right now to be in the  
15 public domain. However, the Commission keeps wanting  
16 to make sure that we provide the appropriate  
17 information that doesn't compromise the national  
18 security.

19 Has the Committee deliberated on the issue  
20 of the license renewal? Are there any components in  
21 there that you believe are appropriate to maintain  
22 very open in the process, any changes? Is that  
23 something you have looked at?

24 DR. BONACA: The question is referring to  
25 license renewal?

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1 COMMISSIONER DIAZ: License renewal, yes.

2 DR. BONACA: Well, I think if I look at  
3 the process by which you identified the components for  
4 the aging management programs, I don't think there is  
5 anything that should prevent really access from the  
6 public to the information in the process itself. I  
7 mean it's just -- as I said before, we are using  
8 categorization processes which already exist at the  
9 plant to identify the components as separately related  
10 or supporting those and so I don't see how the  
11 information would be useful to somebody who wants to  
12 harm the plant.

13 DR. APOSTOLAKIS: I guess this is a case  
14 where it's a good thing that the rule is not  
15 risk-informed.

16 (Laughter.)

17 DR. BONACA: Although I think the staff  
18 has been diligent in including considerations of  
19 existing IPEs or risk-informed information to pull  
20 components into that, but if you look at the actually  
21 the way the applications are developed, it's really a  
22 painstaking development of results of evaluations with  
23 no judgments regarding safety significance.

24 DR. POWERS: Subjecting someone to going  
25 through carefully the entire GALL report may be the

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1 biggest deterrent to terrorism at nuclear power  
2 plants.

3 (Laughter.)

4 DR. BONACA: I must say any one of the  
5 applications too.

6 COMMISSIONER DIAZ: Okay, a very quick  
7 last one. Dr. Wallis, on the power uprates, the  
8 confirmatory analysis that you have raised, is that a  
9 substantive issue on the -- in the actual decision  
10 making or is it a process issue?

11 MEMBER WALLIS: We are reaching decisions  
12 based on what we see and I think we can do it. We  
13 have raised questions about the boiler aspect of power  
14 uprates and there is actually a research program RES  
15 is initiating to do that, so in the long run I think  
16 we expect the maybe questions. It all looks so easy  
17 now. When you start approaching limits this way and  
18 this way and some way, the interactors are something  
19 you have to worry about. It's a feeling we have. And  
20 I noticed there is a research program starting now to  
21 address that.

22 One might ask about -- this is going to  
23 give some confirmatory results down the road. It  
24 might be nice to have them now, but we don't have them  
25 yet.

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1                   COMMISSIONER DIAZ: Okay, all right, thank  
2                   you. Last comment. Now that I said it, I think I  
3                   want to take back that I did agree with you, that  
4                   would not be true to my form.

5                   (Laughter.)

6                   Thank you, sir.

7                   CHAIRMAN MESERVE: Again, I apologize for  
8                   our late start, but we very much appreciate the time  
9                   you spent with us. It's been very helpful as always.  
10                  With that, we're adjourned.

11                  (Whereupon, at 3:04 p.m., the meeting was  
12                  concluded.)

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