

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Title: BRIEFING ON PROGRESS OF DESIGN CERTIFICATION
REVIEW AND IMPLEMENTATION

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5 BRIEFING ON PROGRESS OF DESIGN CERTIFICATION
6 REVIEW AND IMPLEMENTATION

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8 PUBLIC MEETING

9 * * *

10 Nuclear Regulatory Commission

11 One White Flint North

12 Rockville, Maryland

13
14 FRIDAY

15 JANUARY 28, 1994
16

17 The Commission met in open session, pursuant to
18 notice, at 10:00 a.m., the Honorable IVAN SELIN, Chairman
19 of the Commission, presiding.
20

21 **COMMISSIONERS PRESENT:**

22 IVAN SELIN, Chairman of the Commission

23 KENNETH C. ROGERS, Member of the Commission

24 FORREST J. REMICK, Member of the Commission

25 E. GAIL de PLANQUE, Member of the Commission

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STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

SAMUEL J. CHILK, Secretary

JAMES TAYLOR, Executive Director for Operations

DR. THOMAS MURLEY, Director, NRR

WILLIAM RUSSELL, Associate Director, Inspection
& Technical Assessment, NRR

DENNIS CRUTCHFIELD, Associate Director,
Advanced Reactors & License Renewal

WILLIAM C. PARLER, General Counsel

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P R O C E E D I N G S

(10:00 a.m.)

CHAIRMAN SELIN: Good morning, ladies and gentlemen. Obviously this is certification week. We had the GE presentation yesterday, and today we will receive from the staff an overall review of the status of the various design certification efforts.

As we heard yesterday, the review of the first evolutionary plant, the Advanced Boiling Water Reactor, is nearing completion. The staff has conducted an extensive review on the ABBR safety questions, as well as using that experience to develop specifics for new Part 52 requirements, such as the Tier I level of detail and the ITAACs. The design appears to offer significant improvements, and the staff should be commended for their comprehensive review and in proposing and defending the new severe accident requirements.

One of the things that did come up yesterday were a number of relatively small but important issues that GE raised and, in the interest of equal time and also sort of an efficient way of communicating with the Commission, I would hope that sometime during your presentations today, you might discuss the staff's point of view on those questions that came up at the GE briefing yesterday. In general, we look forward to this

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1 presentation.

2 Commissioner?

3 COMMISSIONER ROGERS: I wonder if, during your
4 discussion of the various design reviews, you could
5 identify what the critical path items are. I don't know
6 if that's going to be difficult for you to do but, if you
7 could do that easily, I'd appreciate hearing where they
8 are and where the responsibility for them is.

9 CHAIRMAN SELIN: Mr. Taylor?

10 MR. TAYLOR: Tom Murley has some opening
11 remarks, and then Denny Crutchfield and Bill Russell will
12 continue with the presentation.

13 DR. MURLEY: I would just like to respond, Mr.
14 Chairman, to -- we will touch on the certification issues
15 that GE brought up, but a number of their issues had to do
16 with the actual rulemaking, and we had planned to come in
17 with a paper because we've gotten not only GE's comments,
18 but we've gotten a lot of public comments, and we will do
19 that in the context of the Commission paper.

20 With regard to the critical path items, I think
21 we can indicate for each project what the critical items
22 are. We will do that.

23 CHAIRMAN SELIN: This paper will be in the very
24 near future?

25 DR. MURLEY: Yes, it will.

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1 CHAIRMAN SELIN: Thank you.

2 MR. CRUTCHFIELD: Good morning. We last met in
3 June to discuss the status of Advanced Reactors. Since
4 that time, it's been obvious that both the staff and
5 industry have put a lot of time and a lot of effort in
6 this, both the vendors as well as the other industry
7 organizations.

8 A lot of progress has been made. We are close
9 to the end on the evolutionary design, which is a big
10 milestone for all of us. Policy issues, we think the
11 majority of those are now out to industry. They are now
12 out available to the public for comment. They have been
13 to the ACRS in many cases. Many of those have been placed
14 in front of you as draft positions, and others have been
15 placed in front of you as actual final staff
16 recommendations.

17 The passive design reviews are not going as well
18 as we thought, and I'll get to that a little bit later on.
19 What I hope to do is give you a little idea of what we've
20 done so far, some of our accomplishments, where we stand
21 with existing design application reviews, and some of the
22 key issues that are facing us, both policy and technical
23 issues.

24 If I could have slide 2, please. (Slide)

25 Overall, we've completed Safety Evaluation

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1 Reports on the ABWR, the PRISM, and the EPRI Utility
2 Requirements Document. We'll talk some more about the
3 ABWR and PRISM. The EPRI Utility Requirements Document
4 has been published. We've been to the ACRS. The key
5 issue there to getting the final document out on the
6 street is the resolution of the regulatory treatment of
7 nonsafety systems issues. That's the thing that we have
8 remaining, that's the outstanding item for that particular
9 review.

10 We've made a great deal of progress with respect
11 to ITAAC, or the inspections, tests, analyses, and
12 acceptance criteria. We've resolved over 2,000 comments
13 that have been generated by the staff, by independent
14 industry groups that have commented on GE's and CE's
15 ITAACs, by our own independent quality teams, et cetera.

16 Looking back on it and based on the reviews of
17 those first two documents, it's key, I think, to go along
18 with the staff's proposal that we suggested before, that
19 you do the ITAAC along with the design review.

20 A proposal had been made earlier to separate the
21 two. We think it is ultimately absolutely necessary that
22 you keep those two things together as you go through the
23 review process. We intend to do the AP600 and the SBWR
24 that way.

25 We've heard about the design certification rule.

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1 We proposed a workshop. We've held a workshop. We've
2 circulated that rule out for comment. A number of papers
3 have been provided. Comments have been provided back on
4 that, and we're going to go forward with further comments
5 and, as Tom mentioned, a paper on that particular issue
6 also.

7 We've continued our high level meetings with the
8 vendors, with the Department of Energy. In many of those
9 meetings, we've had the benefit of the Advanced Reactor
10 Corporation sitting in and providing some of their
11 insights there. So, we've coordinated well with all those
12 parties.

13 Numerous meetings with the ACRS. If I had to
14 look back over the past two or three years, I've been
15 there every month chatting with the ACRS about one or more
16 issues relative to the Advanced Reactors, as has Bill and
17 Tom on a number of occasions. So, we have been extremely
18 busy down there.

19 I'd like to turn now to the ABWR and where we
20 stand on that certification review. We got Amendment 33
21 from General Electric Company in December. The quality of
22 that document is better than we had seen before. There
23 are still inconsistencies in there. We are still troubled
24 by those inconsistencies, and they are causing us to have
25 to go back, do a quality check, look at the different

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1 chapters, different sections, make sure they are
2 coordinated and they say the same thing, get that
3 information back to GE, and go back and forth with a
4 couple of iterations.

5 We are looking forward to an amendment that
6 would wrap up just about everything else, that would take
7 care of these errors, whatever comments the ACRS may have,
8 whatever our review teams come up with that need to be
9 resolved. So, that's what's in the future for there.

10 We have provided an advanced copy of the FSER to
11 the Commission, and made it publicly available also.
12 There are 14 open items in there, and four confirmatory
13 items. We think we're making good progress on a number of
14 those items. We're coming to closure on those. The ACRS
15 indicates that if we continue to close, we can get a
16 letter in April. We think we'll be in a position to have
17 these things closed sufficiently so they can give us a
18 letter in March.

19 One of the key open issues that we have is the
20 level diversity question, and I think Bill has a comment
21 or so about that.

22 MR. RUSSELL: Yes. Based upon comments from the
23 ACRS, we've decided that we should review again the
24 reactor pressure vessel water level issue, and look at it
25 broadly, specifically for the ABWR design, but also for

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1 the AP600 design, and there are differences between the
2 two.

3 In the ABWR design, there are diverse signals
4 which can actuate emergency systems, such as emergency
5 core cooling. That is not the case in the AP600 design.
6 And so we will come forward shortly with a recommendation
7 that looks at this issue more broadly, so that we do not
8 establish a precedent with this decision that may impact
9 other designs.

10 CHAIRMAN SELIN: Just to call a spade a spade,
11 it sounds as if AU will be consistent with your schedule.
12 You probably will go along with the GE recommendation in
13 such a way that it's tied to the facts of the design, not
14 based on some generic question about whether one needs
15 alternative sources of information.

16 MR. RUSSELL: That's correct. We are relooking
17 at the issue. The safety significance for the ABWR is
18 potentially smaller, we think, than the AP600, and we want
19 to look at both of those together and come back, and we
20 hope to do that very shortly. We'll bring this as a
21 separate issue to the Commission.

22 There is one other open item that could be
23 significant, and this has to do with fuel design limits,
24 the maximum burnup that will be allowed. We are having
25 dialogue on that issue. The staff's position is we should

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1 not authorize burnups beyond that which has been tested
2 and demonstrated. GE would like to leave that silent, and
3 not have that in there, and there is a dispute. So, we
4 think it should not, at this time, go beyond.

5 We do recognize, however, that this is an issue
6 that could change. Fuel is a consumable. There will be
7 improvements in fuel design with time, and we've agreed on
8 a process for addressing that, but we'd like to give this
9 issue special treatment in Tier 2, and cannot allow a
10 change until such time as the testing demonstrates that
11 higher burnups are appropriate and the staff has reviewed
12 that.

13 CHAIRMAN SELIN: In effect, you would treat it
14 as one of those Tier 2 star issues.

15 MR. RUSSELL: That's correct.

16 CHAIRMAN SELIN: Okay.

17 COMMISSIONER REMICK: One other item, just to
18 clarify the record. GE made the statement that they were
19 under the impression that you were awaiting Commission
20 response on the FSER for ABWR. I think the situation is
21 we have received it, and only if we have comment, but you
22 are not waiting for any decision from the Commission, am
23 I correct?

24 MR. RUSSELL: That's correct, on this issue. We
25 had indicated when we went out with a draft that these

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1 were open issues, but the final document is not before the
2 Commission, and we have not sent this up as a separate
3 issue to the Commission. So, the issue, while it is
4 working and it's contained in a Commission that's publicly
5 available, is not presently sitting before the Commission
6 for a decision. That's why we're going to review it, and
7 we will identify it in a separate paper to you.

8 COMMISSIONER REMICK: Thank you.

9 DR. MURLEY: Along these lines, we will make
10 sure we keep the Commission informed on the resolution of
11 each of these 14 open items that we highlighted. In
12 addition, as we go through the final review, there's other
13 little things that we find that, according to our
14 instructions, we need to keep the Commission informed and
15 get guidance on. One is, for example, whenever we go
16 beyond a former position -- well, it turns out that the
17 thermal power level is greater than 3800 megawatts here,
18 and there's an old AEC policy statement that goes back, I
19 think, to 1972, that lists that 3800 megawatts as a limit.
20 So, we'll bring that to your attention. Staff tells me
21 that that has been exceeded in the past for an operating
22 plant, so we'll give a historical record.

23 Also, on strainer size, we're going beyond a
24 former staff position. So, there may be a few more of
25 these things that we don't regard as big policy issues,

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1 but we do need to bring to the Commission's attention and
2 make sure that we get -- I think we will need, before we
3 actually start to prepare the final FSER, we will need
4 something in writing from the Commission on each of these
5 items where there is an issue of contention.

6 MR. CRUTCHFIELD: Future actions and activities.
7 The key thing before us is probably completion of the
8 independent reviews that we have. The resolution and
9 closure of open items is probably the longest item that we
10 have to take care of, longest lead item, as well as
11 getting resolution of the ACRS, get the ACRS behind us,
12 get their letter, whatever issues they may come up with,
13 we need to get those resolved with GE and move on.

14 Our intent is to issue that Final Safety
15 Evaluation reflecting everyone's comments, which would
16 lead to an FDA, we hope, in the May time frame. One of
17 the issues that's still somewhat outstanding is the
18 question of do you need the Design Control Document at the
19 time you go to the FDA, and we have an item up before you
20 asking for some guidance there.

21 Interesting item is, previously we had gotten an
22 invitation from the Japanese to send a construction
23 inspector over there to observe the opportunities of
24 things going on at K-6 and K-7. We have identified an
25 individual from Region III who has expressed an interest

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1 in going, and we'll be coming to you with a paper
2 identifying what he's going to be doing, how he's going to
3 be doing it, and when he's going to be operating over
4 there.

5 CHAIRMAN SELIN: You still want to issue this
6 paper for comment, the ITAAC, on the construction. Are
7 you not going to wait for the Japanese visit? You would
8 propose when you get insights, you will dump those in
9 along with public comment, et cetera?

10 MR. RUSSELL: That's correct.

11 MR. CRUTCHFIELD: So, the key items for the ABWR
12 are the resolution of the open issues and the ACRS items
13 to take care of.

14 If I could have the next slide, please. I'd
15 like to turn to Combustion System 80 review. (Slide)

16 We got an updated SSAR, Amendment U, which is
17 about 5,000 pages, including an updated ITAAC and tech
18 specs in January, so we're working our way through that.
19 The ITAAC Task Group has completed its activity, the
20 comments have been sent out to Combustion, and they are
21 getting resolved.

22 We've got almost all the draft technical input
23 into the staff now. We're missing some in Chapter 19,
24 which deals with PRA, severe accidents and source terms,
25 we're missing a piece on shutdown risk also. So, we have

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1 everything but that. We're putting the document together.
2 Our object is to get that out to the Commission for
3 comment in the February time frame.

4 We have planned for Combustion similar
5 independent reviews that we have done for General Electric
6 Company. We're going to send the ITAAC Team back out to
7 look at things, see how they are doing, look at some of
8 the design applications that are going on out there also.

9 We expect to issue, as I indicated, an FSER in
10 late February, and that will be for everyone's interest
11 and comment. We'll continue to work with the ACRS. When
12 we scheduled Combustion Engineering, we put a three-month
13 window in for the ACRS. As you remember, with the ABWR,
14 we put a month in. So, we'll continue to work with the
15 ACRS. We've had meetings, and we'll continue to have
16 those meetings.

17 Our object, again, is to issue the final FSER in
18 the June time frame. The long item there seems to be
19 there is no critical technical issues that we have. With
20 the inputs that we've received on the FSER, there's only
21 about five or six open items, and I think they are
22 relatively resolvable.

23 We're meeting next week with CE on a number of
24 those issues, so they should be coming to closure pretty
25 quickly. Again, it could be resolution of open items and

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1 probably ACRS that are going to be the long items in
2 getting this document out and getting our conclusions on
3 the street.

4 If I could turn now to the AP600 and the passive
5 design. (Slide)

6 COMMISSIONER REMICK: Denny -- excuse me.
7 Before leaving the evolutionary, I just want to make sure,
8 the only issue currently before the Commission that you
9 are awaiting is the issue of the Design Control Document
10 relationship to the FDA, is that right? The only thing on
11 our desk that you are waiting for an answer at the moment?

12 MR. CRUTCHFIELD: I believe that's correct, yes.

13 COMMISSIONER REMICK: Okay.

14 MR. CRUTCHFIELD: The AP600 design. We have
15 been working on that for a good period of time. There's
16 about 1200 RAIs out, Request for Additional Information.
17 Westinghouse has answered about 95 percent of those
18 already.

19 We still haven't gotten comments yet on the
20 probabilistic risk assessment, and those chapters that
21 have RTNSS-related material. Westinghouse will be the
22 first plant that has to implement the regulatory treatment
23 of nonsafety systems concept, and so chapters that have
24 information related to that have not been completed and
25 questions have not been sent out.

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1 Key technical issues, there's two of them, as we
2 see, remaining. One is the test program, and we have
3 dedicated a person in Bill Russell's shop to oversee and
4 monitor the ongoing test program, as well as the
5 implementation of regulatory treatment and nonsafety
6 systems.

7 The regulatory treatment system issue has two
8 pieces to it. One is the policy question, are we going to
9 go forward with it? Tied into that is, how are we going
10 to handle the PRA?

11 We're doing the PRA review. We're meeting with
12 Westinghouse. There are some issues we are trying to work
13 out to make sure we understand what they did in the PRA.
14 We're comfortable with what they have done in the PRA.

15 We also need to get some guidance out to the
16 staff as to how they are supposed to handle these
17 nonsafety systems. What are the review criteria for
18 those? And we are developing those criteria.

19 I'll talk a little bit more about the test
20 program in the next slide.

21 Future activities include continue the review.
22 We're freeing people up from the CE and turning them onto
23 the AP600 design, and they are moving forward. It looks
24 like we're going to have to review the schedule, and that
25 revision is going to be based principally on the delays in

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1 the test program.

2 I'd like now to turn to the next slide, which is

3 --

4 COMMISSIONER ROGERS: I thought you'd say what's
5 the reason for those delays?

6 CHAIRMAN SELIN: These are delays in
7 Westinghouse's test program.

8 MR. CRUTCHFIELD: Delays in the initiation of
9 the test program by Westinghouse.

10 CHAIRMAN SELIN: Not in our program.

11 MR. CRUTCHFIELD: Not in our providing of
12 information to them, or questions, or things like that.

13 The next slide gives you an idea of where we
14 started. (Slide)

15 If I look at the left-hand side of that slide,
16 it's relatively busy but, in the phantom part of the slide
17 where it has containment tests and CMT tests, they were
18 originally scheduled dates by Westinghouse as to when they
19 would do the tests, give us initial reports, and give us
20 the final reports.

21 As you can see with the darker copy on the
22 right-hand side, they've slipped anywhere from nine to 13
23 months on a number of these tests. As you know, sometimes
24 the test results can cause to change your design. That's
25 one of the things we're concerned about. So, we're

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1 closely watching what's going on with Westinghouse.

2 CHAIRMAN SELIN: But these are tests that
3 Westinghouse would have to do even if there were no
4 certification process, and these are part of their --

5 MR. CRUTCHFIELD: These are tests to prove their
6 design, as well as some tests that we think are necessary
7 to support certification.

8 DR. MURLEY: The only test that we insisted on
9 that they did not have planned are the SPES-2 Tests there
10 in the middle. The other tests, as far as I know, they
11 were in their original plan and they felt were needed.

12 CHAIRMAN SELIN: Just to get a handle, what
13 slipped is the Westinghouse development program, not the
14 design certification process.

15 MR. CRUTCHFIELD: That's correct.

16 DR. MURLEY: That's right.

17 MR. RUSSELL: In fact, the slips are associated
18 with construction of facilities. There were a number of
19 meetings back and forth with the staff and Westinghouse,
20 to reach agreement on what testing needs to be done at
21 each facility, the test matrix, and how that's to be done.
22 But it's principally been associated with facility
23 availability, completion of construction, and then
24 commencement of testing.

25 There are a few issues that we are still

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1 discussing for some tests, where we have not completely
2 reached agreement on whether all of the proposed tests are
3 sufficient, but all of this testing is to support the
4 staff finding, which would be, for an FDA, independent of
5 whether we were in a Part 52 process or a Part 50 process.

6 COMMISSIONER de PLANQUE: The OSU Tests, are
7 they Westinghouse tests?

8 MR. RUSSELL: They are Westinghouse tests. This
9 is the low-pressure facility to demonstrate -- this is
10 probably the most important integral test facility to look
11 at the phenomena at low pressure, low driving heads, when
12 you have potential for two-phase flows, et cetera. This
13 has all along been identified by Westinghouse as the
14 critical path testing.

15 MR. CRUTCHFIELD: We are looking at what the
16 impacts of these delays are on our DSER. We were
17 originally scheduled to issue the DSER in May of '94.
18 What we see now with the delays in testing, there are a
19 number of options that we're looking at, and we're trying
20 to do whatever we can to minimize the delays of
21 publication of the DSER. Things like looking at two
22 DSERs, one that covers non-testing areas and a second one
23 that covers testing areas; looking at only putting out a
24 DSER that has a big hole there for the testing program,
25 and fixing it, and covering that hole in the FSER.

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1 So, we're pursuing a number of options to see
2 what we can do to recover the loss that may have occurred
3 due to the delays by Westinghouse and their test program.
4 We owe you a Commission paper around a March or April time
5 frame, that will lay out what we think is our best
6 estimate as to how we can get from this point, to recover
7 time, to get to the DSER publication, and continue on with
8 the rest of the schedule.

9 MR. RUSSELL: And we'll be coming back to you in
10 the March time frame, or shortly thereafter, with a
11 revised schedule that lays this out. There are two major
12 implications of this. One is in the safety analysis, the
13 classic design basis analysis, Chapter 15 reviews, and
14 capability of roof decay heat is discussed in Chapter 6.
15 If we were to proceed with the draft, there would be big
16 holes on how this plant would perform under those
17 challenges.

18 The other area is related to regulatory
19 treatment of nonsafety systems. PRAs are good for
20 addressing random failure but, if you have a design flaw,
21 the PRA is not able to handle that. So, we need to make
22 sure that the testing has been completed to eliminate
23 uncertainties associated with how this system of design
24 will function in a certain manner.

25 So, we see that there are going to be potentials

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1 for design change, or maybe some concerns on how well you
2 understand the phenomena that could impact what we do in
3 the PRA, which will then have an impact on regulatory
4 treatment of nonsafety systems.

5 COMMISSIONER de PLANQUE: Maybe I missed this,
6 but what's in the Phase 1 box?

7 MR. CRUTCHFIELD: These are the NRC tests.

8 DR. MURLEY: These are the ROSA Tests that are
9 being done in Japan. They are confirmatory tests. And
10 Phase 1 is actually some tests of the system.

11 COMMISSIONER de PLANQUE: These are the ROSA
12 Tests.

13 MR. RUSSELL: And Phase 1 is what has been
14 agreed to, to date, interaction back and forth between
15 NRR, Research and Japanese. We are making recommendations
16 for some additional testing at the facility, and are
17 undergoing discussion with Research such that Research
18 would be able to negotiate the additional tests with
19 Jerry.

20 COMMISSIONER REMICK: Has the staff come to any
21 conclusion on using OSU facility for any confirmatory
22 tests? You were considering that at one time, I know.

23 MR. RUSSELL: We'll have to get back. I'm not
24 aware that we have finalized our decisions on that yet.

25 COMMISSIONER REMICK: Okay.

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1 MR. CRUTCHFIELD: The critical path item for an
2 AP600 obviously is the test schedule, and see what happens
3 there. Also, we need to get our Requests for Additional
4 Information out, especially in the PRA-related areas.

5 If I could turn now to the SBWR on the next
6 slide, please. (Slide)

7 The review there is progressing. It's not
8 progressing as rapidly perhaps as the AP600. It has been
9 impacted by the allocation of resources to the ABWR review
10 also. As those resources now are coming free, we are
11 applying them to the SBWR.

12 About 500 questions have been sent out, and GE
13 has been relatively responsive in getting us answers back
14 there. We have contracted with Purdue University to do
15 some testing for ourselves, like 50 tests we have laid out
16 on a '94-'95 time frame, or '95-'96 time frame. These are
17 confirmatory tests also, to help validate codes and things
18 like that for us.

19 In August of '93, we went out to General
20 Electric Company and did an audit and inspection of their
21 GIST facility. Some issues came out there dealing with
22 the quality of document-taking, or information-taking,
23 data-gathering, et cetera. And we are working back and
24 forth with GE to get those issues resolved.

25 COMMISSIONER REMICK: What's it look like?

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1 MR. CRUTCHFIELD: We are getting closer to
2 having those issues resolved. We understand what they've
3 done in some cases. In other cases, we're not still
4 satisfied with what's occurred.

5 COMMISSIONER REMICK: Thank you.

6 MR. RUSSELL: The likely outcome could be some
7 revision to later planned tests, to address areas where we
8 may be missing data. On the other extreme would be that
9 they are able to resolve these issues analytically, and
10 show us that the testing is acceptable as was performed.
11 It will probably something in between those two. We don't
12 see repeating the GIST tests as an outcome of this.

13 COMMISSIONER REMICK: Thank you.

14 MR. CRUTCHFIELD: Future activities include the
15 continuation of working on the Requests for Additional
16 Information. We owe them a letter on what testing is
17 necessary to be done for certification by GE, what testing
18 they have to do to support their application.

19 Again, we're going to look at the schedule and
20 consider revising the schedule for the SBWR. One of the
21 benefits we get is there are certain things we've done for
22 the ABWR that GE proposes are going to be similar for the
23 SBWR. Human factors DAC is an area. So, we'll probably
24 be able to make up some time doing that. Test delays may
25 impact us. Availability of resources to support the

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1 certification of the ABWR may impact us also. But, again,
2 we'll get that paper up to you in the March or April time
3 frame.

4 Critical path items are the testing and our
5 ability to get out the Requests for Additional Information
6 to General Electric Company.

7 If I could turn to slide 8 now. (Slide)

8 We have some non-light water reactors that we've
9 been working on. As I indicated earlier, we've published
10 the final PSER. We've gone to the ACRS. We've solicited
11 their comments, industry's comments, Department of Energy
12 comments, incorporated them now, and we are in the final
13 publication stages of that PSER on PRISM. So, that should
14 be going out, and that will wrap up our activities
15 relative to PRISM at this time.

16 Future funding decisions by the White House and
17 Congress make the MHTGR and PRISM's future uncertain at
18 this time. We still maintain project status and oversight
19 on these issues, and we are awaiting the outcome of those
20 budgetary decisions.

21 CANDU 3 design, we are still continuing with
22 evaluation of issues, looking for key problem areas,
23 assessing what research needs to be done to support code
24 validation and code work there also.

25 Future activities will be to continue to work on

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1 the CANDU design, continue to expose staff to the design
2 so that we can be prepared for the expected application
3 sometime in the middle of this year. Last documentation
4 we have from the Canadians says they will be in in the
5 May-June time frame with a certification application.

6 With respect to PIUS, our intent is to do what
7 we have to do to tidy it up and put it on the shelf, wrap
8 up, give a status summary of our SER and where we stand,
9 finish that up in the March time frame.

10 Other things that we have in front of us include
11 the advanced neutron source. Department of Energy has
12 inquired about our abilities and our desires to review
13 such a document. We've had conversations with them, and
14 we are awaiting further conversations or future
15 discussions by them as to what needs to be done there.

16 COMMISSIONER ROGERS: Before you just leave this
17 slide, Denny, with respect to CANDU, how far along are you
18 in determining what research, additional research, needs
19 to be done there, and what analytical codes need -- either
20 are needed that we don't have, or the suitability of codes
21 that exist?

22 MR. CRUTCHFIELD: The Research and NRR met last
23 week. We scheduled a meeting for about two weeks where
24 we're going to get into immense detail on that. It
25 appears as though we feel relatively comfortable. There's

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1 some work that needs to be done on thermal hydraulics,
2 some on physics. The major area of concern to us is
3 severe accidents, is there any testing or experimentation
4 that may need to be done.

5 Once we decide what we think is necessary, we
6 need to apportion which piece has to be given back to the
7 Canadians for them to do so that they can support their
8 application, what do we need to do for confirmatory
9 activities. We haven't cut that piece of the pie yet.
10 That's in process.

11 COMMISSIONER REMICK: Is there anything new on
12 what I hear is some consideration of licensing of the
13 powerburst facility? I realize that probably wouldn't be
14 in the Advanced Reactor area, but perhaps Tom or Bill
15 would --

16 DR. MURLEY: For isotope production?

17 COMMISSIONER REMICK: For the boron -- on the
18 neutron boron capture therapy that -- use of that?

19 DR. MURLEY: Oh, we'll have to get back with you
20 on that.

21 MR. CRUTCHFIELD: If I could turn to the next
22 slide, I'd like to give you just a rough overview of what
23 some of the key issues are. (Slide)

24 As I indicated before, we're generally on
25 schedule for issuance of the final design approval in

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1 accordance with the SECY 93-097. It's a tough thing we're
2 going to have to do. We've got a lot of things before us
3 to get done, get accomplished, but we think it's doable.

4 We need to evaluate the effects of the test
5 program on the passive reviews. That's clearly going to
6 have an impact on the schedules. We're working on that.
7 As Bill indicated, we'll have that schedule paper up to
8 you in the March or April time frame.

9 A number of issues have come up relative to the
10 Part 52 process, the design control document and others
11 listed there. I'll briefly go into some of the issues
12 related to the design control document, and Bill Russell
13 will talk about source term, regulatory treatment,
14 emergency planning, and Tom will get to you and address
15 the back-end of the process after the COL has been issued,
16 dealing with ITAAC verification and the construction
17 inspection program.

18 If I could have slide 10, please. (Slide)

19 Rulemaking status, as I indicated before, we put
20 out an ANPR in November of '93. We had a workshop also in
21 November of '93. There were 47 attendees. We solicited
22 comments from industry and the public. We received a
23 number of comments from NUMARC, General Electric,
24 Westinghouse, TU Electric, and OCRE, which is the Ohio
25 Citizens for Responsible Energy.

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1 We are preparing a proposed rule for the
2 evolutionary design. Commission guidance to us has been
3 to get that forward 90 days before -- or 90 days after the
4 FDA is issued, so we're in plenty of time. We're well on
5 schedule for that, and we expect to be able to beat that
6 90-day criteria date.

7 With respect to the design control document
8 issues, secondary references has been discussed a lot.
9 The staff feels comfortable with what we have concluded
10 relative to the use of secondary references at industry,
11 and we both feel that those secondary references will be
12 enforceable matters and no need to be elevated as primary
13 references in the certification rule.

14 The issue about changes to the Design
15 Certification after FDA issuance is before you. Our view
16 is that that's an appropriate thing to do provided if
17 there are any changes or iterations or any funny things
18 that we see in the final DCD, that we can get those
19 corrected and consistent with the SSAR and our safety
20 evaluation and our conclusions made there.

21 COMMISSIONER REMICK: Denny, would you see down
22 the road, in the passive area and so forth, that that
23 would be done earlier, could be done earlier?

24 MR. CRUTCHFIELD: Our intent is to try and get
25 it done earlier if at all possible. That would be the

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1 best way to do it and, that way, the entire staff review
2 is completed, its findings, it's safety basis is all laid
3 out in front of it. So, ideally, it's done, you know,
4 ahead of time.

5 DR. MURLEY: The issue, Mr. Chairman, that GE
6 raised as a disagreement with the staff of applicable
7 regulations, we'll come back to the Commission with a
8 separate paper on that. I think we have to have a lot of
9 discussions with OGC on that.

10 MR. CRUTCHFIELD: With that, I'd like to turn
11 over the discussion of source term to Bill Russell.

12 MR. RUSSELL: Well, possibly, before I start
13 source term, there was one other issue that was mentioned
14 in the GE meeting, and you asked us to address these, and
15 that's the issue of how much documentation of the PRA
16 should be within the Design Control Document.

17 We indicated in an earlier Commission paper,
18 SECY 93-087, that there were going to be issues related to
19 PRA that we would bring to the Commission. One of them
20 was the concept of a living PRA, where the PRA would be
21 updated by the COL applicant during the application
22 review, to address issues associated with interfaces --
23 that is, the actual offsite power grid, what it looks like
24 for the proposed site, and also issues associated with
25 ultimate heat sync, et cetera, to show that they are

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1 indeed consistent with the PRA assumptions that were made
2 during the design certification phase.

3 We've also taken the position that there should
4 be a reliability assurance program, and that the PRA
5 should be updated and maintained living during the
6 operating phase, such that there is a feedback associated
7 with the reliability assurance program.

8 If the decision is to proceed with that
9 approach, that would obviate the need for a lot of detail
10 in the Design Control document because you would expect
11 that as you gained information through operations, you
12 would start using operating data instead of generic data
13 for the PRA.

14 So, we're going to be looking at those two
15 issues in a connected manner, to see if we can reach
16 agreement on how much detail needs to be in the PRA and
17 the design certification.

18 CHAIRMAN SELIN: I just don't see how you could
19 use the PRA unless the whole PRA were included. I mean,
20 it would be like just saying .0046, you know, that without
21 the structure -- I mean, it's sort of like in a design
22 basis, having the settings but not the calculations that
23 led to the settings and, therefore, when there's a change,
24 you really don't know how that would be affected.

25 MR. CRUTCHFIELD: But the --

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1 CHAIRMAN SELIN: I was going to make two points.
2 One is, to have the scaffolding there seems to me to be
3 essential, but the second one is how you deal with small
4 changes. That's a separate question, that to have some
5 kind of a tolerance band around these figures is -- our
6 language is so tight now that if you went from .2 of 10 to
7 the minus 7 to .21 of 10 to the minus 7, you'd have to
8 come in with a design amendment change instead of just
9 saying that's not a significant change.

10 MR. RUSSELL: I think the issue that you're
11 discussing was raised by the industry, but that is not the
12 staff's intent at all. We do not think bottom-line
13 numbers should be used.

14 What we're interested in are the relative
15 insights, some of the things which are in the appendices,
16 identifying systems importance and why those systems are
17 important, issues associated with human performance which
18 went into the control room design review, what were the
19 assumptions. They still have to develop the control room
20 and carry it through, so there are particular insights
21 from this that we are quite interested in, but the PRA, as
22 it exists, would in the application that's on the docket,
23 so we don't see a need to have the complete PRA in the
24 DCD.

25 COMMISSIONER REMICK: Before shifting presenters

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1 here, back in September you provided us with a draft that
2 I think you sent out for comment, of passive plant policy
3 issues, and you were seeking comment and so forth.

4 When do you expect that final document will be
5 sent to the Commission? I don't think you've mentioned
6 that yet. It has nonsafety issues in it, it has control
7 room habitability, AC distribution, all those types of
8 things.

9 MR. RUSSELL: That was SECY 93-087.

10 COMMISSIONER REMICK: No, subsequent to that.

11 MR. RUSSELL: Is that the regulatory treatment
12 of nonsafety systems paper?

13 COMMISSIONER REMICK: It's included in there,
14 but it has a lot of other issues, and it was provided in
15 draft form, and it went out for public comment, I believe.

16 MR. RUSSELL: We have gotten comments on that.
17 We've worked with industry and the ACRS. That paper is
18 now in the concurrence process, and you should be seeing
19 it in the next several weeks.

20 COMMISSIONER REMICK: Okay. Thank you.

21 CHAIRMAN SELIN: Papers that come up before July
22 1st are much more valuable than papers that come up after.

23 (Laughter.)

24 MR. RUSSELL: One of the issues which the
25 Commission -- it was raised as a policy issue -- and that

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1 was use of the new source terms from all the research in
2 these applications. We indicated that we would do that on
3 a case-by-case basis, and that we would come back, in
4 fact, and inform the Commission as to how we were doing
5 that in each case.

6 We have a paper which is nearly completed, the
7 review process, and what I will highlight here are some of
8 the things that will be detailed in that paper, basically
9 describing how we have followed the direction from the
10 Commission to use the new source term.

11 Specifically, in the ABWR review, we've taken
12 advantage of information related to how source term is
13 changed related to natural phenomena such as deposition,
14 and related to how systems, in fact, remove the source
15 term to contain it either in water or in compartments such
16 as containment.

17 We believe that the issues have been dealt with
18 appropriately on the ABWR review. These have been
19 reviewed by the ACRS. The principal one is associated
20 with main steamline valve leakage control systems, to
21 prevent leakage past those valves, where we've taken
22 credit for the existence of the main steamlines to the
23 condenser. We've put some additional requirements on
24 those nonsafety systems, and we've reached closure on
25 that, and that is basically taking advantage of the

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1 natural deposition, the played out, through the torturous
2 path it would go through for release.

3 In the CE 80+ review, the Westinghouse review,
4 and an SBWR review, they are making a much broader use of
5 the source term. ABWR, in fact, used the TID source term.

6 The major change is in the area of treatment of
7 iodine, and we are following the new source term in that
8 area. We are also using it for equipment qualification,
9 where we're using the coolant activity, the gap activity,
10 and the early in-vessel release for equipment
11 qualification for the purposes of accident mitigation
12 features. We are looking at the late in-vessel release
13 and the ex-core release, and we're generally in agreement
14 with Combustion Engineering on how to handle those issues.

15 The fission-product holdup issue in the
16 secondary containment is one that's also being looked at
17 in the SBWR review. We are doing this based upon the
18 draft source term. The final source term has not been
19 developed, that's to come to the Commission. Research is
20 working on that for later this summer, early fall, but we
21 have considered the comments. We understand what the
22 phenomena are, and we've taken conservative approaches in
23 the design using those insights. As I mentioned, that
24 paper should be to you shortly.

25 If I could have the next slide, please, slide

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1 12. (Slide)

2 Regulatory treatment of nonsafety systems was a
3 critical path issue, and we reached agreement in principal
4 last January, on how to proceed and, during the ensuing
5 months, we actually have developed an approach which has
6 been agreed to by EPRI through the passive utility
7 requirements document effort and also with Westinghouse,
8 and it has been implemented by Westinghouse in their PRA
9 review.

10 We believe that this issue, from a policy
11 standpoint, is the appropriate way to go, that is, to
12 perform sensitivity studies, identify the relative
13 importance of nonsafety systems to core damage
14 frequencies, or the potential for significant releases.

15 The details, though, are in the implementation,
16 and we have the PRA review of Westinghouse underway now
17 and, as I mentioned earlier, there is phenomenological
18 uncertainty associated with how these systems will perform
19 such that as the testing results become available, we can
20 validate the codes, then we can run numbers of code cases
21 to see how this design would behave, to try and reduce
22 some of that uncertainty, and that will have an influence
23 on how much NRC oversight is needed for these nonsafety
24 systems or investment protection systems. But, in
25 general, we're in agreement with the approach developed by

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1 Westinghouse, and it's now in the details of completing
2 the staff review.

3 If I could have the next slide, please. (Slide)

4 COMMISSIONER REMICK: Incidentally, that's what
5 I was referring to. I did not know you were going to
6 cover it. It's that particular paper, including the
7 regulatory treatment of nonsafety systems, but other
8 issues are in there also.

9 MR. RUSSELL: Yes, that's correct.

10 COMMISSIONER REMICK: Okay.

11 MR. RUSSELL: As a result of legislation, we are
12 required to address emergency preparedness with ITAAC.
13 This is an issue that we have been working closely with
14 FEMA on. We have a paper coming to you that should be
15 here within the next two weeks, describing how we propose
16 to implement emergency planning requirements through
17 ITAAC.

18 There are two distinct and different phases.
19 During the design certification phase, we are basically
20 looking at facilities associated with the technical
21 support center and the emergency operation facilities
22 which are part of the design.

23 When we get to the combined operating license
24 stage, the applicant will submit proposed ITAAC emergency
25 plan, et cetera. That would be litigated in the

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1 proceeding associated with the COL to establish the ITAAC.

2 The paper we're sending up shows some examples
3 of generic ITAAC which are based upon the 16 planning
4 standards for emergency preparedness in NUREG 0654. These
5 are not final at this point. They are the results of
6 preliminary work of the staff in interactions with FEMA.

7 In addition to ITAAC and those 16 planning
8 standard areas, we're also going to propose an ITAAC for
9 a full-scale exercise. The regulatory requirements are
10 that that be performed within two years prior to exceeding
11 5 percent power. In this case, we're proposing that it be
12 conducted as an ITAAC, which would require the exercise be
13 performed prior to a fuel load authorization.

14 So, there is a slight change there, but we felt
15 that because of the importance of emergency preparedness
16 and the exercise and demonstrating adequate implementation
17 of the planning standards, rather than just reviewing
18 plans, that this should be treated as an ITAAC. This is
19 in the paper we're sending up for policy decision by the
20 Commission.

21 COMMISSIONER REMICK: What would be the typical
22 time difference there, it would just be a matter of
23 months, I would assume?

24 MR. RUSSELL: Yes, it should be a matter of
25 months. In most cases, the exercise is done. If there is

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1 some delay that prevents you from loading fuel, you may
2 have to repeat another exercise, but we don't see that
3 this is a significant difference in time.

4 That completes the three issues that we're
5 coming up to you shortly on, that are layer stages of
6 design certification review. Now I'll turn it over to
7 Tom.

8 DR. MURLEY: This is, I call it, the last major
9 building block to implement Part 52. Commissioner Rogers
10 asked GE, when they were in, about their view of having
11 the Commission involved in a lot of these issues, and I
12 would give a somewhat different answer. I think in the
13 grand scheme of things, it's clearly better that we've got
14 a record of these issues, that the Commission has
15 considered them and made policy decisions as we go along
16 because it forces us and OGC, and the Commission for that
17 matter, to parse issues carefully. And we've generally
18 been ahead of the need for the decision, with one
19 exception -- the level of design detail. I think it did
20 delay us as we ultimately came back to our starting point.
21 But if you think of we decided scope of application
22 issues, level of design detail, how to treat severe
23 accidents, and where the staff goes beyond current
24 requirements, we did the two-tier application approach,
25 the ITAAC form and content, the rulemaking procedure, and

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1 now the rule form and content will be in front of you
2 soon.

3 This one is thinking way ahead because we don't
4 see an application in sight at all for a COL, but what
5 we've done is to think through how we will actually verify
6 that the ITAAC are met and allow operation. So, in that
7 sense, it's just a thought piece. I'm not sure that we --
8 it has meant to spur thinking and comments from the
9 industry, primarily, as well as the Commission, but we've
10 got a draft paper in front of the Commission.

11 What it shows, I guess, is best shown on the
12 next slide, which is a chart, and I'll kind of walk you
13 through that. (Slide)

14 The line that drives everything is the license
15 activity line, where you start with a certified design,
16 and then a utility, or a group of utilities, or
17 independent power producer, or whoever, would come in with
18 an application for a combined operating license.

19 We would then review that application.
20 Everything that's not covered by the certified design --
21 there could be environmental questions, site questions,
22 emergency prepared questions, as Bill said -- then they
23 would receive the COL and begin construction.

24 We've looked at the ITAAC for the ABWR to see
25 how we would, in fact, make the findings that they

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1 contemplate, and the bottom -- all this spaghetti down
2 below shows how we see the system working. That is, we
3 would have a team onsite. It would be led by a manager.
4 They would produce monthly inspections of virtually the
5 same type we do now, but they would then be augmented by
6 specialist inspections from the region and from the
7 headquarters. It could be welding, it could be QA, it
8 could be electrical systems, as well as process findings.

9 Now, these process findings, as I mentioned, are
10 quality assurance and welding. All of these various types
11 of inspections would then feed into a headquarters staff,
12 as we see it. Headquarters staff would be dedicated, the
13 project staff, who is very conversant with the Part 52
14 process and the ITAACs, and they, in turn, would craft
15 these inspection findings into the form that's needed to
16 make interim ITAAC findings. We've called it "sign as you
17 go". In the context of Part 52, "sign as you go" really
18 means interim findings. It means when you lay the
19 reinforcing bar in the basement, for example, we've got to
20 make a finding that that's done. And then once we've done
21 that, the way we see it, it would not be open for question
22 again.

23 There are obviously many details of how we
24 publish these in the Federal Register, how we get public
25 comment on them, and so forth. But the idea is, we would

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1 be publishing interim findings as we go. But it turns out
2 that most of the actual ITAAC findings can only be finally
3 concluded at the very end. It's an operability type of
4 thing. And when you think about it, the operability of a
5 system depends on the concrete that it's set on, it
6 depends on everything that goes along for the previous
7 five years. But the actual finding that it's acceptable
8 is done at the very end.

9 COMMISSIONER REMICK: Although those ones that
10 are related to construction should preclude what we ran
11 into sometimes, that concrete poured four or five years
12 earlier were placed in contention at some later time. So,
13 hopefully it will preclude that kind of allegation.

14 DR. MURLEY: In this case, we would have a
15 record, that's right.

16 MR. TAYLOR: The idea is to -- I would note,
17 this would -- as Tom said, this would have us into
18 construction at soil compaction and the beginnings, in
19 which we would have essentially a resident construction
20 section, if you want to call it that, in which -- and to
21 make this work, this would take many more NRC assets in
22 construction than historically we had a decade or more
23 ago, when we encountered so many of the difficulties in
24 completing construction and verifying that it was adequate
25 as an end.

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1 DR. MURLEY: The tradeoff, as Jim said, is we
2 would put the resources up front, but the finding at the
3 end should be very simple and straightforward, and it
4 could be challenged, of course, but the record --

5 MR. TAYLOR: Would make that defensible.

6 DR. MURLEY: Absolutely.

7 MR. RUSSELL: Let me also comment that the
8 headquarters activity I envision is going to be also
9 heavily involved in the engineering review. In many of
10 the past projects, construction outpaced some of the
11 engineering activities, and the logical process is you
12 need to complete the engineering sufficiently to conclude
13 that the engineering is consistent with the design
14 certification, so that you can then conclude that it's
15 been constructed in accordance with the engineering
16 drawings that have been released.

17 So, I see a much more heavy involvement on the
18 part of the staff in looking at the engineering to
19 implement this activity, and it does raise some
20 interesting questions about first-of-a-kind engineering.
21 That activity is going on now independent of staff review,
22 and the question of whether the engineering does or does
23 not match the certified design will clearly come up
24 because that's what you, in fact, use in the field to
25 complete the construction.

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1 So, I think we've been emphasizing engineering
2 more all along in our self-process, other things we're
3 doing, and I would see that there would be a fairly
4 significant headquarters role in some of the engineering
5 areas before you get to construction and onsite
6 activities.

7 DR. MURLEY: Denny reminds me this draft paper
8 will be released today for public comment. We will
9 actually seek out comment from NUMARC and ARC because we
10 really want them to think this far ahead, too.

11 We are revising our construction inspection
12 program. It will have to be done -- it's very important,
13 we feel, to have the people that are writing the ITAAC do
14 the thinking that goes all the way through this. So, we
15 want their input into the construction inspection program,
16 too, so we're doing that right now.

17 There is one concept I'll mention that is new.
18 It might be contentious, I don't know. We've said that
19 the inspectors who are actually out in the field, they
20 will not be taking the ITAAC documents themselves because
21 the ITAACs are broad, conceptual things. They only have -
22 - the drawings, for example, are not real engineering
23 drawings at all, they are just conceptual drawings.

24 So, there has to be what we call a "bridge"
25 document that goes from the ITAAC, which are legal

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1 requirements that we have to make findings against, to
2 what the inspector uses in the field. And that bridge
3 document then, as we see it, would be what the COL
4 applicant would have to prepare, and he would have to
5 certify to the NRC that the field construction drawings
6 and pre-op test plans and that sort of thing that they're
7 actually using, are, in fact, consistent and conform with
8 ITAAC, so that when we make the findings using the
9 drawings that we normally use in the field, we know that
10 they are consistent with ITAAC.

11 But it's that kind of thinking that has to be
12 done now to make sure that we haven't overlooked anything.
13 I guess I'm fairly confident that we've laid out the broad
14 structure and this final block for Part 52. It is a good,
15 solid system. I think we feel comfortable with it.

16 MR. TAYLOR: I think it's a good idea to get
17 this out, too, and get as much input while the memories of
18 some of the problems of earlier construction are still
19 around.

20 COMMISSIONER REMICK: I think you might remind
21 people of NUREG 1055.

22 MR. TAYLOR: Right, I'm thinking of that.

23 COMMISSIONER REMICK: EO was one of our primary
24 authors. It's still an excellent document.

25 DR. MURLEY: That concludes our briefing.

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1 CHAIRMAN SELIN: Commissioner Rogers?

2 COMMISSIONER ROGERS: Do you see any siting
3 implications from the new source term? Has that come into
4 your thinking at all?

5 MR. RUSSELL: No, it has not, from the
6 standpoint that the approach we've taken in the design
7 certification is to specify as a site parameter bounding
8 values for dispersion coefficients for atmospheric
9 dispersion. So, we've actually included in the site
10 parameter list the chi-over-Q values, so that the site
11 review for a particular site will need to look at that,
12 and then it determines how much land they are going to
13 actually purchase to get out to the boundary of the owner-
14 controlled area.

15 Clearly, if you have adverse wind conditions at
16 the site, you may have to have a larger boundary. If you
17 have better wind conditions on-average over a year, you
18 may have a smaller boundary. But we don't see significant
19 impact at this point, from source term.

20 In the CE 80 design, the source term was used,
21 which relates to that which is released, and then the
22 dispersion to get to the dose calculation. So, we've seen
23 it in the design certification, but we do not expect to
24 see it during the siting review.

25 COMMISSIONER ROGERS: Um-hmm. Um-hmm. Well, I

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1 just want to say that this is really a very exciting
2 briefing, I think, in many ways. The progress that's been
3 made is really outstanding, and I think a couple of years
4 ago, this looked like a very, very hard thing to get to,
5 to where we are today, and I just want to compliment the
6 staff for really a very fine job. Thank you very much.

7 CHAIRMAN SELIN: Commissioner Remick?

8 COMMISSIONER REMICK: I would just like to say
9 I'm delighted that you have found somebody that can be an
10 assignee to go to the Katchawasake Karawa site because I
11 think we will definitely benefit, or that person will, and
12 the agency, as a result, will benefit from the
13 observations of the innovative construction techniques
14 that I understand are being used there.

15 Also, I know personally that MITI will be very
16 pleased with that because they have a feeling they have
17 benefitted very much from the NRC and can learn much, but
18 they also feel very strongly that we can learn from them,
19 and I think this is a case that they have experience that
20 we currently don't. So, I think it's going to be mutually
21 beneficial, and so I'm very pleased with that.

22 DR. MURLEY: I agree with that. I was at the
23 site this past summer, and they are doing construction
24 techniques there that are far beyond anything that we have
25 experienced in this country. So, when we write -- I took

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1 with me the person who is writing the construction
2 inspection plan so he could see it himself, and you're
3 exactly right.

4 COMMISSIONER REMICK: Good. And I certainly
5 join in the comments that what has been accomplished --
6 Tom went over the benefits of the Commission being
7 involved and outlined some of the issues that we faced
8 along the way. They have been difficult, but I've been
9 very, very pleased at the staff management direct
10 involvement in resolving these issues.

11 Certainly, I don't think anybody did or could
12 have anticipated some of the issues that arose in Part 52,
13 but I think we have to look at the fact that Part 52 has
14 really held up. We've faced issues, but you folks have
15 sought and obtained solutions in conjunction, working with
16 the vendors, and I think the process has worked, and it's
17 a tribute to you and those who report to you, as well as
18 the industry effort, that we've reached the stage that we
19 have, and I think you can be very proud of that
20 accomplishment. I certainly am, and I join in thanking
21 you.

22 CHAIRMAN SELIN: Commissioner de Planque?

23 COMMISSIONER de PLANQUE: Just a detail. I want
24 to go back to the design certification rulemaking and make
25 sure I understand what you're going to do next. Are you

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1 going to come to us when you have a specific design case,
2 or are you going to come to us for the generic?

3 MR. CRUTCHFIELD: Our intent is to go back and
4 the next thing you see will be the ABWR proposed ANPR.

5 COMMISSIONER de PLANQUE: Okay. All right. I,
6 too, add my congratulations. I think this has been very
7 well done.

8 CHAIRMAN SELIN: As somebody who is completely
9 free of any credit for having developed Part 52 in the
10 first place, I do -- not only do I agree with my
11 colleagues, I think it's really quite extraordinary that
12 such a major change both in procedure and in technical
13 approach has held up as well as it has from the initial
14 concept. You can be very proud.

15 In fact, Dr. Murley, you are really to be
16 congratulated, as your illustrious career at the NRC
17 draws, unfortunately, to a close, that the three big
18 pieces -- the operating reactors as discussed yesterday,
19 and the procedures that you've laid out for the high level
20 reviews, the design certification and Part 52 process, and
21 I hope the wrapping up of the license renewal work -- will
22 certainly stand as monuments to your landmark career as
23 Director of NRR. Thank you very much.

24 (Whereupon, at 10:58 a.m., the meeting was
25 adjourned.)

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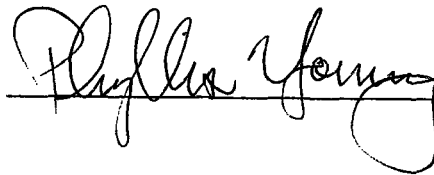
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of the United States Nuclear Regulatory Commission entitled:

TITLE OF MEETING: BRIEFING ON PROGRESS OF DESIGN CERTIFICATION
REVIEW AND IMPLEMENTATION

PLACE OF MEETING: ROCKVILLE, MARYLAND

DATE OF MEETING: JANUARY 28, 1994

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PROGRESS OF DESIGN CERTIFICATION REVIEW AND IMPLEMENTATION



**BRIEFING TO COMMISSION
JANUARY 28, 1994**

BRIEFING TOPIC AREAS

- I. Overview of Accomplishments
- II. Project Review Status
- III. Overview of Key Issues
- IV. Design Certification and Part 52
Implementation Issues

OVERVIEW OF ACCOMPLISHMENTS

- Safety Evaluation Reports issued on the Advanced Boiling Water Reactor (ABWR), the passive Utility Requirements Document (URD) and the PRISM liquid metal design
- Inspections, tests, analyses, and acceptance criteria (ITAAC) issues resolved for the evolutionary plant designs
- Public workshop conducted on design certification rule
- Continued high levels of management attention involving both the vendors and Department of Energy (DOE) on design certification schedules and issues
- Numerous meetings with the ACRS on advanced reactor issues

ABWR DESIGN CERTIFICATION REVIEW STATUS

Status

- GE submitted updated standard safety analysis report (SSAR), and certified design material on December 7
- Staff issued its advanced copy of the FSER to the Commission on December 23
- Key open issue involves RPV water level instrumentation diversity

Future Actions/Activities

- Complete independent quality review
- Complete ACRS meetings and receive ACRS letter
- Issue FSER reflecting resolution of all issues including Commission guidance and ACRS concerns
- Issue final design approval (FDA)

SYSTEM 80 + DESIGN CERTIFICATION REVIEW STATUS

Status

- ABB-CE updated its certified design material in December and submitted its updated SSAR in January
- ITAAC task group review completed and issues technically resolved
- Draft technical input completed on most FSER chapters

Future Actions/Activities

- Conduct independent quality review
- Issue advanced copy of FSER in late February
- Continue ACRS briefings
- Issue FSER in June 1994

AP600 DESIGN CERTIFICATION REVIEW STATUS

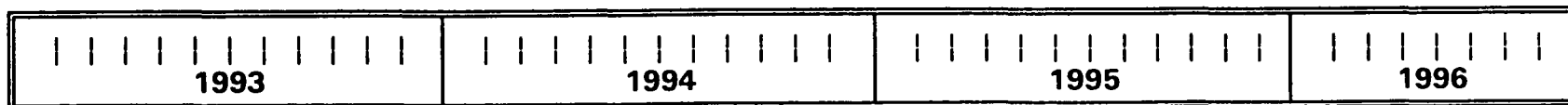
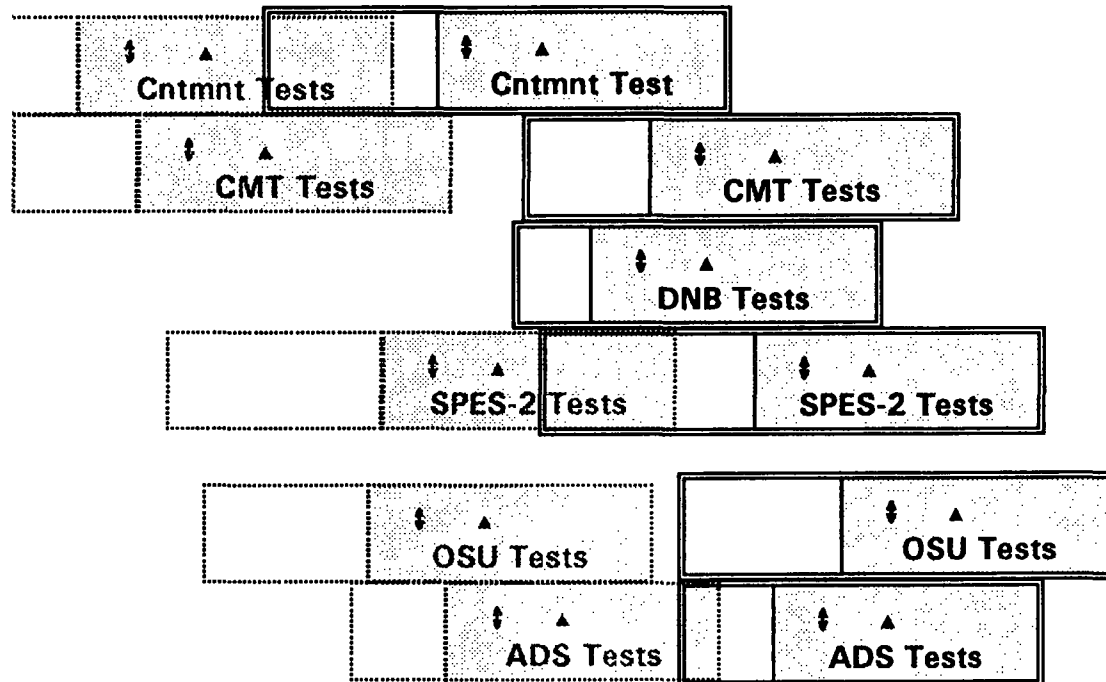
Status

- Over 1,200 requests for additional information (RAI) issued
- Westinghouse has responded to most RAIs
- Key technical review issues involve
 - completion of testing program
 - implementation of the regulatory treatment of non-safety system (RTNSS) process

Future Actions/Activities

- Continue with the detailed review of the AP600
- Revise schedule based on Westinghouse test program delays

AP600 TEST SCHEDULE



Dotted boxes are test dates assumed in SECY-93-097
 † = Denotes submittal of Quick Look reports

▲ = Denotes beginning of submittal of processed data to the NRC
 Shaded Area = Denote time from test completion to final report to the NRC

SBWR DESIGN CERTIFICATION REVIEW STATUS

Status

- Review progressing despite concentration of GE and staff effort on completing ABWR review
- About 500 RAIs issued with more expected as reviewers complete ABWR efforts
- Contractor (Purdue) selected for NRC's independent test loop and facility design underway
- Staff completed inspection of SBWR's gravity-driven cooling system integrated test (GIST) facility

Future Actions/Activities

- Complete issuance of RAIs
- Revise schedule based on test program status, insights from ABWR review, and expected increased GE/staff resources after ABWR review completion

NON-LWR REVIEW STATUS

Status

- Final PSER on the PRISM (liquid metal) design published
- Future funding of the PRISM and MHTGR designs remains uncertain
- Interaction on key issues for the CANDU 3 design continues

Future Actions/Activities

- Continue to broaden technical staff involvement in the detailed reviews especially for the CANDU 3 design
- Document the PIUS review status and close out by Spring 1994
- Design certification application for CANDU 3 expected in 1994

OVERVIEW OF KEY ISSUES

- On-schedule issuance of final design approvals (FDA) for both evolutionary designs
- Effect of test program delays on passive plant review schedules
- Development and implementation of staff positions on major issues related to the Part 52 process
 - Design control document
 - Application of the revised source term in the design reviews
 - Regulatory treatment of nonsafety systems (RTNSS)
 - Emergency planning
 - ITAAC verification and construction inspection

DESIGN CERTIFICATION RULEMAKING

- **Design Certification Rulemaking Status**
 - Advance Notice of Proposed Rulemaking (ANPR) published November 1993
 - Public workshop held November 1993
 - Comment period expired January 1994
 - Staff preparing proposed rule for first evolutionary design to receive FDA

- **Design Control Document (DCD) Issues**
 - Use of secondary references resolved
 - Changes to the DCD after FDA issuance

APPLICATION OF REVISED SOURCE TERM IN DESIGN CERTIFICATION REVIEWS

- Commission paper will discuss staff positions on
 - closure of source term-related issues in the EPRI URDs for evolutionary and passive designs
 - generic implementation of source term-related issues in evolutionary and passive LWR certification reviews
- Most significant of the source term-related issues discussed include
 - Selective use of accident source terms from draft NUREG-1465 (System 80+, AP600, SBWR)
 - Iodine chemical form (System 80+, AP600, SBWR)
 - Equipment survivability for design features needed for severe accident mitigation and containment integrity (System 80+, AP600, SBWR)
 - Iodine deposition on BWR main steamlines and condensers (SBWR)
 - Fission-product holdup in the safety envelope (secondary containment) (SBWR)

REGULATORY TREATMENT OF NONSAFETY SYSTEMS (RTNSS)

- RTNSS is one of the most important issues to be implemented in the passive plant reviews
- Draft Commission paper on RTNSS issued in September 1993
- ACRS briefed on RTNSS issues in August and November 1993
- Staff incorporating ACRS comments into final Commission paper
- Westinghouse's general approach to implementation of RTNSS for the AP600 was satisfactory

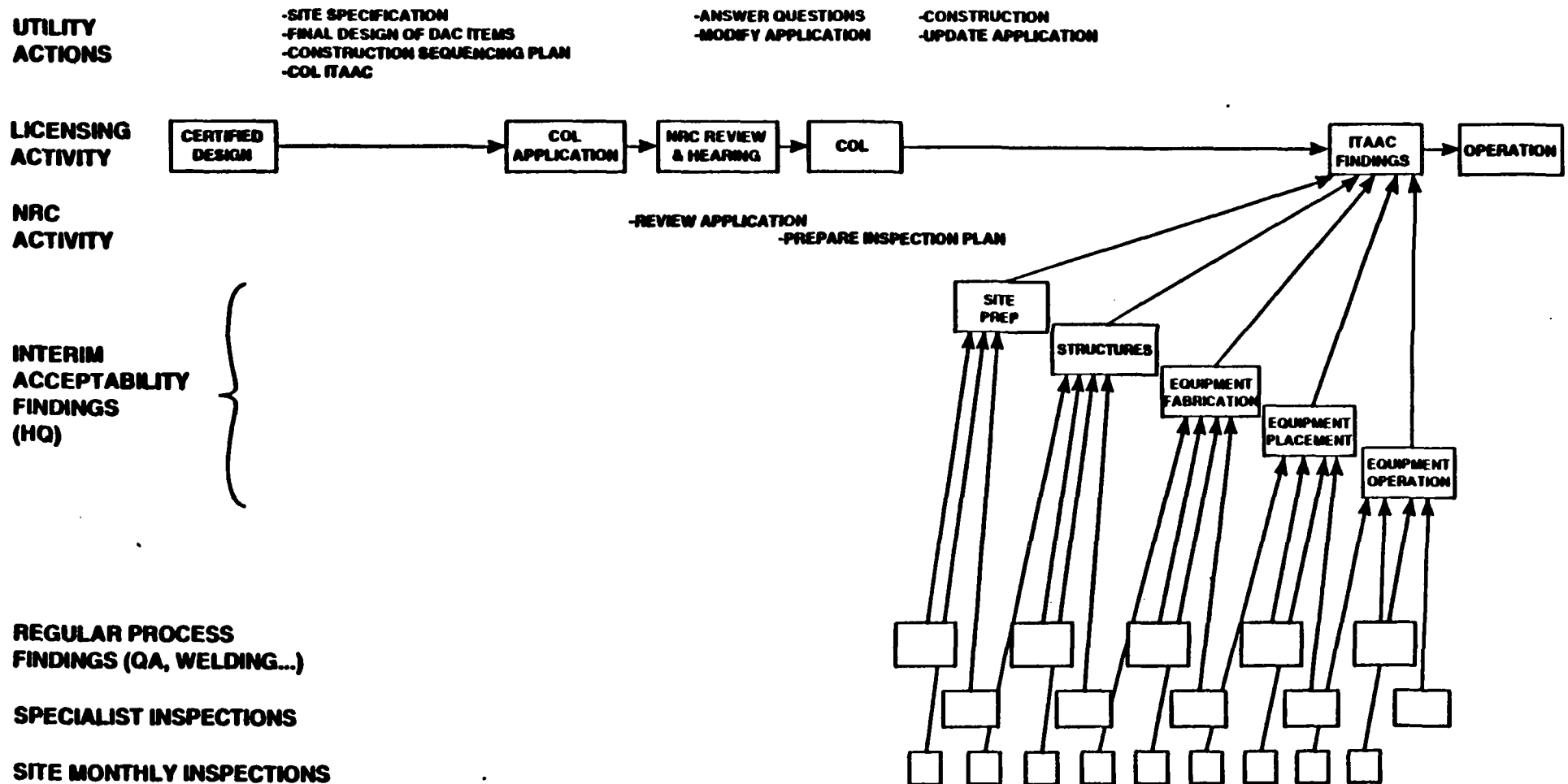
EMERGENCY PLANNING (EP) UNDER 10 CFR PART 52

- Commission paper will discuss how EP requirements will be addressed at each phase of nuclear power plant licensing under Part 52
- ITAAC pertinent to emergency response onsite facilities identified during review of design certification applications
- Federal Emergency Management Agency (FEMA) and NRC staff have drafted joint criteria for reviewing EP aspects of an early site permit application
- Form and role of ITAAC and treatment of preoperational EP exercises are principal COL issues

ITAAC VERIFICATION AND CONSTRUCTION INSPECTION UNDER 10 CFR PART 52

- Draft Commission paper discusses staff views on how ITAAC requirements will be met and inspected during plant construction
- Evolutionary plant ITAAC used to evaluate how the NRC staff will ensure that ITAAC are performed and met prior to the Commission authorizing plant operation
 - most ITAAC activity completed late in the construction period
 - roughly half of the individual ITAAC are "simple" involving straight forward tests or inspections
 - remaining ITAAC (compound ITAAC) will involve a compilation of many activities throughout construction
 - role of interim findings and bridge concept verifications discussed

SCHEMATIC PLAN FOR VERIFICATION OF ITAAC



ITAAC VERIFICATION AND CONSTRUCTION INSPECTION UNDER 10 CFR PART 52

- Draft paper also discusses issues related to development and implementation of the Construction Inspection Program (CIP)
 - CIP development to continue in parallel with certification of the various advanced designs
 - staff proposes to publish each design-specific CIP in the *Federal Register* for comment
 - staffing to implement the CIP would involve site and NRR staffs
- Draft paper being released to the public in order to solicit views of interested parties