

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Title: **BRIEFING ON DESIGN CERTIFICATION ISSUES -
PUBLIC MEETING**

Location: **Rockville, Maryland**

Date: **Friday, March 8, 1996**

Pages: **1 - 70**

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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BRIEFING ON DESIGN CERTIFICATION ISSUES

- - -

PUBLIC MEETING

Nuclear Regulatory Commission
One White Flint North
Rockville, Maryland
Friday, March 8, 1996

The Commission met in open session, pursuant to
notice, at 2:30 p.m., Shirley A. Jackson, Chairman,
presiding.

COMMISSIONERS PRESENT:

SHIRLEY A. JACKSON, Chairman of the Commission
KENNETH C. ROGERS, Commissioner
GRETA J. DICUS, Commissioner

1 STAFF PRESENT:

2 JOHN C. HOYLE, Secretary of the Commission

3 MARTIN MALSCH, Deputy General Counsel

4 NEI:

5 JOE F. COLVIN, Executive Vice President, NEI

6 WILLIAM H. RASIN, Senior Vice President, NEI

7 DAVID L. REHN, Chairman, NEI ALWR Regulation

8 Working Group

9 REGIS A. MATZIE, Vice President, Nuclear Systems

10 Development, ABB/CE

11 STEVEN A. HUCIK, Manager, Advanced Reactor

12 Programs, GE

13 NRC:

14 JAMES TAYLOR, EDO

15 WILLIAM RUSSELL, Director, NRR

16 DENNIS CRUTCHFIELD, Director, Division of Reactor

17 Program Management, NRR

18 THEODORE QUAY, Project Director, Standardization

19 Project Directorate, NRR

20 JERRY WILSON, Section Chief, Standardization

21 Project Directorate, NRR

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P R O C E E D I N G S

1
2 CHAIRMAN JACKSON: Good afternoon. The purpose of
3 this afternoon's meeting is for the nuclear industry,
4 represented by the Nuclear Energy Institute, General
5 Electric, ABB/Combustion Engineering, and the NRC staff to
6 brief the Commission on two issues before the Commission for
7 consideration in finalizing the design certification rules.
8 Those issues, as I understand them, relate to applicable
9 regulations and verification of inspections, tests and
10 analyses and acceptance criteria, or ITAAC.

11 I would like to welcome the representatives of
12 industry here today. The Commission will first hear from
13 the industry and then from the NRC staff.

14 The NRC has issued final design approvals for two
15 standard reactor designs, the General Electric Advanced
16 Boiling Water Reactor and the Combustion Engineering System
17 80+, and is in the final stages of certifying these designs
18 by a rulemaking. We expect that the certification of the
19 two standard reactor designs for which we are currently
20 assessing comments will be completed within the next several
21 months.

22 Resolution of these two issues is important since
23 the issue of applicable regulations relates to the
24 Commission's expectation that future reactors will provide
25 enhanced margins of safety and minimize the potential for

1 severe accidents and their consequences, and verification
2 that ITAAC are met is the only NRC finding necessary to
3 authorize fuel loading for combined construction and
4 operating license holders.

5 The Commission will receive an additional briefing
6 on April 1 on the progress of design certification review
7 and implementation, including the final rulemaking package.

8 I understand that copies of any presentation
9 slides are available at the entrance to the meeting.

10 Do any of my fellow Commissioners have any opening
11 comments?

12 COMMISSIONER ROGERS: Not at this point. Thank
13 you.

14 COMMISSIONER DICUS: No.

15 CHAIRMAN JACKSON: Mr. Colvin, you may proceed.

16 MR. COLVIN: Chairman Jackson, Commissioner
17 Rogers, Commissioner Dicus, thank you and good afternoon.
18 I'm Joe Colvin with the Nuclear Energy Institute. To my
19 right is Bill Rasin who heads up our Technical/Regulatory
20 Division. To my left is Dave Rehn of Duke Power, who also
21 chairs the Advanced Reactor Corporation Utility Management
22 Board and also chairs the industry's Advanced Light Water
23 Reactor Regulation Working Group. To his left, Regis Matzie
24 from Combustion Engineering, who heads up the Nuclear
25 Systems Development Group for ABB/Combustion Engineering

1 and, as you know, is working on the System 80+ design. To
2 the far right is Steve Hucik who is responsible for the
3 Nuclear Plant Projects at General Electric.

4 We appreciate your invitation to be with you today
5 and discuss some of these important issues and in particular
6 the two issues that you described in your opening comments.

7 We are here today discussing these issues because
8 seven years ago the NRC took a very bold and decisive step
9 to reform the nuclear licensing process with the issuance of
10 Part 52.

11 We believe that the NRC initiative, both then and
12 now, aims to achieve the early resolution of licensing
13 issues and the enhanced safety and reliability of nuclear
14 power plants. We agree that these goals must be achieved in
15 order to preserve the viability of nuclear power as a safe,
16 reliable and clean source of electricity for meeting our
17 country's future energy needs. As you know, this initiative
18 was eventually codified in the Energy Policy Act of 1992 to
19 provide more assurance and certainty to the public, to the
20 purchasers and utilities that might use this option, and
21 certainly to the financial community that needs to provide
22 the investment into this to allow us to build it in the
23 beginning.

24 Complementing the NRC's initiative, the industry
25 developed a strategic plan for building new nuclear plants.

1 We update that plan and the progress on that plan each year,
2 and we will produce the sixth annual update of that plan
3 later this year, and we intend to highlight the achievement
4 of the most significant single milestone to date and the
5 first major step of implementing the 10 CFR 52 licensing
6 process with the issuance of the design certification for
7 both the ABWR and the System 80+. We have provided this to
8 the Commission before. If you would like to have any
9 additional copies, please let us know. It really provides
10 the basis for putting in place all the steps necessary, in
11 our view, to actually be able to build these designs within
12 our country.

13 Perhaps the most noteworthy aspect of this
14 achievement is the success that we share with the NRC in
15 resolving safety issues and bringing these world class
16 designs a major step closer to reality.

17 We really commend the staff, the Commission, ACRS,
18 and all the people that are working on this. It is through
19 their efforts on literally thousands of complex technical
20 and policy issues that bring us to the threshold of our
21 discussions today.

22 As you stated in the Commission's SRM, the Staff
23 Requirements Memorandum, of March 17 of last year, these
24 rulemakings provide a final opportunity to examine the
25 design certification process to ensure that it will

1 accomplish what is intended.

2 In that same SRM, the Commission stressed the
3 importance that potential combined license applicants
4 perceive the process to be workable, and it requested the
5 staff to give special attention to the resolution of
6 comments aimed at ensuring a workable process.

7 It is precisely from that perspective, ensuring
8 design certification rules are viewed as an inducement and
9 not an obstacle to potential combined license applicants,
10 that the two issues take on a heightened significance.

11 In our view, the issues we are here to discuss are
12 really issues of process, not safety. These designs are
13 unarguably safer than today's already safe nuclear power
14 plants. The NRC staff has stated that the ABWR and System
15 80+ designs are robust, an improvement over existing designs
16 and "meet the Commission safety goals by several orders of
17 magnitude." What we have done together is develop a design
18 that is safe and marketable.

19 But in our view, what is at issue today in these
20 process questions is that those questions may determine
21 whether or not we are ever able to build these designs
22 within our country while they will be built elsewhere and
23 are being built elsewhere. We believe these issues are of
24 that significance or that importance.

25 On August 4 we provided written comments to the

1 Commission. We explained why we perceived that codifying
2 new applicable regulations in the design certification rules
3 would be contrary to the Commission's goals for Part 52 and
4 would have a significant negative impact on the process.
5 Those comments really explain in some detail the industry's
6 views about the importance of that process. We also
7 discussed a provision to clarify the nature of the ITAAC
8 verification.

9 We look forward to today's briefing as an
10 opportunity to share with you some of our views and provide
11 additional information to our written comments and our
12 communications. These issues are very complex, as you know.
13 We have with us the team of industry experts, and I would
14 exclude myself from that. I brought with me the right
15 talent to delve into these to the depth that the Commission
16 would like to.

17 At this point I would like to ask Regis Matzie,
18 followed by Steve Hucik, to provide their perspectives on
19 these issues.

20 Regis.

21 MR. MATZIE: Chairman Jackson, Commissioners
22 Rogers and Dicus, good afternoon. My name is Regis Matzie.
23 I am the Vice President of Engineering for ABB Combustion
24 Engineering Nuclear Systems. I have responsibility for the
25 System 80+ Standard Plant Design, which is the subject of

1 one of the Part 52 design certification rulemakings
2 presently underway, as well as the design of the System 80+
3 reactors currently under construction in the Republic of
4 Korea.

5 I am very pleased to be here today and I would
6 like to express my appreciation to the Commission for
7 conducting this briefing. The issues we will address today
8 are vitally important to the viability of this rulemaking
9 and this rulemaking is vitally important to the viability of
10 the future of nuclear power in this country. I commend the
11 Commission for providing the opportunity for both the staff
12 and the industry to brief you in open session.

13 ABB Combustion Engineering first began
14 interactions with the NRC on our System 80+ design in 1987.
15 We received a final design approval from the Director of
16 Nuclear Reactor Regulation in July 1994. ABB Combustion
17 Engineering is proud of the System 80+ design and pleased to
18 have been awarded a final design approval after many years
19 of intense and rigorous review by the NRC staff and the
20 Advisory Committee on Reactor Safeguards. As we have said
21 on many occasions, the NRC has every right to be pleased as
22 well in having accomplished this enormous milestone.

23 This enterprise has been equally funded by the
24 U.S. Department of Energy and ABB Combustion Engineering,
25 with total expenditures of about \$100 million, including

1 many millions paid to the NRC in review fees. Despite this
2 large expenditure of engineering resources and the facts
3 that we have already bid the System 80+ standard plant in
4 Taiwan and the System 80+ technology is the basis of the
5 Korean next generation reactor, it is possible that the
6 design might never be used in this country if the design
7 certification rulemaking produces a rule which does not
8 provide investors with both the assurance and the perception
9 that the licensing of this design is complete and that the
10 plant, if built in accordance with the certified design, can
11 begin to operate when construction is completed.

12 Furthermore, investors must have the perception
13 that the plant will be able to continue operation without
14 the threat of backfits in areas of the design which have
15 been added to allow System 80+ to realize a level of safety
16 two orders of magnitude greater than currently operating
17 designs. What potential investors must perceive is true
18 licensing stability.

19 These two stipulations are addressed directly
20 today. Plants will not be able to begin operation when
21 construction is complete until they have satisfactorily
22 completed the inspections, tests and analyses and met the
23 acceptance criteria stipulated in the rule. However, there
24 must be very clear directions provided to COL holders and
25 NRC staff on what is required to satisfy an ITAAC.

1 We believe that we are not far from the stated
2 intentions of the staff that there must be a clear nexus
3 between a procedural deficiency, for example, a QA
4 deficiency, and whether an acceptance criterion has been
5 satisfied. However, for the benefit of the investment
6 community and to provide solid guidance to future staffs and
7 licensees, we feel it is necessary to codify the guidance on
8 this issue in the rule. Otherwise investors will perceive
9 that the very sharply defined acceptance criteria are
10 negated by the potential for open-ended reviews and audits
11 to uncover some reason why the acceptance criteria might be
12 called into question.

13 Furthermore, once a license is granted, the
14 applicable regulations, while no doubt intended by the staff
15 to add a measure of stability, really create the strong
16 perception of instability by the threat of potential
17 backfits.

18 The Commission needs to take into account the
19 extraordinary increase in safety voluntarily designed into
20 these plants compared to currently licensed plants and not
21 create regulations which would have the effect of penalizing
22 these safer plants through backfitting, even in situations
23 where the current operating plants would not have to
24 backfit. While it may seem inconceivable to you that such a
25 result could occur, the fact is that the design

1 certification rules as presented in the notice of proposed
2 rulemaking allow for that to happen. That is all it takes
3 to create the perception that some day it will happen.

4 We are very hopeful that the Commission will be
5 able to see the necessity to provide strict guidance in the
6 rule on ITAAC verification limitations and will agree that
7 the proposed applicable regulations are unnecessary
8 regulations. Thank you.

9 MR. HUCIK: Good afternoon. I appreciate the
10 opportunity to be here today. My name is Steven A. Hucik.
11 I am the General Manager of Nuclear Plant Projects for GE
12 Nuclear Energy, a position which involves responsibility for
13 all of GE's advanced designs. This includes responsibility
14 for the two ABWRs in construction and currently in startup
15 in Japan.

16 Accompanying me today is Mr. Joseph F. Quirk,
17 Project Manager for the ABWR Certification Program. The
18 ABWR is one of two advanced light water reactor designs that
19 are the subject of Part 52 design certification rulemakings
20 now pending before this Commission.

21 We welcome today's opportunity to participate in
22 the industry's dialogue with the Commission on two major
23 process issues awaiting resolution in these proceedings. At
24 the outset, however, I think it is important to put these
25 and other remaining process issues in their proper context.

1 NRC safety acceptance and issuance of a final
2 design approval for the ABWR in July of 1994 was a
3 significant milestone for design standardization,
4 representing a substantial accomplishment for both the NRC
5 and GE. The challenge since then has been to embody that
6 pioneering safety approval in a design certification rule
7 with workable process provisions, a rule that will give
8 practical viability to the Part 52 licensing process and
9 open the way for future use of the certified design in the
10 U.S. The design certification rules will not accomplish
11 their purpose if potential customers do not find the rules
12 workable.

13 Commercial viability for the ABWR is already being
14 demonstrated in Japan where the design has long since gained
15 the approval of Japan's safety authorities and where the
16 first of two units is now undergoing startup testing for
17 commercial operation later this year. Completion and setup
18 testing of the second unit is expected also within this
19 year.

20 Further, the ABWR is in the bid evaluation phase
21 for two units at Taiwan Power Company's Lungmen site.

22 The safety accomplishments of the NRC's Part 52
23 design reviews must now be matched by satisfactory
24 resolution of the process issues on the critical path of
25 certification rulemaking. SECY 96-028, issued February 6,

1 1996, deals with two of those issues. We fully endorse the
2 NEI's concerns with the proposed certification rules and
3 SECY 96-028. As formulated in the proposed rules and SECY
4 96-028, we believe that the proposed applicable regulations
5 are unnecessary, that they create the potential for
6 destabilizing reinterpretations, and that they raise the
7 possibility of unstructured compliance backfits which are at
8 odds with Part 52 goals and which threaten the viability of
9 the Part 52 licensing process.

10 We take strong exception to the assertion in SECY
11 96-028 that, if the Commission does not adopt the proposed
12 applicable regulations, the staff will need to reassess
13 certain review areas and safety conclusions in its prior
14 FSERs. There is no basis whatsoever for that assertion or
15 for such a course.

16 These designs unquestionably satisfy the
17 requirements of the proposed applicable regulations. The
18 documentation in the SSAR and CDM and the FSER confirms
19 this, and indeed the staff intends to state this expressly
20 in the final design certification rules. The designs
21 themselves will not change if the design features already
22 embodied in them are not codified as regulations, and these
23 designs with their enhanced features will be binding on
24 referencing license applicants and licensees. In short,
25 there is no need for the staff to revisit its FSER reviews

1 and safety conclusions if the Commission determines that the
2 proposed applicable regulations should not be incorporated
3 in these rules.

4 The second issue before the Commission today
5 involves the matter of ITAAC verification. Given the
6 central role of ITAAC in the Part 52 process, we think it is
7 vital that these certification rules contain a provision
8 addressing the fundamental principles of ITAAC verification.
9 As reflected in the NEI comment letter to the Commission on
10 this SECY, we think that the industry and the staff are in
11 fact in essential agreement with regard to the fundamental
12 principles that apply to ITAAC verification.

13 There are a number of other important process
14 issues raised in prior industry comments on the proposed
15 rules which also await Commission resolution. Following
16 industry and staff clarification during last December's
17 rulemaking workshop, we believe progress is being made in
18 resolving those issues. Given their importance, however, we
19 urge that the SECY paper on the final rules also be made
20 available for public comment before the Commission takes
21 rulemaking action.

22 I want to close on a justifiably positive note.
23 Our comments today are made in a constructive spirit. We
24 want Part 52 to work. Part 52 must work in order for
25 nuclear power to be a viable option for this country. The

1 world is following closely the progress being made to
2 complete the design certification process. Successful
3 completion is important to U.S. leadership worldwide.

4 The substantial financial and technical resources
5 expended on ABWR development and in obtaining this NRC
6 design approval amply demonstrate GE's commitment to Part
7 52. The provisions which are under consideration today are
8 critical to whether the design certification rules adopted
9 by the Commission will be considered for future use by
10 future utility customers. Our customers have expressed
11 their deep concerns which strike at the heart of licensing
12 instability and unpredictability. Successful resolution of
13 these concerns is essential if Part 52 is to achieve its
14 objectives and if the safety and economic benefits of these
15 advanced designs are to be realized in our country.

16 Thank you very much.

17 CHAIRMAN JACKSON: Thank you.

18 MR. COLVIN: Chairman Jackson, I would like to ask
19 Dave Rehn to proceed with some detailed discussion on the
20 heart of the issue.

21 MR. REHN: Good afternoon. As Joe said, I am Dave
22 Rehn with Duke Power Company. During my career at Duke I've
23 had a chance to work in our engineering department, was
24 involved in the design of four of our operating units. I've
25 also been afforded the opportunity to participate in the

1 construction of those units, and most recently, in my
2 position as vice president of the Catawba Nuclear Unit I've
3 also participated in the operation of those facilities. It
4 is out of that context and out of that perspective that I
5 offer you some comments today on Part 52.

6 Certainly, having had the opportunity to work in
7 the Part 50 environment, I personally looked to Part 52 as a
8 dramatic improvement in the design and construction approach
9 to these facilities. I strongly believe, and I believe the
10 industry does as well, that we want Part 52 to work and we
11 want to ensure that we get certification rules that meet not
12 only the detailed requirements associated with Part 52, but
13 the spirit with which we believe Part 52 was enacted.

14 Today I would like to talk about two issues,
15 applicable regulations and ITAAC verification, and with the
16 Chairman's indulgence, we were also asked to talk about any
17 other items, and I have one brief item I would like to
18 mention after that associated with some design changes after
19 the certification rulemaking.

20 CHAIRMAN JACKSON: Let me just ask you this
21 question. There will be another Commission meeting on the
22 design certification issues and the design certification
23 rulemaking. So we can keep our focus here on these two
24 topics.

25 MR. REHN: That's fine.

1 CHAIRMAN JACKSON: We want to allow ample time to
2 walk through everything.

3 MR. REHN: As noted earlier by Joe Colvin, as we
4 begin to discuss whether additional or new regulations are
5 needed to be applied to these designs, we like to look back
6 and remember that for both the ABWR and the System 80+
7 designs they are the product of what we characterize as the
8 most thorough safety review that has ever been completed by
9 the NRC staff and unquestionably, we feel, are the safest
10 plants that have ever been approved or about to be approved
11 by the NRC. From day one, I believe both the industry and
12 the NRC has focused on and strived to deliver enhanced
13 safety design, and I think as you have already heard, we
14 have factored into those designs margins that are at least
15 ten times safer than the preceding designs that are licensed
16 today.

17 We did that by focusing on a multitude of issues,
18 issues that we have come to understand based on our design,
19 construction and operational experience, and looked at
20 features enhancements that could be made to designs to
21 deliver this enhanced margin. The staff as well as the
22 designers should be commended for the successful resolution
23 of literally thousands and thousands of technical details
24 that have gone on for quite sometime. These run the range
25 from both the large to the small end of the spectrum

1 associated with these designs.

2 Many of these technical issues, including severe
3 accident issues, were resolved by design-specific reviews
4 and they resulted in what we characterize as design features
5 or enhancements that do indeed go far beyond assuring
6 adequate protection of the public health and safety. They
7 also go beyond the requirements of existing NRC regulations.

8 However, these design features are indeed
9 incorporated in the design. There is an extensive paper
10 trail relative to the design basis and the conclusions and
11 the approaches that were taken in the design to arrive at
12 these features.

13 Also there are strict controls relative to the
14 change of these features both after the design certification
15 and during construction.

16 Lastly, there is a set of ITAACs associated with
17 these that will ensure that these features do indeed arrive
18 in place in the final plant after it is constructed.

19 Of significant concern with the staff's proposal
20 is that by elevating these technical positions to a new
21 status called applicable regulations that we subject these
22 features to potential backfits, to what I would characterize
23 as some new standard. As I said earlier, these design
24 features were a collaborative effort in an attempt to
25 improve on the margins, but the absolute levels of safety

1 that we were striving for were not specified and are not
2 currently defined. So it is that particular elevation of
3 these design features in these 14 to 15 areas that we
4 strongly object to.

5 On August 4, 1995, we supplied comments on the
6 proposed rules, and on March 5 of this year, in our response
7 to the SECY 96-028 we explained why we objected so strongly
8 to these proposed applicable regulations.

9 In summary, the three principles that we find is,
10 first, we explained in those letters why we believe that
11 applicable regulations are unnecessary and inappropriate.

12 Secondly, we tried to describe why we are so
13 strongly concerned about establishing a new regulatory
14 standard for backfits as described by the staff, which we
15 believe is inconsistent with the Atomic Energy Act plus the
16 40-odd years of experience that we have now been able to
17 gain with the standard of assuring adequate protection of
18 the public health and safety.

19 Third and most importantly, we are concerned about
20 the potential destabilizing effect that the new standard
21 could have when applied to applicable regulations that are
22 subject to reinterpretation over 60-odd years of this design
23 certification while it would be in effect.

24 Let me now briefly amplify each of these three
25 points. Then I will afford the opportunity for questions.

1 First of all, we feel that the issue obscures the
2 fact that these designs have achieved, and, I might add,
3 with flying colors, the improved levels of safety that we
4 and I think the NRC intended. These safety improvements are
5 real, they are required, and as I have said, we believe they
6 are tightly controlled over the lifetime of the plant.

7 Applicable regulations then are simply not needed
8 to assure the adequate protection of the public's health and
9 safety.

10 In our written submittals we expressed our views
11 on how this proposal is inconsistent with the intent of Part
12 52 and previous Commission guidance. I would like to refer
13 you to our March 5 letter to the staff on the SECY 96-028
14 for this discussion.

15 For today, let me just note, for example, that
16 several of the proposed applicable regulations would
17 inappropriately establish new severe accident regulations
18 for advanced plants, which we believe is contrary to
19 previous Commission guidance and we think dates all the way
20 back to the 1985 severe accident policy statements.

21 Still others of the proposed applicable
22 regulations pertain to matters that we believe are beyond
23 the scope of design certification. They typically fall into
24 what we characterize as licensee operational programs for
25 such things as outage planning, in-service inspection and

1 testing, and reliability assurance.

2 For these reasons and others described in our
3 written submittal, the bottom line, in our view, is that
4 there simply is not a need for these applicable regulations.

5 Also of great concern to the industry, and
6 particularly to us in the utility industry who will be the
7 end users of these design certifications, there is a concern
8 about the regulatory instability associated by elevating
9 these enhanced safety features and severe accident
10 requirements of the design certification to a status that is
11 on par with all the other regulations.

12 As described in SECY 96-028, the staff's principal
13 objective in proposing the new applicable regulations is to
14 ensure it has the ability to impose compliance backfits
15 based on new information to "ensure improved protection of
16 the public health and safety."

17 We believe this would constitute an unprecedented
18 and troubling new regulatory standard for justifying
19 backfits, one that would enable the staff via the use of
20 compliance exception to the NRC's 50.109 backfit rule to
21 impose backfits without regard for cost that are not
22 required to assure adequate protection of public health and
23 safety.

24 The regulatory uncertainty and instability
25 introduced by the potential for compliance backfits to

1 applicable regulations is exacerbated by what we believe is
2 certainly a lack of experience with these proposed
3 applicable regulations.

4 Some of the applicable regulations have some
5 troubling characteristics. They tend to cover a large
6 number of areas where indeed there may be changes in
7 technical knowledge over the years. They have, I think
8 purposely, been broadly worded. And they could be open to
9 multiple interpretations -- even today we see that -- and
10 are likely to be interpreted and reinterpreted over the 60
11 years during which these design certifications will be in
12 effect.

13 The potential, real or perceived, that the future
14 NRC staff might reinterpret whether these designs actually
15 comply with applicable regulations and to have the power to
16 impose a backfit on plants to reflect this new
17 interpretation is precisely the sort of regulatory
18 uncertainty and instability that the NRC and Congress set
19 out to correct via Part 52 and the Energy Policy Act of
20 1992.

21 We understand, based on SECY 96-028, that the
22 staff is concerned about being able to respond appropriately
23 to new information that will surely be identified over the
24 next 60-plus years. We believe, appropriately, that they
25 should, and the industry is also interested in responding

1 appropriately to new information concerning plant safety.

2 We and the staff have had a history of dealing
3 with new information, and I think we do that today. In the
4 future, as today, if significant new information arises that
5 calls into question the adequate protection of the public
6 health and safety, there is no question that under the
7 provisions of both Part 50 and Part 52 that the NRC staff
8 has the responsibility and authority to take appropriate
9 action, to impose a backfit or other corrective actions to
10 ensure the adequate protection of the public health and
11 safety.

12 But if we step back for a moment and take a
13 broader perspective, we must remember that by endorsing the
14 concept of design certification and establishing the
15 stringent change controls of Section 52.63, we believe the
16 Commission has already considered the potential that new
17 information might enable additional improvements to be made.
18 Yet the Commission concluded that this potential did not
19 outweigh the Part 52 goals of standardization and regulatory
20 stability.

21 So we feel strongly that the proposed new
22 applicable regulations and the associated new backfit
23 standard are contrary to the intent and the goals of Part 52
24 and are concerned about the destabilizing impact to the
25 process and to the potential effect on prospective COL

1 applicants in the future.

2 I would like to pause here and see if there are
3 any questions.

4 CHAIRMAN JACKSON: Is there any further
5 presentation on these specific issues.

6 MR. COLVIN: No. We have some comments on the
7 ITAAC, Chairman Jackson, but our view was that it might be
8 more appropriate to segregate the discussion on the two
9 issues, if that is agreeable to you.

10 CHAIRMAN JACKSON: That's fine. I think that's a
11 useful way to proceed.

12 Commissioner Rogers.

13 COMMISSIONER ROGERS: Mr. Rehn, I have a little
14 trouble with your statement about backfit. The NRC can
15 always impose a backfit if it finds that it is necessary to
16 protect public health and safety and establish an adequate
17 level of protection. That is not what the backfit rule
18 addresses. The backfit rule addresses enhancements beyond
19 that that must meet a cost-benefit analysis.

20 So I am a little troubled with your statement
21 there, because I think that's not the issue, whether we
22 could impose through a backfit mechanism something, because
23 the backfit mechanism relates to enhancements beyond what is
24 necessary to maintain adequate protection. If the NRC
25 regards something as necessary to provide adequate

1 protection, we can insist on it. We don't have to go
2 through a backfit analysis to do that if it doesn't meet the
3 adequate protection standard. I believe I am correct on
4 that.

5 Is that right, Mr. Malsch?

6 MR. MALSCH: Yes.

7 COMMISSIONER ROGERS: What we are talking about
8 now is something that goes beyond adequate protection. I
9 think it's very important to keep that in mind and not mix
10 those together. It is clear that these designs were
11 intended to go well beyond what presently exists, and what
12 presently exists, in the NRC's opinion, provides adequate
13 protection. Otherwise we wouldn't allow plants to operate.

14 I do think that your remarks sounded a little bit
15 as if you were raising a question about whether adequate
16 protection would be maintained or not. That is always there
17 without any cost-benefit analysis at all. That has to be
18 the case.

19 I think the issue here is that the new designs
20 were there to provide an increased level of safety beyond
21 existing designs. It is my recollection at the time that we
22 dealt with this at the Commission level that we very
23 carefully did not establish any kind of a numerical goal
24 there. We did not know exactly what might be achievable,
25 but we wanted to see that something definitely was achieved

1 by these new designs, that it wasn't just a trivial marginal
2 increase but a substantial increase as a result of all of
3 this effort that was going into the designs by the industry
4 and through NRC reviews.

5 That has come about, clearly. There seems to be
6 no question that that has been achieved. Substantially
7 increased margins is the way you have put it. I think
8 that's correct.

9 But we never placed any kind of a specific
10 numerical goal on that. That was an issue that was very
11 much debated at the Commission level at the time: Should we
12 put a number on it? Should it be X times what currently
13 exists? We decided no, that it had to be substantial. That
14 may not actually be the word in the rule, but that is the
15 concept. But not a fixed numerical value.

16 Lo, the superb efforts of the industry and NRC's
17 staff's reviews of these have revealed that that was
18 achieved in these new designs, as far as we know. And it
19 made all that worthwhile.

20 I would ask you this question, however. Suppose
21 that some new information came to light that indicated that
22 for some reason something turns up that that enhanced level
23 disappears, not that you dropped below adequate protection.

24 I know this is simply a hypothetical question, but
25 I am still posing it to you. Suppose that some information

1 came to light that revealed that one of these designs in
2 fact did not have a margin of ten times or 100 times but in
3 fact was no safer than existing designs. Would that
4 justify, in your opinion, a backfit requirement that that be
5 corrected to bring it back up to a substantial but not
6 necessarily a fixed numerical goal?

7 MR. COLVIN: Let me try to respond to that,
8 Commissioner Rogers. I think what I would like to do in
9 responding, if you give a little bit of latitude, is to look
10 back at what we really achieved. The Commission, by setting
11 its safety goals, said that we needed to try to achieve a
12 higher safety standard in these new plants through that
13 design. As we have all agreed, we have done that.

14 The issue we are dealing with here, though, is
15 whether or not these designs provide adequate protection for
16 the public, because in the Commission's rulemaking in Part
17 52 and, as Dave indicated, in Part 52.63, it set a new
18 standard for not allowing us to deviate. That standard was
19 in essence compliance with the regulations as they existed
20 at the time of design certification, or a standard of
21 adequate protection. It in fact through that policy process
22 eliminated the issue of a 50.109 type approach for anything
23 above the adequate protection standard.

24 I think that is the issue that we are really
25 talking about.

1 COMMISSIONER ROGERS: I don't read it that way at
2 all. It seems to me the issue is whether this very
3 substantially increased margin is to be locked into by a
4 regulation and therefore becomes a backfit issue. That's
5 how it seems to me the issue is shaping up. If I'm wrong on
6 that, I'm perfectly happy to be corrected, but I would like
7 to hear from you on it.

8 CHAIRMAN JACKSON: Let me reference the historical
9 record. I felt it was necessary to understand what guidance
10 the staff was operating under from the Commission and
11 therefore what expectations were built into this process.

12 I am looking at a Staff Requirements Memorandum
13 dated 1989, December. It said in SECY 89-311 the staff
14 requested guidance on whether new generations of reactor
15 designs should be demonstrably safer than the current
16 generation.

17 And then it goes on. The SRM is that the
18 Commission with all Commissioners agreeing reaffirms its
19 expectation stated in the policy statement on severe reactor
20 accidents regarding future designs and existing plants that
21 vendors engaged in designing new standard plants will
22 achieve a higher standard of severe accident safety
23 performance than their prior designs.

24 And then it goes on from there and talks about
25 ways of referencing that.

1 SECY 91-262 SRM. The Commission with all
2 Commissioners agreeing has approved the staff's
3 recommendation to proceed with design-specific rulemakings
4 through individual design certifications to resolve selected
5 technical and severe accident issues for the ABWR and the
6 ABB System 80+ designs.

7 I'm sure you know where I am going here.

8 MR. COLVIN: I believe I do.

9 CHAIRMAN JACKSON: My understanding is that the
10 staff was operating from clear guidance and therefore that
11 guidance propagated clear expectations into the process in
12 terms of what the standard would be for the new design. I
13 think then the certification says that you've gotten there,
14 and that's the way these plants are designed.

15 Here we have a situation where we are talking
16 about stability of regulatory process vice stability of
17 design. It sounds like the argument is being posed as if
18 it's mutually exclusive.

19 I have some sort of straw men I want to throw out
20 that I think perhaps suggest that it's not mutually
21 exclusive, but I want to see first, before I start marching
22 straw men across the table, whether my fellow Commissioner
23 Dicus has any questions she would like to ask.

24 COMMISSIONER DICUS: You can march your straw men
25 across the table.

1 CHAIRMAN JACKSON: Let me see if I understand the
2 problem. I made some notes here. It focuses on a provision
3 proposed in Part 52 which says that the design certification
4 may be modified when necessary to comply with regulations
5 used in the original safety review.

6 You believe that these special requirements,
7 because they are new and in some cases reflect new and maybe
8 changing scientific knowledge and are intended to reflect a
9 level of safety beyond the current generation of reactors,
10 ought not to be treated the same as other regulations in
11 this respect.

12 Is that a reasonable statement?

13 MR. COLVIN: Please go ahead. I would like to
14 hear the whole straw man, if I might, before I commit to an
15 answer.

16 CHAIRMAN JACKSON: So you are where you are. You
17 have designed the way you have designed. Don't worry. I'm
18 not setting you up completely.

19 [Laughter.]

20 MR. COLVIN: I never expected that, Chairman
21 Jackson.

22 CHAIRMAN JACKSON: Suppose we codified the new
23 requirements into the certification rule as the staff
24 suggests but also include in the rule a special provision to
25 ameliorate the instability associated with compliance

1 backfits. Are you with me so far?

2 MR. COLVIN: Still there, yes.

3 CHAIRMAN JACKSON: Suppose the statement of
4 considerations stated that the Commission has found that the
5 design meets all applicable regulations, including these new
6 ones, but that the Commission wouldn't require a change
7 merely because of improvements in technology or
8 reinterpretation of the applicable new regulation unless
9 because of significant new information there is significant
10 noncompliance with an applicable regulation, and that would
11 be a noncompliance that would lead to some substantial
12 reduction in safety margin, and that the change would have
13 to be cost-justified to return to the level of safety
14 protection that would be codified in the rule to start with,
15 and there could even be an attempt to put some qualitative
16 measures in to define what reduction in safety or
17 significant reduction in safety would mean.

18 I guess I would like to get your response, your
19 reaction.

20 MR. COLVIN: I think those types of issues are
21 things that we ought to look at. I'd have to sit and think
22 about the specifics, and I would ask the other people on the
23 panel to give you a response.

24 I would like to take one step backwards before
25 letting people comment. I guess one of the concerns that I

1 have and that we have talked about is that we don't penalize
2 the advanced designs by ratcheting up regulations behind
3 them.

4 CHAIRMAN JACKSON: This would not be a ratcheting.
5 I would say, here we are, and that these designs were
6 developed and certified with this enhanced safety margin
7 built in which references severe accident issues, and we say
8 that the design meets those. But now, if there is some
9 significant erosion away from that, because that's the basis
10 on which we are certifying these designs, then that would be
11 the only time that a change could be put on that design, but
12 it would have to be cost-justified and it would have to be
13 oriented to bringing it back up to the level we certified to
14 start with.

15 MR. COLVIN: Let me ask Dave Rehn to take a shot
16 at this first, and then Bill Rasin.

17 MR. REHN: I will just give you a reaction, maybe
18 a personal reaction. I think, as Joe stated, we set about
19 to design these -- clearly we agree that in 1989 the
20 Commission guidance underscored the policy that we wanted to
21 significantly enhance the safety of these designs. We were
22 raising the bar, and we wanted to raise the bar as high as
23 we could.

24 CHAIRMAN JACKSON: And you have done it.

25 MR. REHN: We believe we have done that. I also

1 have some quotations from the SRM on SECY 89-102 that
2 indicate that the NRC was directed not to use our design
3 objectives as a basis for establishing new requirements, and
4 in the response to SECY 89-311 also stated that the vendor
5 and EPRI goals that go beyond the regulation should not be
6 imposed as requirements.

7 CHAIRMAN JACKSON: You and I could read back and
8 forth. I can look into some Federal Register notice and
9 talk some more.

10 MR. REHN: Yes. The reaction to this, I guess, is
11 when we talk about significant change, at some point as we
12 have raised the bar, if we have introduced a factor of ten
13 or a factor of 100, what indeed is significant on a design?

14 CHAIRMAN JACKSON: That's the point that we're not
15 going to sit here and argue. I'm talking about the
16 approach, not what definition of significant change is.
17 That's the kind of thing that should be resolved at a staff
18 to staff level.

19 MR. REHN: Inherent in that, I guess, is a concept
20 or a philosophy that we indeed are now codifying some
21 additional margin that we would have to satisfy in these
22 designs that go beyond what is currently the defined level
23 that ensures, as Commissioner Rogers has stated, the
24 adequate protection of safety.

25 CHAIRMAN JACKSON: But was not that the

1 operational basis on which the design certification
2 proceeded and that you designed to?

3 MR. REHN: Yes, that indeed was the intent of
4 these designs, to go in that direction and to raise the bar
5 as far as we could.

6 CHAIRMAN JACKSON: And aren't you happy and proud
7 of what you have?

8 MR. REHN: Certainly.

9 MR. RASIN: If I may add, I have to tell you that
10 I have spent many years in safety analysis and in severe
11 accident issues and doing analyses to consider what is
12 reasonable, what is significant, how much does it cost. The
13 staff and the industry spend a lot time in that. I would
14 emphasize "a lot." Because you are really into a
15 philosophical debate.

16 I guess I view this a little bit differently, and
17 I think Commissioner Rogers had a good trend going when he
18 was talking about the adequate protection being one level of
19 regulation, and certainly many of the regulations in place
20 go beyond that on a cost-benefit basis.

21 What we did when we started out this design -- I
22 remember sitting in the room at EPRI at the time I was with
23 Duke Power as well -- we defined what we were going to do
24 and how we were going to try to resolve these severe
25 accident issues not because of regulatory concerns, but

1 because we did not want them to be licensing issues. So we
2 thought, well, let's take them and let's show in the design
3 that we can deal with them so that they will not have to be
4 licensing issues.

5 I will remind you of a study done by the
6 Commission that I consider the most comprehensive reactor
7 safety study ever undertaken, and that's NUREG-1150.
8 NUREG-1150 studied five existing designs and showed that
9 even with uncertainties, all uncertainties of the time
10 taken into account, that those existing plants came up below
11 the Commission's safety goals and the top of those
12 uncertainty bands was about an order of magnitude below
13 those goals. We undertook to address the issues that were
14 in the top of that uncertainty band and assure that to the
15 best technology at the time we in fact could address them.

16 We have talked now that somewhere between an order
17 of magnitude one or more has been attained, and so surely
18 not only the absolute safety value but the uncertainty bands
19 are even further below the Commission's safety goals.

20 I guess the simple question comes, how far down do
21 we have to go to achieve that and then still argue over
22 issues of what is significant, how big is big, how much
23 would it cost through analyses that we are all very clever
24 at doing, which maybe provide us good job security? I think
25 the fundament issue is you try to do the best you can with

1 the state of the art of the technology at the time, and how
2 far down do you have to go before we stop doing that?

3 CHAIRMAN JACKSON: I don't think what we are
4 talking about is going any further than where you already
5 area today.

6 MR. MATZIE: Regis Matzie. I would like to
7 comment directly to your straw man. In listening to it, it
8 sounds as if based on new information, if the analyzed level
9 of safety passed some trigger point of degradation, it would
10 launch into this process where you would try to recover all
11 of that. By doing that, you would de facto be regulating to
12 this voluntary increase in the level of safety that we
13 currently have established for these advanced designs.

14 So despite the process you mentioned, you would in
15 that process that you straw-manned be regulating to what we
16 think is a dramatic improvement which was voluntary and in
17 the spirit of the severe accident policy.

18 My second point is that if in fact we were to
19 think there was some approach like this, the key to that
20 would be how to put measurable values on the various
21 conditional criteria that you were talking about, and in
22 fact to the extent they are not really measurable is where
23 all the licensing instability lies, because it allows
24 interpretation, and that is what will happen, because it has
25 always happened and there is no reason to expect any

1 different approach when they are not clearly quantified.

2 I think you have got to keep those two factors in
3 mind with some type of a straw man approach like this.

4 MR. HUCIK: The issue is we have to get design
5 requirements that we can understand and meet without the
6 subjective interpretations that even we as vendors can
7 interpret somewhat differently. That's one of the key
8 issues.

9 MR. COLVIN: Chairman Jackson, if I might, I'm a
10 pretty simple thinker on some of these things. Maybe I
11 could try to take this one step backwards. When we started
12 this whole process back when the Commission worked on Part
13 52 we had these same types of discussions. Commissioner
14 Rogers remembers well, I'm sure, probably better than I.

15 CHAIRMAN JACKSON: You have to teach us babies.

16 [Laughter.]

17 MR. COLVIN: We in fact sat across these tables
18 and other tables talking about these issues. The key, at
19 least in our view, was that we would through this process
20 and through the in-depth analysis and evaluation and
21 oversight by the staff through this entire process come up
22 at the point of design certification all agreeing that the
23 design was safe. I think that's where we are today, at
24 least from the comments we've had.

25 When you look at the rule, however, we debated

1 would we allow anyone to make changes to those designs
2 beyond that point that were not necessary for adequate
3 protection. The answer to that was no, that the Commission
4 could not do that by its own rulemaking, that the public
5 upon a 2206 or other request could not do that, nor could we
6 or the design certification entity. The threshold was
7 elevated to a new plane, and that is adequate protection or
8 compliance, in essence. I think there is one other element
9 that I don't remember. But it is not backfit; it is not new
10 information.

11 I think from a policy standpoint we debated these
12 issues in the 1989 time frame and aired them in the public
13 with the previous commissions, and this was a step that we
14 came to. So I think in your proposal, while that today
15 might be something that we need to talk about because of the
16 concerns of the Commission staff, what we are doing is in
17 fact now, in my view, embarking on a major change in policy
18 at a time when we have expended hundreds of millions of
19 dollars in these designs, and we are on the verge of
20 certifying these designs and move forward.

21 So from more of a simple point of view, I think
22 that's where at least I see the level of discussion that we
23 are in as it applies to applicable regulations.

24 CHAIRMAN JACKSON: Commissioner Rogers.

25 COMMISSIONER ROGERS: I think it's a very

1 important issue. I want to be a little careful about
2 recounting my recollection of the historical development of
3 something, because it can be wrong. I have a kind of
4 feeling about what we thought about at the time, and I am
5 not going to try to reconstruct that here because it could
6 quite possibly be flawed and very idiosyncratic.

7 I do think there is a little question about what
8 the Commission really had in mind at that time when it said
9 applicable regulations. I think that has got to be looked
10 at very carefully, because there is an issue of continuity
11 here of policy, a very important issue of continuity of
12 policy. Hundreds and hundreds of millions of dollars have
13 been expended by us, by you, and so on and so forth. I
14 think we ought to be very, very careful that we don't
15 suddenly decide that we are going to reinterpret something
16 that really formed the basis for major Commission action and
17 industry action over a period of about ten years.

18 I think this question of applicable regulations is
19 something we have to look at very carefully: What did the
20 Commission have in mind at the time, and are there any
21 wrinkles that have developed in the meantime about
22 applicable regulations that reveal that the Commission
23 hadn't really thought everything through about applicable
24 regulations?

25 As you know, we have occasionally found that we

1 didn't think everything through on things. Like Art Dukler.
2 So I'm not willing to say that we are absolutely sure that
3 we thought everything through. I am not opening that door
4 very wide, but I think that one has to reserve at least a
5 little effort to look to see whether there is something in
6 this applicable regulations that the Commission had in mind
7 at the time that we launched this whole thing and some
8 considerations that are arising from the staff at this time.

9 I am personally going to reserve my own judgment
10 on this to see that that is looked at very carefully, but I
11 personally would not be in favor of a redefinition of
12 applicable regulations at this time that represents a major
13 departure from what the record and anything else we can find
14 to have been the Commission's position when we started this
15 whole process. I think it would be very unfortunate if we
16 move in that direction.

17 I am not going to say how I think about applicable
18 regulations at the moment, but I do think it is a very key
19 issue and it is one that should not be done without a great
20 deal of examination of what we all had in mind when we
21 started off on this process and whether at some point along
22 the way it has turned up that there is an element in this
23 interpretation that needs to be looked at a little bit
24 harder.

25 I think that is about as far as I want to go in

1 public at this point, but I do think that the issue is a
2 very, very important one. It is not a simple one, and I
3 think it does merit very careful review of all Commission
4 actions and understandings at the time that we started down
5 this road.

6 We went through great efforts to get to this point
7 with the approval of the designs, and now we are in the
8 process of firming that up in the certification of those
9 designs through rulemaking. That was always the
10 expectation, that that is the end point. Not the staff
11 approval, but the rulemaking which locks it in place. We
12 all recognize that that rulemaking would establish
13 constraints on all of us about what could be changed and
14 what could not be changed, and we bought into it publicly.
15 I think we have to recognize that that is all there, and I
16 for one would not want to see us undermine that process in
17 any way. I think that is very, very important.

18 I do think there is an issue here that has to be
19 settled with the NRC and the industry. I think we have to
20 look at it very carefully to see whether there isn't
21 something where we need to clarify a point that perhaps our
22 staff has uncovered in some way. I would ask you to keep an
23 open mind on that, but I would also want to underscore the
24 necessity of continuity of Commission policy with respect to
25 this whole process, because there is an awful lot at stake,

1 and I certainly wouldn't want to see us somehow or other
2 suddenly redefine something in such a way that it really
3 undermines the whole process that we have gone through for
4 ten years.

5 CHAIRMAN JACKSON: Anything else, Commissioner
6 Dicus?

7 COMMISSIONER DICUS: No.

8 MR. COLVIN: Chairman Jackson, with your
9 permission, we would like to make a few brief comments on
10 the ITAAC issue. I know that you are interested in getting
11 the staff on and listening to staff, as are we. If I could
12 ask Dave to give us some brief comments on ITAAC and make
13 them brief.

14 CHAIRMAN JACKSON: Why don't you just start by
15 telling us how far apart you really are at this time.

16 MR. REHN: I think in the area of ITAAC
17 verification the staff and the industry are extremely close.
18 The major difference is really our belief that we need some
19 additional language or provision in the certification rule
20 that addresses the fashion in which ITAAC are to be enacted.
21 I believe in our statements that we have sent in in response
22 to the SECYs we have gone over the language that we would
23 propose to see included and the basis for doing that.

24 Our emphasis here is that we believe ITAAC is a
25 significant part if not the heart of Part 52 and that it

1 will be sometime in the future until ITAACs are indeed
2 implemented. We think the knowledge and wisdom that is
3 current ought to be imparted on those through these
4 provisions in the certification rule such that they will
5 have the benefit of that knowledge when we reach that time.

6 We completely agree with the examples that the
7 staff included in their paper. We think that is clearly
8 appropriate. However, we don't want to have any
9 misinterpretation about our comments relative to ITAAC
10 verification and other issues associated with the quality
11 assurance program.

12 I think we all need to remember that indeed these
13 construction processes will still be subject to Part 50, and
14 problems associated with the quality assurance program
15 clearly fall under that, and the NRC inspectors that will be
16 involved will have all of the enforcement responsibilities
17 associated with that implementation and following up on
18 those issues. We believe that is a process that has worked
19 very well to date in terms of dealing with those issues.

20 In summation, I think that is where we are. In
21 the interest of brevity, I won't go over all the points, but
22 we have submitted those to you in writing.

23 CHAIRMAN JACKSON: Unless my fellow Commissioners
24 have any comments, I think we should hear from the staff.

25 MR. COLVIN: Thank you very much.

1 CHAIRMAN JACKSON: Mr. Taylor, I have already
2 given my introductory remarks.

3 MR. TAYLOR: Good afternoon. With me at the table
4 from NRR, Bill Russell, Denny Crutchfield, Ted Quay, and
5 Jerry Wilson.

6 I would open on behalf of the staff by
7 acknowledging the enormity of the effort of GE, ABB, the
8 industry, and NRC to get to this point in certification and
9 thereby the importance of all of us satisfactorily resolving
10 the remaining issues.

11 With that thought, Bill Russell will continue.

12 MR. RUSSELL: I am going to try and cut the staff
13 presentation in half by saying that we are in agreement with
14 the issues identified by the industry in their recent letter
15 as it relates to ITAAC. That is, we believe that there must
16 be a direct link between issues that may be of a
17 programmatic nature, such as a quality assurance deficiency,
18 that that particular deficiency has to be linked to a
19 particular ITAAC so that there is an issue that is material
20 to the finding that an ITAAC has or has not been met.

21 I have had some dialogue with general counsel,
22 with Marty, and we believe that the language that the
23 industry has proposed is already embodied within the rule as
24 it is currently described, but with the additional language,
25 if that provides additional clarification, we would not

1 object to that language.

2 We would like to cover some background material as
3 it relates to applicable regulations, because we feel that
4 this is the more significant issue to deal with. I would
5 like to have Denny Crutchfield go through some background
6 and then I will provide some remarks also.

7 MR. CRUTCHFIELD: Good afternoon. If I could have
8 the first slide, please.

9 [Slide.]

10 MR. CRUTCHFIELD: When we developed the rules
11 initially relative to standardization in Part 52, as
12 Commissioners have noted, in 1992 a couple of Commission
13 papers came out and we discussed the rule form and content.

14 We published an advance notice of proposed
15 rulemaking. In that advance notice in 1993 we addressed the
16 issues of applicable regulations. The subject has been
17 woven through the standardization process, severe accident
18 policy process for a rather long period of time.

19 We held a workshop in 1993. As indicated
20 previously, the FDAs for both vendors were issued in the
21 summer of 1994.

22 We published a notice of proposed rulemaking,
23 including issues of ITAAC verification and applicable
24 regulations, in the Federal Register in April of 1995.

25 Received comments in the August time frame. NEI

1 comments were supported by industry, GE, CE, and the
2 Department of Energy, as well as others. Again, as
3 indicated previously, these comments were mostly process
4 comments. The only set of technical comments we received
5 were from the Citizens for Responsible energy.

6 We held subsequent workshops on these two
7 certification rule proposals, and we are in the final stages
8 of putting these rules together to present to the
9 Commission. Our target is to get them to the Commission by
10 the end of this month.

11 [Slide.]

12 MR. CRUTCHFIELD: Industry's comments focused on a
13 number of major issues. They were process-related issues.
14 Their comments in August, their comments in March were both
15 process-related.

16 The two items of principal interest, applicable
17 regulations and ITAAC verification, are being discussed
18 today. Dave Rehn mentioned the post design certification
19 change process, and we can pick that up at a later time.

20 Again, the focus today and this afternoon is going
21 to be on applicable regulations.

22 We believe all the other issues will be
23 satisfactorily resolved in the rule packages that come
24 forward to the Commission by the end of the month.

25 [Slide.]

1 MR. CRUTCHFIELD: Some of the history on
2 applicable regulations goes back to when the staff was
3 initially doing the rules. As Commissioner Rogers
4 remembers, the staff was proposing for standard plants going
5 beyond where we were. In some cases they were release from
6 the regulations; in other cases there were additional
7 requirements that were being laid on.

8 In accordance with the guidance from the
9 Commission, we came to the Commission; we went out to
10 industry to seek guidance, to seek comment on it; we went to
11 the ACRS and got comment on it; we presented those views to
12 the Commission and got Commission guidance back and began
13 the implementation process.

14 Both designs, as indicated previously, do satisfy
15 the technical aspects related to these applicable
16 regulations. There is no question that they meet those. We
17 don't think that any of these new issues should be required
18 or implemented at the fleet of operating plants unless there
19 is a specific rulemaking that goes forth relative to that.

20 A couple of areas where we are looking at
21 rulemaking are steam generators and shutdown risk areas, but
22 there is specific rulemaking relative to operating plants.

23 [Slide.]

24 MR. CRUTCHFIELD: Why do we need these applicable
25 regulations?

1 As indicated previously by the Chairman in her
2 discussion and her research, there has been a decision to
3 make these things safer than the existing fleet of plants.
4 That policy has been carried out in the certification rules
5 as applicable regulations.

6 In general, industry argues that the
7 design-specific rules, the design control document and the
8 ITAAC are sufficient; we don't need applicable regulations;
9 they are sufficient.

10 The staff believes that argument is a flawed
11 argument. The design control document specifies features,
12 it specifies hardware, it specifies designs that meet the
13 applicable regulations. It does not specify what the
14 criteria are.

15 Without the applicable regulations there is no
16 standard to measure change. How do you measure what the
17 acceptability of a change would be? The design control
18 document does contain an acceptable way of meeting the
19 applicable regulation, but there may be other ways; there
20 may be more than one way to meet that.

21 The ITAAC are written to verify as-built
22 configurations, and basically the ITAAC cease to exist at
23 fuel load. They are no longer appropriate, no longer
24 applicable.

25 Our intent is not to require a change because

1 there is a newer, better way of doing something. I think
2 the Chairman captured in her straw man what our intent is
3 relative to changed requirements or change that occurs as a
4 result of a new requirment or better methodology or
5 increased understanding of some of the issues.

6 [Slide.]

7 MR. CRUTCHFIELD: The applicable regulations
8 generally fall into three areas.

9 The first area are rules that are currently under
10 development that we are involved in, that the industry is
11 involved in.

12 They also involve what we consider to be
13 enhancements. A couple of examples are given here.

14 Station blackout. Station blackout requirements
15 in the current regulations require either a coping analysis
16 or an alternative source of AC power. The staff, with
17 Commission approval and agreement, has gone forward and said
18 coping is not an acceptable alternative for these advanced
19 designs; we want to have the alternate AC power. Industry
20 has put those alternate AC considerations into the specific
21 designs. So they are met.

22 [Slide.]

23 MR. CRUTCHFIELD: The last category of issues
24 relates to severe accident issues. The four of concern
25 under this category are listed: Core debris cooling,

1 equipment survivability, containment performance, and high
2 pressure melt ejection.

3 Again, staff has concluded in its SER technical
4 requirements are met relative to these issues by each of the
5 designs. These applicable regulations are there, in our
6 view, to get the further margin.

7 How do we relate these severe accidents to the
8 design certification rules? As mentioned previously, there
9 is a list on the next slide that indicates the substantial
10 amount of effort that both industry and the staff have
11 involved in this.

12 [Slide.]

13 MR. CRUTCHFIELD: I won't go through the SECY
14 papers. Design-specific rulemakings, as the Chairman
15 indicated, were the vehicle to accomplish this.

16 Also, on two SECY papers, 90-016 and 93-087, we
17 talked about the resolutions to many of these issues, the
18 policy, technical and licensing issues that were appropriate
19 for the higher level of safety for the advanced light water
20 reactors.

21 [Slide.]

22 MR. CRUTCHFIELD: In the SRM on SECY 91-262 we
23 were directed to proceed with design-specific rulemakings
24 for GE and CE relative to the advanced light water reactors,
25 the AP-600 and SBWR. Those decisions were deferred until

1 after we finished the certification rulemakings for the
2 first two designs.

3 Basically, I have laid out where we have been and
4 where we currently are. Bill now has a potential resolution
5 issue.

6 MR. RUSSELL: I would like to say first that based
7 upon the industry comments, we are in the process of looking
8 at each of the applicable regulations, because they have a
9 different character, depending upon whether it's related to
10 severe accidents or it's related to specific hardware types
11 of issues. It may be that some are not necessary if there
12 is an adequate description already of the requirement and
13 that that requirement is unlikely to change.

14 For example, in the area of interfacing system
15 LOCA, particularly at the high pressure/low pressure
16 interface resolution, we have regulations that address
17 integrity of design, but those regulations do not specify
18 pressures to be met with the design of the piping.

19 In this case we raised the design pressure such
20 that when you considered the margin design, it would be
21 unlikely to have a piping failure even if the piping did not
22 adequately isolate. So we went on RHR systems from a
23 typical pressure of 450 pounds to 900 pounds so we would
24 have assurance that even in the unlikely event that it did
25 not isolate that it would not rupture.

1 That is basically an interpretation of how to meet
2 satisfactorily regulations that already exist. So we are
3 going back to see whether the broad regulations are
4 sufficient, and the design requirement that exists, we
5 agree, meets the intent of resolving interfacing system
6 LOCA, but we don't have a rule today that calls for
7 inter-system LOCAs to be explicitly addressed by rule; it is
8 embodied within other areas. We think there are others like
9 that.

10 CHAIRMAN JACKSON: So you don't have at this point
11 any capture basins in terms of what falls into one basin
12 versus another?

13 MR. CRUTCHFIELD: I think at this point we can say
14 we believe that there is no category which captures the four
15 applicable regulations which are related to severe
16 accidents, enclosure of severe accidents. That is the area
17 that gives the staff the most concern. There may be others
18 where we have gone beyond current regulations or policy
19 where we do not have an adequate description of that in the
20 Tier 1 material which is being codified by rule. But we are
21 going back to re-look at those.

22 So the process I am describing is that the staff
23 is now, based upon the industry comments, looking at these
24 again for each of the applicable regulations, and we believe
25 that there may be some reduction in the number of applicable

1 regulations, but not all.

2 There is an issue that is associated with changes,
3 not just new information that may indicate that the level of
4 safety was not achieved, but this process provides that
5 change may be made by a licensee through a 50.59-like
6 process, and the staff would necessarily be in a mode of
7 reviewing whether that would was an acceptable change or
8 not.

9 We have proposed language for the 50.59-like
10 process to address severe accidents. Where we had
11 previously looked at probability under the current 50.59,
12 increase in probability or increase in consequence, we have
13 indicated an increase in probability of such an accident
14 which was considered to be not credible as now credible.

15 If you look in the history, we actually had a
16 process we went through, and so there is a history as to how
17 we made those judgments both in using risk insight and other
18 techniques. So there is a history of how that was done.
19 What we are saying is if they make a change that would cause
20 that process to no longer be valid, then that would not pass
21 the 50.59-like test.

22 Let me illustrate two examples in the severe
23 accident area where change could be made that would give us
24 a concern that is not controlled completely by the process
25 absent a rule that would require that you address severe

1 accidents.

2 One is in the design of the advanced boiling water
3 reactor. There is an area under the reactor which is
4 designed, should you have a core melt accident, to spread
5 it, keep it away from structural steel, and then
6 subsequently quench it.

7 There is also an area in this space which is
8 designed so that you can do maintenance on equipment under
9 the reactor. In this case the control drive mechanisms.
10 There are techniques for automating that equipment, et
11 cetera.

12 We did not do analyses that presumed that there
13 would be intervening materials there. That is, during
14 operation that a core melt would proceed to the floor and
15 not be delayed or impeded by any intervening structure
16 material. If for operational convenience a utility decided
17 to maintain this equipment under vessel rather than taking
18 it out each time, that would change the assumptions under
19 which we made our conclusions regarding the molten material
20 being on the floor before it's quenched rather than
21 something else.

22 So there could be operational considerations with
23 respect to how they are operating that could make severe
24 accidents more severe, could potentially change the
25 conclusions about resolution of severe accidents.

1 A second example relates to high pressure core
2 melt. This is one that we addressed in two methods. First,
3 we wanted to have a highly reliable depressurization system
4 such that the likelihood of a high pressure core melt would
5 be small. We went through an analysis, and there is a
6 record as to what assumptions were made on reliability,
7 availability of the depressurization system.

8 We also wanted to make sure that if a high
9 pressure melt did occur notwithstanding those best efforts
10 that molten material would not directly go to the airspace
11 such that you would have the potential for direct
12 containment heating; a labyrinth path by which the material
13 would be held up, and you would not have that concern.

14 I don't believe we are talking about changes as to
15 what would happen to that path, but if materials were stored
16 in that path or other things, you could have a different
17 outcome. Or if the systems which you were relying on to
18 depressurize were not as available as you had assumed, if
19 you operate with a power operated relief valve that is
20 blocked because of leakage, et cetera, you could change some
21 of the assumptions and the bases for concluding that these
22 are resolved.

23 Those types of things which are operational in
24 nature that could impact the resolution of issues which are
25 embodied in both design and operation are of concern to the

1 staff, and we want to make sure that how it is operated in
2 addition to how it is designed captures the concept that
3 severe accidents are in fact resolved and that we operate it
4 in a manner that is not going to undo some of the design
5 features that have been put in.

6 So we do believe that there is an issue related to
7 the 50.59-like change process as it relates to severe
8 accidents both in the context of the staff overseeing
9 changes which can be made by the company or, in this case,
10 by a licensee, and be able to conclude whether that is an
11 appropriate or not an appropriate change.

12 Secondly, they may conclude that it cannot be done
13 without an amendment, and that if they want to change
14 something that is not required in the tier 1 material, that
15 would take a rule change or an exemption, but is something
16 which can be done to tier 2 material by way of an amendment.
17 We need a standard to judge whether that amendment is
18 acceptable. That is, the design certification identifies
19 one way of meeting the objective. There may be others, and
20 we would need to have some mechanism to conclude that it met
21 the regulation and was otherwise acceptable.

22 The final area relates to license renewal. That
23 is, if you want to renew a license, the rules and
24 regulations and the intended functions that are related to
25 that, features that are intended for severe accidents. We

1 want to make sure that those features are maintained and are
2 still able to perform their functions.

3 So we believe the approach is one to look at. We
4 feel strongly that we will re-look at the individual
5 applicable regulations. There may be some number that we
6 can conclude are unnecessary.

7 Secondly, we feel that some applicable regulations
8 are necessary particularly as it relates to severe
9 accidents, and we think that is consistent with the
10 Commission direction when we proposed deferring rulemaking
11 on severe accidents until we had done these design reviews.
12 It would not be appropriate at this point in time to stop
13 for generic rulemaking on severe accidents and then certify
14 the designs. That would be a few year delay.

15 But we do agree that just having new information
16 and using a compliance exception to the backfit rule without
17 considering cost would not be appropriate. We believe that
18 the new information needs to be substantial and it has to
19 show that there is clearly a benefit when the costs are
20 considered with the benefits achieved.

21 When we are in severe accident discussion,
22 adequate protection really doesn't apply based upon the
23 policy statements. That is, we have said that severe
24 accidents are essentially beyond the adequate protection
25 level. It's also true, though, that compliance is really

1 not appropriate in the context of adequate protection
2 without consideration of cost, because these are clearly
3 enhancements which are beyond the adequate protection
4 level.

5 So I agree with the Chairman's proposed straw man
6 that where new information is available that indicates that
7 you have not achieved the resolution of severe accidents as
8 you thought you had in this design, if there is some new
9 information, you ought to look at that new information;
10 there ought to be some vehicle for potentially being able to
11 require designs be changed, but they ought to consider the
12 costs with that and the benefit that is achieved.

13 So we believe that we can identify appropriate
14 language which would identify a high threshold for doing
15 that so that this is not done just by a reinterpretation of
16 existing information, but that it is new information not
17 known at this time, and that the costs and benefits are
18 evaluated before making a decision to backfit, and that the
19 backfitting would only be done through a rulemaking. That
20 is, you would not do it as a compliance backfit on an
21 individual case through generic letter or some other
22 communication; that it would be appropriate to do through a
23 rulemaking only.

24 That completes our comments.

25 CHAIRMAN JACKSON: Thank you.

1 Commissioner Rogers.

2 COMMISSIONER ROGERS: I think this is a very
3 helpful discussion. A couple of questions and observations.

4 It sounds to me as if in effect we are redefining
5 the design-basis accident to essentially include severe
6 accident considerations; that really what we are thinking
7 about is sweeping those things back into what we insist is
8 necessary in the design, which makes it a design-basis
9 accident.

10 In effect, isn't that really what you are doing
11 when you are starting to focus now on the severe accident
12 issues, that really we are beginning to treat those as
13 design-basis accidents?

14 I know that you are going to come back to the
15 adequate protection argument that they are very unlikely.
16 Isn't that what we are doing in effect?

17 MR. RUSSELL: We are trying very hard not to do
18 that, because a design-basis accident has a very
19 prescriptive process by which you follow essentially a
20 described method of analysis against which you measure very
21 precisely whether you have or have not resolved it. We have
22 tried very hard not to have resolution of severe accidents
23 be based upon a formula type process.

24 We had a lot of discussion about how big should
25 the spreading area be to spread the core. We didn't want to

1 use a number of so many kilowatts per square meter of
2 spreading area. So we do not wish to make severe accidents
3 explicit calculations against a standard and then say go or
4 no go against that specific calculation, because there is a
5 lot of uncertainty in what is going on.

6 Many of them are issues that we may not be able to
7 resolve that way, that we said essentially we can address
8 this with design features; we cannot really quantify what is
9 the probability of occurrence; so let's resolve it by saying
10 it could occur, put design features in because you can do
11 that when you are designing a plant that you would not be
12 able to do through a backfit process.

13 COMMISSIONER ROGERS: That's what they did.
14 That's what they built in.

15 MR. RUSSELL: And what we are talking about is
16 making sure that those features which are put in are not
17 eroded either through operation or through significant new
18 information such that the resolution, closure of severe
19 accidents is still maintained.

20 COMMISSIONER ROGERS: It does seem to me that one
21 philosophically ought to separate the operation from the
22 design questions. The kinds of operational situations
23 you've described, it seems to me there ought to be a way to
24 handle those that is quite different from the way you would
25 handle a hardware design question. What you talked about

1 was really basically a housekeeping situation. It's a
2 little bit like plugging up the floor drain situation.
3 You've got to keep that area such that it serves its
4 function and that function is not interfered with by some
5 extraneous material or equipment.

6 I don't want to debate it, but it does seem to me
7 that is a different kind of issue from an issue that relates
8 to the actual design question, the hardware question. I
9 wonder if one might not be able to approach this a little
10 bit from that point of view. I think your points are very
11 well taken, but we normally deal with those in a rather
12 broad way in insisting that plant safety be maintained and
13 the objectives of the design be maintained in the operation
14 of the plant. Certainly that would be a violation of that
15 consideration if they were not careful.

16 MR. RUSSELL: That is the issue that we are
17 dealing with. If there is not a requirement in a regulation
18 to say that you cannot store material under the vessel,
19 potentially the function is to ensure severe accidents. If
20 you have a core melt that goes ex-vessel and that melt goes
21 immediately to the floor of the spreading area, our basis to
22 say you cannot keep it under there is really in the context
23 of severe accidents.

24 COMMISSIONER ROGERS: Yes.

25 MR. RUSSELL: An ex-vessel core melt. That is not

1 to say that we might not be able to jawbone them if we find
2 that they are doing that. I am just pointing out that there
3 is not a regulatory basis to say that you are required to
4 address severe accidents from the standpoint of a
5 regulation.

6 COMMISSIONER ROGERS: I think that is a good point
7 and an important one. I don't want to try to settle it
8 here. It is something that has to be looked at very
9 carefully. It does seem to me that the design accident
10 considerations are important; they have been designed to
11 meet those. How this is maintained into the future with
12 those designs is an important consideration, and I want to
13 just leave it right there and not try to settle anything
14 more on it right here. I think that is very valid.

15 I will tell you what bothers me a bit. In your
16 slides on page 4, it says the "Commission has directed that
17 standard plants be safer than existing plants." Certainly
18 we have already said that half a dozen times here today.

19 And the bullet says "Policy was translated into
20 the Design Certification Rules" -- yes, indeed, it was --
21 "as applicable regulations."

22 I think that is where the issue is coming. We are
23 talking now about applicable regulations as if they exist.
24 They don't exist yet. They are proposed applicable
25 regulations. The language in the original rule, as I

1 recall, was applicable regulations. So whatever applied
2 that existed. Not something in the future, but whatever
3 applied. Well, what did that really mean? What does that
4 really mean? Applicable when? At what time in the process?

5 There is a question that I think we have to look
6 at and I know I'm going to have to look at, because I don't
7 really know what the answer is. So I think there is an
8 issue there of how to interpret applicable regulations.
9 Applicable at what time? At the time we passed the rule?
10 At the time the plant design was approved? At the time that
11 it was certified? When?

12 So I think there is an issue that I'm a little
13 uncomfortable about with respect to how one defines
14 applicable regulations. To me applicable regulations means
15 they exist, not that they are something that you are going
16 to create, but that they exist.

17 That is a little complex, because you've already
18 pointed out that in dealing with a severe accident situation
19 we don't want to mix any proposed rulemaking there into this
20 process right now because it might delay everything for a
21 couple of years. So there is a complexity here that I think
22 needs to be clarified.

23 I do not believe that the Commission at the time
24 that we were talking about the design certification rule
25 thought that applicable regulations meant a whole host of

1 new regulations. I think we focused on the design
2 certification as a rule, and a rule is a regulation, but
3 it's in the design; it's an operational definition rather
4 than another kind of definition.

5 I think that is the issue. I think what you are
6 trying to do now is to extract from the design itself a set
7 of rules that you can construct from the engineering point
8 of view that led to the design. I think that is where the
9 problem is coming, that these designs were established to
10 meet certain goals, and they did. But now what we are
11 trying to do here, or we are suggesting, is that we want to
12 take those, abstract them in a sense from the design, and
13 create a set of rules from them. I think that is where the
14 argument is.

15 MR. RUSSELL: That was not our intent.

16 COMMISSIONER ROGERS: No, but I think it looks
17 that way, and if that is not the intent, then I think we
18 have to be very careful about it, because it has that
19 appearance at this point.

20 CHAIRMAN JACKSON: How do you argue that you
21 aren't de facto doing that?

22 MR. RUSSELL: During the review process where we
23 had identified issues that were beyond the current
24 regulations as they existed at the time of the review,
25 whether it was a staff interpretation or it was a new rule,

1 each of those issues were brought to the Commission and the
2 Commission made a decision in the course of the review that
3 it was appropriate to go beyond the existing regulations.
4 Our intent was to do a housekeeping, to codify those
5 Commission decisions that were made in the course of the
6 review such that when we did the rulemaking for the design
7 certification those Commission decisions would in essence
8 become the rules under which the review was conducted.

9 COMMISSIONER ROGERS: I think it would be very
10 helpful to us all and particularly to me, even though I was
11 there at the time, if you could provide that documentation
12 to give us the track through that.

13 MR. CRUTCHFIELD: As you go back in your
14 deliberations, remember the Commission paper that the
15 Chairman referenced, which is 89-311. We proposed to the
16 Commission at one point that we had these issues where we
17 thought the plant should be safer, these severe accident
18 issues. We postulated should they be done by generic
19 rulemaking, take them out of the certification rules,
20 develop a generic rulemaking process, go through that, and
21 then come back and apply them to the specific standard
22 designs.

23 The decision was made, let's not do that. So it
24 was sort of a tacit agreement that these things were
25 necessary to be regulations and applicable regulations, but

1 they would be done as part of the certification process, not
2 independently.

3 COMMISSIONER ROGERS: That is where I am raising
4 the question. I think I remember it a little bit
5 differently, and that is that yes, we said no, we are not
6 going to do generic rulemaking; we are going to allow that
7 the rule will be the design which is certified as a rule.
8 That's the rule. Not that we are going to take that and add
9 another rule on top of it.

10 If we have documentation to indicate that the
11 Commission thinking in fact supported the notion that there
12 would be a collection of new rules that are constructed
13 after the designs were approved but before they were
14 certified, then I would like to see that, because I think
15 that would be very important in my own thinking in this
16 regard.

17 MR. RUSSELL: We can provide that.

18 COMMISSIONER ROGERS: I think it is very important
19 if we have a clear demonstration that that is in fact what
20 the intent was, because that doesn't quite meet my
21 recollection.

22 On that same page, "Staff believes industry
23 arguments are flawed because" -- the second bullet --
24 "Without applicable regulations there is no standard for the
25 industry, the staff or public to evaluate the acceptability

1 of a change." I don't know. I just don't understand that.
2 I simply don't understand it. The whole process that we
3 went through in approving the designs is a process that was
4 very public and can be made public. Why is that not
5 sufficient to evaluate the acceptability of a change?

6 CHAIRMAN JACKSON: I think Mr. Wilson wants to
7 respond.

8 MR. WILSON: Commissioner Rogers, let me try and
9 clarify a point you asked earlier about when were the
10 regulations applicable. I think it's important to focus on
11 requirements such as 52.63 which the industry
12 representatives also mentioned. When you look at that, it
13 says that when you are considering a change that you
14 consider that change with regard to the regulations that are
15 applicable and in effect at the time the design is
16 certified.

17 So the answer to your question is the "when" is
18 now. When we talk about applicable regulations, sometimes
19 we get confused because of the shorthand of it. If you look
20 at the proposed rule, what we set out is to identify all the
21 regulations that are applicable. That consists of three
22 areas: Existing regulations that are technically relevant to
23 the design we are talking about, minus certain regulations
24 that were determined that we should give exemptions to,
25 which sometimes is overlooked, as Mr. Crutchfield mentioned,

1 plus these new applicable regulations, which is the focus of
2 the discussion, and the algebraic sum of those three
3 constitutes the applicable regulations that are discussed in
4 provisions such as 52.63. That is what is meant when you
5 read phrases like it's necessary to identify which
6 regulations are applicable in order to process provisions
7 such as these change provisions.

8 CHAIRMAN JACKSON: I think it's clear that we
9 don't have time to probe people's memories unless we are all
10 hypnotists and can do that today.

11 Commissioner Dicus, do you have any questions?

12 COMMISSIONER DICUS: No. At least not yet.

13 CHAIRMAN JACKSON: Do you have further comments?

14 COMMISSIONER ROGERS: No.

15 CHAIRMAN JACKSON: I would like to thank the NRC
16 staff as well as representatives of industry for the
17 information you have provided. It gives us perspectives on
18 the progress of resolution of issues leading to the first
19 two design certifications and where there is still some
20 misunderstanding or questions to be clarified.

21 From my perspective, I don't see any real
22 differences of opinion between industry and the NRC staff on
23 the issue of verification of ITAAC, and it seems that the
24 appropriate clarifying language can be added to the final
25 rulemaking package, and so one can remand that back to you

1 to seek that clarification.

2 Because of the importance of the design
3 certification rulemakings, I think one has to go back and
4 construct the real documentary trail in a careful way. It
5 may need some legal input in terms of this issue of what is
6 the governing definition of applicable regulations, what the
7 requirements of 52.63 put into place.

8 I think in working through these issues one should
9 also consider a kind of binning that you, I think, were
10 getting at, Mr. Russell, having to do with to what extent do
11 existing regulations cover what needs to be covered as
12 opposed to needing to be codified in this particular
13 rulemaking.

14 Further, because of the importance of the design
15 certification rulemakings and the whole process that has
16 been going on for so long, I would not object to publishing
17 the proposed final rulemaking package for a 30-day comment
18 period after being provided to the Commission for
19 consideration.

20 We will continue to follow these developments and
21 ask you to follow through on these particular issues.

22 Unless there are further comments, we are
23 adjourned.

24 [Whereupon, at 4:15 p.m., the meeting was
25 adjourned.]

CERTIFICATE

This is to certify that the attached description of a meeting of the U.S. Nuclear Regulatory Commission entitled:

TITLE OF MEETING: BRIEFING ON DESIGN CERTIFICATION
ISSUES - PUBLIC MEETING

PLACE OF MEETING: Rockville, Maryland

DATE OF MEETING: Friday, March 8, 1996

was held as herein appears, is a true and accurate record of the meeting, and that this is the original transcript thereof taken stenographically by me, thereafter reduced to typewriting by me or under the direction of the court reporting company

Transcriber: Michael Paulus

Reporter: Michael Paulus



**U.S. NUCLEAR REGULATORY
COMMISSION**

PART 52 ISSUES

March 8, 1996

William T. Russell

Office Of Nuclear Reactor Regulation

BACKGROUND

- **SECY-92-287 and 92-287A discussed rule form and content**
- **Advance Notice of Proposed Rulemaking (ANPR) published in FR November 3, 1993**
- **Public workshop November 23, 1993**
- **Notice of Proposed Rulemaking published in FR April 7, 1995**
- **Written comments received, no requests for hearing**
- **Public workshops May 11, 1995 and December 4, 1995**
- **Developing final rules**

NEI COMMENTS ON PROPOSED RULE

- **Major issues:**
 - **Issue finality**
 - **Applicable regulations**
 - **ITAAC verification**
 - **Severe accident and probabilistic analyses in 50.59**
 - **Post design certification changes**
 - **Design Control Document intro in DC rule**
 - **Change process implementation**
 - **Tier 2* restrictions**
 - **Control of TS changes**
 - **ITAAC applicability under Part 50**
- **Staff believes all issues will be resolved satisfactorily in the final design certification rules except applicable regulations and ITAAC verification**

APPLICABLE REGULATIONS HISTORY

- **Staff proposed a number of areas where it felt that standard designs should go beyond the existing regulations**
- **Issues were discussed with industry and the vendors along with the ACRS**
- **Commission approval was given for almost all of them, including a number related to severe accidents, and the staff was directed to implement them in the design**
- **Each of the vendor designs satisfy the technical safety aspects of the applicable regulations**
- **The staff does not feel that any of these new issues should be required to be implemented at the existing operating reactors unless they are subjected to a specific rulemaking for operating plants. The existing regulatory framework assures adequate protection for them.**

WHY APPLICABLE REGULATIONS?

- **Commission has directed that standard plants be safer than existing plants**
 - **Policy was translated into the Design Certification Rules as applicable regulations**
- **Industry argues that DCD or maybe even ITAAC are sufficient and applicable regulations are open to future reinterpretation**
- **Staff believes industry arguments are flawed because:**
 - **Current DCD only specifies the specific design features to meet the applicable regulations not the design criteria**
 - **Without applicable regulations there is no standard for the industry, the staff or public to evaluate the acceptability of a change. The DCD contains an acceptable way of meeting the applicable regulation**
 - **ITAACs are written to verify as-built condition and are not a surrogate for an applicable regulation**
 - **ITAAC cease to exist at fuel load**
 - **Staff would not require a change because there are newer or better ways of doing something, rather a change would only be considered if what was done was found to be wrong such that the basic objective of the new requirement is no longer considered to be met.**

APPLICABLE REGULATIONS

- **Rules under development for operating plants**
 - **Shutdown risk**
 - **PRA include internal and external events**
 - **Steam generator tubes (CE only)**
- **Enhancements**
 - **Station blackout - onsite alternate AC source required (coping not allowed)**
 - **Fire protection - safe shutdown by separate fire areas only (separation not allowed)**
 - **Low pressure systems interfacing with RCS pressure - design to withstand full RCS pressure to extent practicable**

APPLICABLE REGULATIONS

- **Severe accident issues**
 - **Core debris cooling - features to adequately spread and cool molten core debris and protection for drywell liner and structural members**
 - **Equipment survivability - severe accident equipment and instrumentation need only survive best estimate environmental conditions (not full EQ requirements of 50.49)**
 - **Containment performance - features to limit conditional containment failure probability for severe accidents**
 - **High pressure melt ejection - cavity design features to reduce amount of ejected core debris reaching upper containment**

SEVERE ACCIDENTS AND DESIGN CERTIFICATION RULES

- **Issuance of 10 CFR Part 52 in 1989 incorporated the Commission's severe accident policy statement of 1985**
- **NRC has devoted considerable effort since TMI on severe accident research and the appropriate methods to incorporate into current regulations**
 - **SECY 88-147, provided plan for incorporating severe accidents**
 - **SECY 88-248, proposed generic rulemaking for severe accidents; withdrawn due concerns on impact on design certification schedules**
 - **SECY 89-153, ABWR severe accident design features**
 - **SECY 89-311, recommended design specific rulemaking over generic rulemaking**
 - **SECY 90-016 & 93-087, provided resolutions to selected policy, technical, and licensing issues to implement commission goal of a higher level of safety performance for ALWRs**
 - **SECY 91-262, discussed advantages and disadvantages of generic vs design specific rulemaking**

SEVERE ACCIDENTS AND DESIGN CERTIFICATION RULES (CONTINUED)

- **Commission SRM on SECY 91-262 directed the staff to “proceed with design-specific rulemakings through individual design certifications to resolve selected technical and severe accident issues for the ABWR and ABB-CE system 80+ designs”**
- **SECY 92-287 on form and content of a design certification rule discussed rulemaking for SECY 90-016 issues**
- **ANPR for severe accidents for ALWRs issued in early 1993**
- **SECY-93-226 provided results of ANPR comments; Commission deferred decision on the need for generic rulemaking for advanced LWRs until after design certification rulemakings**

POSSIBLE RESOLUTION

- **Staff currently examining documentation to determine which applicable regulations are captured in Tier 1 information - where applicable regulations are redundant, no applicable regulation needed**
- **For applicable regulations concerning severe accidents - probable need for an applicable regulation because Tier 1 information is not sufficient and the “50.59 like” process allows changes to Tier 2 information that would not affect Tier 1 information**
- **For new information gained in the future - a higher threshold than compliance backfit would be needed**

DESIGN CERTIFICATION PROCESS IMPLEMENTATION ITAAC

- **ITAAC are inspections, tests, analyses, and acceptance criteria for the certified design that**
 - **Are performed by a future COL holder**
 - **Provide, if met, reasonable assurance that the facility has been constructed and will operate in conformity with the license and the Commission's rules and regulations**
- **ITAAC developed on a system basis to verify key design characteristics from the design descriptions**
- **Verification that ITAAC are met is the only NRC finding necessary to authorize fuel loading for a COL holder**

AUTHORIZATION FOR FUEL LOAD

- **COL ITAAC = Design Certification ITAAC + site-specific ITAAC**
- **Licensee performs ITAAC and certifies ITAAC complete to NRC**
- **NRC inspects to verify proper performance of the ITAAC**
- **NRC publishes notice of successful ITAAC completion in the Federal Register**
- **Intervenors must show prima facie that acceptance criteria have not been met**
- **Commission authorizes fuel load per 10 CFR 52.103(g) based on ITAAC being met**

ITAAC VERIFICATION FOR A COL

- **Staff will perform inspections throughout plant construction to assess the effectiveness of a licensee's process for performing ITAAC**
- **New construction inspection program designed to be more flexible - allow staff to inspect as work and tests are being done**
- **Sign-as-you-go (SAYGO) process will allow staff and licensee to document construction milestones**
- **Licensee will need to develop detailed design and construction drawings early in process**
 - **Staff will inspect to verify effectiveness of licensee's program**
- **On-site construction inspection team during entire construction process - lead by SES**

ITAAC VERIFICATION

- **10 CFR 52.99 states the Commission shall ensure the required ITAAC are performed and prior to operation shall find that the acceptance criteria are met**
- **NEI comment on proposed rule raised concerns regarding consideration of QA/QC deficiencies in ITAAC determinations for 10 CFR 52.99**
- **Issue not addressed in SOC for proposed rules; comment raised larger issue of scope of items that may be considered in determinations for 52.99**
- **NRC position discussed in SOC for final rule**
 - **It is not enough merely to assert that the ITAAC have been met; the manner in which ITAAC are performed is relevant to ITAAC results**
 - **ITAAC cannot be interpreted mechanistically because industry developed ITAAC as top-level requirements to verify the as-built design, supported by details in Tier 2 information**

ITAAC VERIFICATION (CONTINUED)

- Some deficiencies may not be relevant; relevance of deficiencies identified to be assessed for impact on ITAAC on a case basis**
- NRC position is consistent with performance-based approach to currently licensed facilities**

Example: Calibration of gage used to measure pump flow rate may be relevant to ITAAC results