UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
- - -
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

STAFF PRESENT:
JOHN C. HOYLE, Secretary of the Commission
MARTIN MALSCH, Deputy General Counsel
NEI:
JOE F. COLVIN, Executive Vice President, NEI
WILLIAM H. RASIN, Senior Vice President, NEI
DAVID L. REHN, Chairman, NEI ALWR Regulation Working Group
REGIS A. MATZIE, Vice President, Nuclear Systems Development, ABB/CE
STEVEN A. HUCIK, Manager, Advanced Reactor Programs, GE
NRC:
JAMES TAYLOR, EDO
WILLIAM RUSSELL, Director, NRR
DENNIS CRUTCHFIELD, Director, Division of Reactor Program Management, NRR
THEODORE QUAY, Project Director, Standardization Project Directorate, NRR
JERRY WILSON, Section Chief, Standardization Project Directorate, NRR

P R O C E E D I N G S

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

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

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

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

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

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

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

Do any of my fellow Commissioners have any opening comments?

COMMISSIONER ROGERS: Not at this point. Thank you.

COMMISSIONER DICUS: No.

CHAIRMAN JACKSON: Mr. Colvin, you may proceed.

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

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

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

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

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

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

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

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

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

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

accomplish what is intended.

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

It is precisely from that perspective, ensuring design certification rules are viewed as an inducement and not an obstacle to potential combined license applicants,

that the two issues take on a heightened significance.

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

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

On August 4 we provided written comments to the

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

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

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

Regis.

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

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

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

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

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

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

Furthermore, investors must have the perception that the plant will be able to continue operation without the threat of backfits in areas of the design which have

been added to allow System 80+ to realize a level of safety two orders of magnitude greater than currently operating designs. What potential investors must perceive is true licensing stability.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Thank you very much.

CHAIRMAN JACKSON: Thank you.

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

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

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

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

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

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

MR. REHN: That's fine.

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

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

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

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

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

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

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

Of significant concern with the staff's proposal is that by elevating these technical positions to a new status called applicable regulations that we subject these features to potential backfits, to what I would characterize as some new standard. As I said earlier, these design features were a collaborative effort in an attempt to improve on the margins, but the absolute levels of safety
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that we were striving for were not specified and are not currently defined. So it is that particular elevation of these design features in these 14 to 15 areas that we

strongly object to.

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

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

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

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

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

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

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

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

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

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

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testing, and reliability assurance.

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

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

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

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

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

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

Some of the applicable regulations have some troubling characteristics. They tend to cover a large number of areas where indeed there may be changes in technical knowledge over the years. They have, I think purposely, been broadly worded. And they could be open to

multiple interpretations -- even today we see that -- and are likely to be interpreted and reinterpreted over the 60 years during which these design certifications will be in effect.

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

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

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appropriately to new information concerning plant safety.

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

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

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

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applicants in the future.

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

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

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

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

Commissioner Rogers.

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

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

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

Is that right, Mr. Malsch?

MR. MALSCH: Yes.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

And then it goes on. The SRM is that the Commission with all Commissioners agreeing reaffirms its

expectation stated in the policy statement on severe reactor accidents regarding future designs and existing plants that vendors engaged in designing new standard plants will achieve a higher standard of severe accident safety performance than their prior designs.

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

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

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

MR. COLVIN: I believe I do.

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

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

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

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

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

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

Is that a reasonable statement?

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

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

[Laughter.]

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

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

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backfits. Are you with me so far?

MR. COLVIN: Still there, yes.

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

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

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

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

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

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

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

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

CHAIRMAN JACKSON: And you have done it.

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

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

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

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

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

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

CHAIRMAN JACKSON: But was not that the

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

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

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

MR. REHN: Certainly.

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

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

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

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because we did not want them to be licensing issues. So we thought, well, let's take them and let's show in the design

that we can deal with them so that they will not have to be licensing issues.

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

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

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

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

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

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

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

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

different approach when they are not clearly quantified.

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

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

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

CHAIRMAN JACKSON: You have to teach us babies.

[Laughter.]

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

When you look at the rule, however, we debated

would we allow anyone to make changes to those designs beyond that point that were not necessary for adequate protection. The answer to that was no, that the Commission could not do that by its own rulemaking, that the public upon a 2206 or other request could not do that, nor could we or the design certification entity. The threshold was elevated to a new plane, and that is adequate protection or

compliance, in essence. I think there is one other element that I don't remember. But it is not backfit; it is not new information.

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

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

CHAIRMAN JACKSON: Commissioner Rogers.

COMMISSIONER ROGERS: I think it's a very

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

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

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

As you know, we have occasionally found that we

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

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

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

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

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

We went through great efforts to get to this point with the approval of the designs, and now we are in the process of firming that up in the certification of those designs through rulemaking. That was always the expectation, that that is the end point. Not the staff approval, but the rulemaking which locks it in place. We all recognize that that rulemaking would establish

constraints on all of us about what could be changed and what could not be changed, and we bought into it publicly. I think we have to recognize that that is all there, and I for one would not want to see us undermine that process in any way. I think that is very, very important.

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

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

CHAIRMAN JACKSON: Anything else, Commissioner Dicus?

COMMISSIONER DICUS: No.

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

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

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

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

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

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

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

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

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

MR. COLVIN: Thank you very much.

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

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

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

With that thought, Bill Russell will continue.

MR. RUSSELL: I am going to try and cut the staff presentation in half by saying that we are in agreement with the issues identified by the industry in their recent letter as it relates to ITAAC. That is, we believe that there must be a direct link between issues that may be of a programmatic nature, such as a quality assurance deficiency,

that that particular deficiency has to be linked to a particular ITAAC so that there is an issue that is material to the finding that an ITAAC has or has not been met.

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

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object to that language.

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

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

[Slide.]

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

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

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

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

Received comments in the August time frame. NEI

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

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

[Slide.]

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

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

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

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

[Slide.]

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

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

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

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

[Slide.]

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

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

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

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

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

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

Our intent is not to require a change because

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

[Slide.]

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

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

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

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

[Slide.]

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

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

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

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

[Slide.]

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

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

[Slide.]

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

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after we finished the certification rulemakings for the

first two designs.

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

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

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

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

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

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

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

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

regulations, but not all.

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

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

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

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

accidents.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Secondly, we feel that some applicable regulations are necessary particularly as it relates to severe accidents, and we think that is consistent with the Commission direction when we proposed deferring rulemaking on severe accidents until we had done these design reviews.

It would not be appropriate at this point in time to stop for generic rulemaking on severe accidents and then certify the designs. That would be a few year delay.

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

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

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

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

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

That completes our comments.

CHAIRMAN JACKSON: Thank you.

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Commissioner Rogers.

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

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

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

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

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

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

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

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

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

MR. RUSSELL: And what we are talking about is making sure that those features which are put in are not

eroded either through operation or through significant new information such that the resolution, closure of severe accidents is still maintained.

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

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

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

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

COMMISSIONER ROGERS: Yes.

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

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

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

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

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

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

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

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

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

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

needs to be clarified.

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

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

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

MR. RUSSELL: That was not our intent.

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

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

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

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

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

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

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

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

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

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

MR. RUSSELL: We can provide that.

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

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

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

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

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

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

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

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

Commissioner Dicus, do you have any questions?

COMMISSIONER DICUS: No. At least not yet.

CHAIRMAN JACKSON: Do you have further comments?

COMMISSIONER ROGERS: No.

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

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

to seek that clarification.

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

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

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

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

Unless there are further comments, we are adjourned.

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