

UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

SECRETARIAT RECORD COPY

Title: BRIEFING BY NUMARC ON LEVEL OF DESIGN DETAIL FOR
PART 52

Location: ROCKVILLE, MARYLAND

Date: DECEMBER 19, 1990

Pages: 113 PAGES

NEAL R. GROSS AND CO., INC.

COURT REPORTERS AND TRANSCRIBERS
1323 Rhode Island Avenue, Northwest
Washington, D.C. 20005
(202) 234-4433

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

- - - -

BRIEFING BY NUMARC ON LEVEL OF
DESIGN DETAIL FOR PART 52

- - - -

PUBLIC MEETING

Nuclear Regulatory Commission
One White Flint North
Rockville, Maryland

Wednesday, December 19, 1990

The Commission met in open session,
pursuant to notice, at 9:00 a.m., Kenneth M. Carr,
Chairman, presiding.

COMMISSIONERS PRESENT:

KENNETH M. CARR, Chairman of the Commission
KENNETH C. ROGERS, Commissioner
JAMES R. CURTISS, Commissioner
FORREST J. REMICK, Commissioner

NEAL R. GROSS
1323 Rhode Island Avenue, N.W.
Washington, D.C. 20005
(202) 234-4433

STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

SAMUEL J. CHILK, Secretary

WILLIAM C. PARLER, General Counsel

BYRON LEE, President & CEO, NUMARC

J. PHILLIP BAYNE, President & CEO, New York Power
Authority

WILLIAM COUNSIL, Vice Chairman, TU Electric

CARLO CASO, Westinghouse

DANIEL WILKINS, GE Nuclear Energy

A. EDWARD SCHERER, ABB Combustion Engineering

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

9:05 a.m.

CHAIRMAN CARR: Good morning, ladies and gentlemen.

The Commission is being briefed today by representatives of the nuclear industry on its views on the level of detail required for an essentially complete nuclear power plant design for design certification under 10 CFR Part 52.

Specifically, the industry is requested to provide its views on the NRC staff recommendations provided in SECY-90-377, Requirements for Design Certification Under 10 CFR Part 52, which the Commission is currently considering.

Implementation of design certification provisions of Part 52 will require the NRC for the first time to give final approval on all features of the plant necessary for safe operation except for site specific features based only on a document review.

In SECY-90-377, the NRC staff has identified an approach to determining the level of detail considered necessary to reach a final conclusion on all safety matters. In proposing this approach to the level of detail, staff has drawn on previous licensing experience as well as knowledge

1 from operating events which we want to prevent in
2 future designs. Under this approach, finality of
3 safety decisions for certified designs will not only
4 enhance the protection of public health and safety,
5 but will have additional economic and regulatory
6 stability benefits for those who build these designs.

7 The proposal under consideration by the
8 Commission reflects consensus with industry on a
9 number of issues. The NRC staff has recognized the
10 need for a certain amount of flexibility to finalize
11 the design and construct a facility and has proposed a
12 change process to accomplish this. Staff also
13 recommends the use of inspections, tests, analyses and
14 acceptance criteria, or ITAAC, to confirm a plant has
15 been built and can be operated in accordance with a
16 referenced certified design.

17 It is the Commission's intention to reach
18 a final decision on SECY-90-377 as early as possible
19 so that realistic schedules may be developed and we
20 can move on with our review of standard design
21 certifications for nuclear power reactors.

22 I understand that copies of the slides for
23 the industry's presentation are available at the
24 entrances to the meeting room. The SECY paper was
25 released to the public on November 9th, 1990.

1 Do any of my fellow Commissioners have
2 opening remarks they wish to make?

3 If not, Mr. Lee, please proceed.

4 MR. LEE: Thank you, Mr. Chairman. Good
5 morning, Commissioners. The industry appreciates the
6 invitation to meet with you this morning to discuss
7 the design certification issues, in particular the
8 level of detail question and the implications of SECY-
9 90-377, and also the industry's strategic plan for
10 building nuclear power plants.

11 I have with me today Phil Bayne, the
12 President of New York Power Authority and the Chairman
13 of the Nuclear Power Oversight Committee or NPOC's ad
14 hoc committee that developed the strategic plan. Phil
15 will summarize the plan and present the Committee's
16 activities to give you assurance that the utilities
17 support standardization beyond certification.

18 Also here is Bill Counsil, Vice Chairman
19 of Texas Utilities Electric Company and the Chairman
20 of the NUMARC Standardization Oversight Working Group.
21 Bill will discuss NUMARC's concerns with SECY-90-377
22 as requested and Bill's working group includes a broad
23 cross section of experience as shown by the various
24 companies that are listed on this overhead.

25 We also have representatives from the

1 three nuclear steam supply vendors who are actively
2 pursuing design certifications here at the table to
3 respond to any specific questions that you may have.
4 Representing Westinghouse is Carlo Caso. Representing
5 GE is Dan Wilkins, and representing ABB Combustion
6 Engineering is Ed Scherer.

7 In January of this year, the industry
8 recognized that Part 52 alone would not be sufficient
9 to reestablish confidence in a nuclear option. To
10 address this issue, NPOC established an ad hoc
11 committee to develop a strategic plan to coordinate
12 the industry and institutional activities to enable
13 advanced nuclear power plants to be built with the
14 confidence that they will be safe, reliable and
15 economical.

16 I'd ask Phil if he would give us an update
17 on that program.

18 MR. BAYNE: Thank you.

19 Good morning, Commissioners. My name is
20 Phil Bayne and I'm a member of the Nuclear Power
21 Oversight Committee, NPOC, and currently serve as
22 President and Chief Operating Office of the New York
23 Power Authority.

24 For this past year I have served as
25 chairman of an ad hoc committee formed by NPOC to

1 develop a strategic plan for building new nuclear
2 plants. We in the electric utility industry feel
3 strongly that it's in the national interest that
4 nuclear energy be a planning option for new base load
5 capacity. The new nuclear capacity is needed to help
6 provide a safe, environmentally compatible, reliable
7 and affordable supply of electricity needed to sustain
8 the U.S. economy and the rising standard of living of
9 all Americans.

10 Consequently, the industry has set a goal
11 to order and begin building new nuclear power plants
12 within the next several years so that they are on line
13 by the end of the decade. But many questions must be
14 answered and many issues resolved before utilities
15 will be able to order new nuclear capacity. The NPOC
16 strategic plan creates a framework within which new
17 nuclear plants may be built.

18 This plan is an expression of the nuclear
19 industry's serious intent to create the necessary
20 conditions for new plant construction and operation.
21 The industry has assembled a comprehensive list of all
22 the actions that must be taken before new plants can
23 be built. We have assigned responsibility for
24 managing the various issues and we've set time tables
25 and milestones against we must measure progress.

1 One of the key elements of this plan is
2 standardization, from design certification through
3 engineering and construction to the operation and
4 maintenance of the plant. For many years, people in
5 the U.S. nuclear industry have known that significant
6 economic advantages were possible if we build nuclear
7 power plants to standard design. France has proven
8 that to us.

9 The organizations that comprise NPOC have
10 endorsed an aggressive plan to define and implement
11 standardization to the maximum practical extent. The
12 groundwork for tough decisions has been laid in the
13 advanced light water utility requirements documents
14 and in the individual design certification submittals
15 in preparation or under review.

16 NUMARC has developed an approach to
17 implementation of standard designs from a licensing
18 perspective and is working towards NRC acceptance of
19 that approach. This meeting, we hope, will further
20 the acceptance of the industry definition.
21 Responsibility to refine definitions and plans for
22 standardized engineering from design certification to
23 the point of an order has been given to EPRI, the
24 Electric Power Research Institute and the vendors.

25 NUMARC and INPO, the Institute of Nuclear

1 Power Operations, are defining standardization in
2 areas that go beyond design. The NPOC plan proposes
3 four stages of standardization in advanced light water
4 reactors. The first stage is established by the
5 advanced light water reactor utility requirements
6 document which specifies owner/operator requirements
7 covering all elements of plant design, construction,
8 operation and maintenance. We expect that after the
9 NRC review and approval, agreement will be reached on
10 generic safety issues that will provide a basis for
11 NRC design certification. The document also describes
12 owner/operator requirements in design features such as
13 layout, availability goals, instrumentation and
14 control, human factors and so on.

15 The second stage of standardization
16 involves design certification. This includes design
17 criteria and bases and performance requirements for
18 systems to assure plant safety. The application will
19 include the detail design information necessary for
20 the NRC to make final safety determinations.

21 The Commission should press for
22 standardization as it relates to decisions on safety
23 regulations, but not for reviews of engineering detail
24 beyond the regulations. Such reviews have the
25 potential to jeopardize achieving certification. Our

1 second building block, predictable licensing and
2 stable regulation, is aimed at providing the level of
3 detail needed to achieve standardization within the
4 scope of the NRC regulations.

5 The third stage of standardization carries
6 the design to a level of detail beyond that required
7 for design certification to enable the industry to
8 achieve the efficiency and economy of commercial
9 standardization. Since the level of detail required
10 for design certification will vary based on safety
11 significance, it follows that the starting point for
12 commercial standardization will carry the design to
13 the point that an order can be placed with confidence
14 in the cost and the schedule to build it. The
15 industry is committed to commercial standardization
16 and the economic benefits that will come from it.

17 The final stage of standardization goes
18 beyond design. A standardized approach will be
19 developed in areas such as construction practices,
20 operating and training standards, maintenance and
21 spare part procurement. This stage creates the ground
22 rules and the organizational entities that will
23 maintain standardization throughout the life of the
24 plant. This will ensure that the economical and
25 technical benefits of standardization will be

1 maintained during the plant's lifetime.

2 Based on these principles, the ad hoc
3 committee for the NPOC strategic plan agreed to
4 develop a comprehensive policy that outlines the
5 overall industry commitment to standardization.
6 Nuclear power plant standardization is a life cycle
7 commitment to the uniformity and the design,
8 construction and operation of a family of nuclear
9 power plants. Rigorous implementation of
10 standardization is expected to achieve efficiency and
11 economy typically associated with increase in scale or
12 breakthroughs in technology.

13 The benefits of standardization in this
14 context include the following: early definition of
15 requirements to ensure regulatory stability and the
16 elimination of unnecessary changes; timely, systematic
17 and thorough resolution of problems; optimization of
18 design to improve constructability, reliability,
19 operability and maintainability.

20 More simple and uniform designs that are
21 easier to construct and operate lead to more efficient
22 and effective regulatory oversight and enhance public
23 confidence, focused and efficient application of
24 technical and financial resources, and an expanded
25 resource base that enhances support capacities for

1 design, manufacturing, construction, insulation,
2 inspection, testing, operating, maintenance and
3 replacement parts.

4 We want to maximize learning from past
5 experiences and accelerate experience feedback. We
6 are developing a policy that will achieve and maintain
7 standardization throughout the construction and
8 operating life of the family of standardized plants, a
9 plant design that will be transferrable without
10 alteration to any site within the design envelope for
11 the family of plants. Major structural, mechanical,
12 electrical or I&C components including installed
13 spares essential to nuclear safety or reliable power
14 generation will be identical. Construction drawings
15 and specifications are identical for each plant within
16 a family, standardization beyond hardware design that
17 will be implemented in such areas as training,
18 maintenance and operating procedures, quality
19 assurance, licensing, spare parts, management and
20 outage management.

21 The draft policy is presently under review
22 by the Nuclear Power Oversight Committee, along with
23 more detailed supporting statements on the four stages
24 of standardization which I have briefly summarized.
25 This complete statement will be a guiding document to

1 the industry for the overall implementation of
2 standardization of nuclear plants. After review and
3 approval for the statement by the Nuclear Power
4 Oversight Committee, it will be furnished to the
5 Commission for your information and comment. We
6 expect this policy to be completed in early January
7 and request that you consider this important
8 initiative in your deliberations.

9 Thank you very much.

10 MR. COUNCIL: Mr. Chairman, Commissioners,
11 we owe it to the Commission to be direct and candid in
12 expressing our concerns. In the industry's view,
13 SECY-90-377 represents a departure from the provisions
14 of Part 52 in the following major respects:

15 The staff has departed from the
16 sufficiency for safety standards specified for the
17 level of detail in Part 52 and has substituted a new
18 and unworkable, feasible and practical standard. The
19 level of detail proposed by the staff for inclusion in
20 tier 1 negates the flexibility which the staff
21 recognizes to be appropriate for tier 2. The staff
22 proposed tier 3 or available for audit information,
23 conflicts with the Part 52 requirements that such
24 information be prepared only if it is necessary for
25 the Commission to make its determination. Issue

1 finality is cast in doubt at both the combined license
2 and preoperational stages by the staff treatment of
3 tier 3 information in SECY-90-377.

4 A regulatory guide is not needed for the
5 four areas identified in SECY-90-377. Moreover, a
6 tier 3 reg. guide is inconsistent with the provisions
7 of Part 52 and could undermine the viability of the
8 design certification, combined license and
9 preoperational processes. These proposed changes
10 place in jeopardy continuation of the industry design
11 certification efforts and, more broadly, renew
12 industry's deep concern about regulatory
13 predictability.

14 If the level of detail requirements
15 described in SECY-90-377 are endorsed by the
16 Commission, then it seems almost certain that
17 certified designs will not be available in a time
18 frame consistent with the industry's needs as detailed
19 in the NPOC strategic plan. The additional up-front
20 cost of the new requirements proposed in SECY-90-377
21 is estimated to be in excess of \$500 million. In the
22 present regulatory climate and general economic
23 conditions, the probability of obtaining funding of
24 that magnitude without an order is understandably low.

25 The industry urges that the staff base its

1 review on Part 52 and those applicable requirements
2 referenced in Part 50. That rationale is based on the
3 standard review plan which should be the basis for the
4 level of detail required to make design certification
5 safety determinations, supplemented as necessary where
6 any new safety related concepts, technologies and
7 techniques are introduced.

8 Let me now turn to each of the concerns
9 which I have identified earlier.

10 Level of design detail. Should the
11 Commission adopt SECY-90-377, the requisite standard
12 for level of detail would be different than that
13 prescribed in Part 52. Specifically, the staff has
14 departed from sufficiency for safety standards
15 specified in Part 52. Even though during its December
16 7th, 1990 meeting with the Commission the staff sought
17 to clarify its use of a feasible and practical design
18 detail requirement, it went on to seek Commission
19 endorsement of a reg. guide in accordance with
20 Appendix A of SECY-90-377 which is based on the
21 feasible and practical ethic. We find such an
22 approach unacceptable.

23 The level of detail requirements of Part
24 52 were developed as a result of substantial
25 interchange and lengthy discussions among the staff,

1 the Commission, the ACRS and the industry. The
2 increased level of detail called for in SECY-90-377 is
3 substantially similar to what was recommended to and
4 rejected by the Commission at the time of adoption of
5 Part 52. It is extremely disturbing that this
6 resolved issue should resurface a year later with no
7 apparent recognition of its prior consideration and
8 resolution.

9 Two-tier approach. The two-tier approach
10 was intended to further standardization while at the
11 same time accommodating necessary flexibility that is
12 part of the reality of a large complex construction
13 project and operating facility. The staff
14 recommendations in Appendix A for the design detail to
15 be contained in tier 1 will result in an impractical
16 process when attempts are made to translate the
17 certified design into a constructed facility. Minor
18 design and construction changes with no safety
19 significance would result in the need for license
20 amendments and the potential for numerous public
21 hearings.

22 It should be recognized that the most
23 compelling safety benefit of standardization is not
24 inclusion of increased design details but rather of
25 new and fundamental design features that make the next

1 generation of plants safer.

2 Tier 3 information. The Commission should
3 reject the staff proposal for the preparation of an
4 ill defined and potentially massive staff prescribed
5 tier 3 and direct the staff to require material only
6 after review of submitted information and only after
7 the staff has a demonstrated need to receive
8 additional information to make its safety findings.
9 This, in fact, is what Part 52 prescribes. Under Part
10 52, so-called tier 3 information is required to be
11 prepared only if such information is necessary for the
12 Commission to make its safety determination.

13 The staff will convert this into a new
14 requirement for a vast array of detail design
15 products. These design products would be defined in a
16 reg. guide proposed to be developed over the next
17 year. The staff concedes that only a fraction of the
18 available audit information is needed for its safety
19 review, but justifies the balance as serving the
20 purpose of standardization. It is the role of the
21 Commission, here as elsewhere, to assure safety. If
22 the Commission believes that there are safety benefits
23 associated with standardization beyond what is
24 required to assure adequate protection, those
25 increased requirements should be subject to the proper

1 procedural approach which we assume will include the
2 justification for them.

3 SECY-90-377 purports to justify a vast
4 prescribed tier 3 level of design detail because of
5 the absence of a constructed facility against which to
6 measure proper design implementation. This, of
7 course, ignores the functional distinction between
8 design and facility approvals and the corresponding
9 review processes purposely set out in Part 52. It
10 also ignores the role of ITAAC in assuring that the
11 approved design is reflected in the constructed
12 facility.

13 The need for a regulatory guide. The
14 industry believes the development of a regulatory
15 guide for any of the four purposes suggested in SECY-
16 90-377 is inappropriate and unnecessary. First, Part
17 52 and its reference to existing requirements, provide
18 sufficient guidelines for the content of a design
19 certification application. Second, for the reasons
20 earlier stated, there is no need to create an entirely
21 new requirement for preparation of tier 3 information.
22 Finally, decisions as to where the line should be
23 drawn between tier 1 and tier 2 for specific designs
24 and the creation of the accompanying ITAAC are best
25 left to development and individual design

1 certifications as specifically contemplated by Part
2 52.

3 We are particularly concerned about the
4 staff proposal for a tier 3 regulatory guide. This
5 could transform the design certification proceeding
6 into an open-ended inquiry on the sufficiency of tier
7 3 and the adequacy of the staff's audit.

8 Issue finality. A Part 52 premise is that
9 once issues have been resolved in a design
10 certification proceeding, they are not open to
11 challenge in later combined license and preoperational
12 proceedings. SECY-90-377 casts in serious doubt issue
13 finality at both combined license and preoperational
14 stages. The document's treatment of so-called tier 3
15 information is ambiguous at best and, most seriously,
16 creates the potential for an open-ended combined
17 operating license and preoperational proceeding.

18 If the staff means the information in the
19 available for audit category can later be used to
20 reopen tier 1 and tier 2 matters and COL and/or
21 preoperational proceedings, this subverts the very
22 concept of design certification finality and the
23 viability of the certification process established in
24 Part 52. Unless the available for audit information
25 is incorporated in tier 1 or tier 2, it has no

1 regulatory significance. Available for audit
2 information is irrelevant at the COL stage and Part 52
3 makes compliance with approved acceptance criteria and
4 that alone the definitive benchmark for determining
5 licensee conformance with the contents of a certified
6 design at the preoperational stage.

7 The industry urges the Commission not to
8 adopt the recommendations of SECY-90-377 as the basis
9 for its forthcoming guidance on level of design detail
10 and related issues. Instead, we would urge the
11 Commission to endorse the basic principles set forth
12 in this presentation and by doing so return to the
13 basic requirements of Part 52. We on the NUMARC
14 Standardization Working Group stand ready to assist
15 the staff in this effort.

16 MR. LEE: Thank you, Bill, Phil.

17 I'd like to conclude the presentation by
18 restating the industry's commitment to
19 standardization. Both the industry and the Commission
20 have important and complementary roles to play in this
21 process. As we've said, the Commissioners' focus must
22 be on safety, while the industry focus will include
23 the practical attainment of the economic benefits of
24 standardization. Part 52 struck the appropriate
25 balance.

1 We urge the Commission to provide further
2 guidance under Part 52 based upon the considerations
3 we have presented today. We will transmit a letter to
4 you with the principles by the end of this week to
5 assist you in your deliberation and we stand ready to
6 work with the staff, as Bill has indicated. We also
7 ask you to hold your decision until after the NPOC
8 review that Phil Bayne mentioned earlier.

9 Now, with that, I would like to again
10 thank you for the invitation and open for questions.
11 We have a whole array of experts who have been
12 involved in this process besides the people at the
13 table here to try and answer all of the questions that
14 I'm sure are in your mind.

15 CHAIRMAN CARR: Thank you very much.

16 Questions, Commissioner Remick?

17 COMMISSIONER REMICK: I assume, Mr. Lee,
18 that your vendor representatives are here other than
19 just to provide balance to the table. I have a couple
20 questions related to the vendors. In some of the
21 letters that have been received from the vendors,
22 you've indicated that if SECY-90-377 was implemented
23 that there would be significant changes in the design
24 information that you would submit. I was wondering if
25 you're prepared to give me any specific examples of

1 the impact of 90-377 on System 80+ or ABWR or
2 whatever.

3 MR. LEE: Dan?

4 DOCTOR WILKINS: Well, let me begin. The
5 design information we have submitted on the ABWR was
6 based very heavily on the reg. guide 170 format and
7 content for safety analysis report and on the standard
8 review plan and in areas where that wasn't completely
9 clear on the licensing review basis that was
10 established back in 1987. The review has proceeded
11 now for almost four years on that basis. That
12 included the concept of the level of detail being that
13 needed for safety determination and, along with that,
14 the amount of detail tied to the safety significance
15 of the system.

16 SECY-377 goes far beyond that by requiring
17 essentially a level 2 level of detail or the whole
18 nuclear island, the turbine island, the rad waste,
19 largely independent of the safety significance of the
20 particular system. It would cause a great deal of
21 additional work in the areas of the plant that have
22 the least safety significance in order to provide the
23 requested level of detail, yet also --

24 COMMISSIONER REMICK: Excuse me. If I
25 could interrupt you there.

1 DOCTOR WILKINS: Yes.

2 COMMISSIONER REMICK: Do you have any
3 problem with level 2 for the nuclear island in
4 general?

5 DOCTOR WILKINS: In general, I think we're
6 fairly close to level 2 in the nuclear island. Our
7 biggest concerns were in the turbine island and in
8 portions of the nuclear island that have relatively
9 low safety significance. It also requires information
10 that, in effect, requires us to know vendor
11 information.

12 For example, the call for a prototype of
13 the control room is something that you can really only
14 do after you've selected the hardware for the control
15 room. The software validation and verification in the
16 control room is something that you can only do after
17 you've selected the hardware for the control room
18 because that determines the software. Now, these are
19 all things that in the overall standardization plan
20 that Phil Bayne has described we intend to do
21 eventually but not part of certification.

22 In Japan, we are building a mock-up of the
23 control room, a prototype, and we are going through
24 the software validation, but that's being done with
25 Japanese hardware and to Japanese standards. We would

1 expect to do the same thing eventually as part of a
2 lead project in the U.S., but not during the
3 certification phase.

4 There's a number of other examples in
5 SECY-377 of going into hardware detail. It calls for
6 complete equipment qualification and seismic reports.
7 That's something you normally do after you've picked
8 the hardware and qualify the hardware. It calls for
9 final nozzle penetration loads. Again, something
10 depends on hardware component weights and so forth.
11 It calls for motor control center starter sizing,
12 circuit breaker coordination, voltage drop and cable
13 length calculations, again things that depend on the
14 loads of individual pieces of equipment.

15 So, we find the thing, the SECY-377 quite
16 inconsistent with the whole concept of certifying a
17 design and then moving on into the selection of
18 hardware.

19 CHAIRMAN CARR: Can I buy in for a second?

20 COMMISSIONER REMICK: Certainly.

21 CHAIRMAN CARR: Let me quote you the
22 August 7th, '87 licensing review basis paragraph.

23 "The degree of design detail necessary for
24 providing an essentially complete design is to be that
25 detail that is suitable for obtaining specific

1 equipment or construction bids and to demonstrate
2 conformance to the design safety limits and criteria."

3 That's almost the same words in Part 52.
4 I don't understand what you're saying the difference
5 is.

6 DOCTOR WILKINS: Well, the --

7 CHAIRMAN CARR: Are you meeting this? The
8 ACRS letter says you're not meeting that.

9 DOCTOR WILKINS: We believe that we're
10 meeting our licensing review basis and if --

11 CHAIRMAN CARR: Well, let me read you the
12 November 24th, '89 letter from the ACRS to Mr. Taylor.

13 "The staff's ABWR licensing review basis
14 letter to GE," which I just read the quote from,
15 "states," and that's the quote they state. And then
16 it says, "We believe that the level of design detail
17 in mod 1 falls short of this requirement." That was
18 in '89. Maybe you've met it by now, but certainly the
19 requirement is the same as 52 and it was on the record
20 in '87. Excuse me.

21 DOCTOR WILKINS: Yes. I would say there
22 has been a great deal of activity since November '89.
23 I think in many areas the staff has asked for and we
24 have provided additional information. There have been
25 six, I think, major ABWR amendments submitted during

1 1990. My impression is that we are rapidly closing
2 between the staff and General Electric on what is
3 needed to make safety determinations. There are still
4 open items and holes, but I don't think we're far
5 apart.

6 COMMISSIONER ROGERS: What is your concept
7 of the design detail that you would supply for the
8 control room? You say level 2 is a problem for you.
9 What would be specified there? You know, we've
10 learned over the last few years, last decade, how
11 important human factors are in all aspects of a plant.
12 Certainly it starts in the control room. We've
13 learned a lot about things that are less than
14 satisfactory about earlier placement of controls and
15 how people operate in the control room. How would you
16 plan to specify the level of design detail that takes
17 these things into account if you don't meet a level 2
18 requirement?

19 DOCTOR WILKINS: Let me describe the
20 approach we've used. Let me preamble this by saying
21 that the advanced control room is probably the area of
22 the plant where we have the least in terms of past
23 practice and guidance to rely upon. So, we and the
24 staff have been feeling our way through that one for
25 some time. In fact, that was the licensing review

1 basis area that we tackled early on.

2 We think that our safety analysis report
3 provides, after a number of amendments and meetings,
4 sufficient information to resolve the safety issues.
5 Now, I'm not sure at this point. I'd say the staff
6 has come to that conclusion, but I think we're
7 narrowing the gap. What's in there describes our
8 safety approach, it describes our panel plan and panel
9 descriptions, it describes the characteristics of the
10 panels, the touch screens, the color displays. It
11 describes what's on the big screen in the terms of
12 safety parameter display and information.

13 It goes into great detail on how we
14 designed the control room, the human factors approach,
15 the task analysis for the operators, how we've laid
16 out the information not by system as we've usually
17 done in the past but to support each task that the
18 operator has to perform. It goes into some detail in
19 the verification and validation of software and how
20 that process will be done after we pick hardware and
21 software suppliers for the control room.

22 We have also, because of concern about the
23 advanced technology in the safety area, we have
24 ensured that the safety functions in the plant do not
25 depend on the process computer. In other words, the

1 process computer is not a safety component and, in
2 addition to that, we made the remote shutdown station
3 hardwired so that we would have even independent of
4 all this advanced technology an ability to shut down
5 the plant on a hardwired basis.

6 So, we think we have provided what's
7 needed to resolve the safety issues, but that's an
8 area that's very much alive and active right now. In
9 fact, we just received another round of questions this
10 week from the staff.

11 COMMISSIONER ROGERS: I wonder if, just
12 while we're on this subject, it seems to me it's a
13 very important area, this whole question of software
14 validation. You've essentially taken it out of the
15 direct safety concern by saying the safety functions
16 won't depend on the process computer. Is that true
17 for the other vendors? Have you, Westinghouse and
18 Combustion, taken the same approach?

19 MR. SCHERER: We've maintained our split
20 between reactor protective system and plant monitoring
21 system. But we have an advantage in that we have used
22 digitized protection system for several years and we
23 have a very formal configuration control system for
24 the software which has, over the years, had some
25 experience in making changes and the documentation for

1 changes. We've been using some, I believe it's 20
2 criteria that we've agreed to with the staff and we've
3 been successfully implementing that over the years.
4 So, there is some benchmark in how to go about making
5 those software changes, even on reactor protective
6 system safety grade channels.

7 MR. CASO: In support for the AP 600,
8 we're utilizing more the microprocessor approach and
9 therefore we're not relying on the major number
10 cruncher computer for safety function. The different
11 microprocessor are tied together through a network,
12 local network, and are not necessarily using the
13 function of a major processor.

14 COMMISSIONER ROGERS: But that doesn't
15 address the software V&V question by itself.

16 MR. CASO: No, no, that doesn't address
17 the software. I thought you were asking whether we're
18 using the --

19 COMMISSIONER ROGERS: Well, yes, but if
20 you say that your safety functions depend on a
21 computer rather than on a central computer -- I mean I
22 don't want to draw that distinction.

23 MR. CASO: I misunderstood the question.

24 COMMISSIONER ROGERS: Sidestep the issue
25 that way. The issue is software V&V.

1 MR. CASO: Yes.

2 COMMISSIONER ROGERS: And not whether you
3 use microprocessors or a central processor.

4 MR. CASO: We do use the software for
5 safety function.

6 COMMISSIONER ROGERS: So then there is an
7 issue of how software V&V will be provided for in the
8 detail of design document.

9 MR. CASO: That's correct, but that's
10 something that we are definitely planning to address
11 and we've had discussion, preliminary discussion
12 because we are at the very preliminary stages this
13 time, but we are discussing with the staff to discuss
14 how we're going to do the verification.

15 COMMISSIONER ROGERS: Okay. But it does
16 seem to me that there's a difference in approach here.
17 What we have to come to is some common view that
18 applies here in this matter. If each of the vendors
19 is taking a different point of view on software V&V, I
20 think we have to recognize that there isn't a common
21 approach that you're all taking here.

22 MR. SCHERER: I think that there are two
23 issues. One is whether the design as we present to
24 the staff in the standard safety analysis report is
25 acceptable and needs the Commission's regulations and

1 requirements.

2 The second, and that includes V&V, gets
3 into ITAAC which are the demonstrable evidence as we
4 build the plant, that we have complied with those
5 design requirements. I think when we start mixing the
6 two is where some of the confusion occurred and this
7 discussion that occurred in the SECY paper about the
8 tier 3 and the need for the staff to essentially walk
9 through our warehouse picking at random different
10 items to audit before they can certify our design gets
11 into the elements of mixing those two.

12 I think there were two separable findings.
13 One is, does the design as we present meet the
14 Commission's regulations and requirements for the next
15 generation of plant? If the answer is yes, then the
16 second question is will the ITAAC elements as
17 presented verify that? Are they necessary and
18 sufficient to demonstrate as we're building the plant
19 on a sign as you go basis that we have complied with
20 that design. If you start to mix those two, you mix
21 up what is going to be in the final design approval
22 and mix up what's in ITAAC and that creates a lot of
23 the confusion as to what the staff needs to review and
24 does not need to review before issuing a design
25 certification.

1 CHAIRMAN CARR: Let me focus this a little
2 bit. NUMARC report on inspections, test analyses and
3 acceptance criteria provided for staff review by
4 letter dated November 20th of 1990, which is a little
5 less than a month ago, described, and I quote, "The
6 level of detail required for design certification
7 under Part 52 is, at a minimum, that which is
8 equivalent to the design detail contained in a final
9 FSAR, i.e. at the time of OL issuance under Part 50,
10 except for site specific, as-procured and as-built
11 information."

12 Is that what you're going to give me in
13 the control room?

14 MR. CASO: Yes.

15 CHAIRMAN CARR: Is that what you're going
16 to give me in the control room?

17 DOCTOR WILKINS: Yes.

18 CHAIRMAN CARR: And that's what you're
19 going to give me?

20 MR. SCHERER: Yes, sir.

21 CHAIRMAN CARR: Final FSAR --

22 MR. SCHERER: Yes.

23 CHAIRMAN CARR: -- i.e. at the time of OL
24 issuance under Part 50?

25 MR. SCHERER: Yes, sir.

1 CHAIRMAN CARR: And that's before
2 certification?

3 MR. SCHERER: Yes, sir. Equivalent so
4 that the staff can make final safety determinations.

5 CHAIRMAN CARR: I didn't say that. That's
6 your words.

7 MR. SCHERER: I said it. I added those
8 words.

9 CHAIRMAN CARR: But you agree to give me
10 what it said in this paragraph?

11 MR. SCHERER: Yes, sir.

12 CHAIRMAN CARR: Okay.

13 MR. LEE: And I think the point that Ed
14 was making here is the utilization of the ITAAC. We
15 may have to have some discussions on that, but I think
16 there has been an impression that ITAAC was going to
17 replace design as designs that were going to come
18 later. I think that the ITAAC was to confirm that the
19 actual construction and application of the various
20 codes and all the things that we're doing as a part of
21 the project comply with the acceptance criteria that
22 have been established at the front end of this
23 project.

24 CHAIRMAN CARR: Excuse me. It's still
25 your question.

1 COMMISSIONER REMICK: Doctor Wilkins, I
2 think you've answered what was going to be my next
3 question, at least indirectly. That was to
4 specifically address one of the attachments in 377
5 that addressed the status of ABWR and inadequacies of
6 submitted information. What is the actual status of
7 your submittal compared to that? I assume things have
8 changed since -- I think that was a snapshot in
9 February as the staff indicated.

10 DOCTOR WILKINS: That was referring to
11 Appendix F.

12 COMMISSIONER REMICK: Appendix F, yes.

13 DOCTOR WILKINS: And we are in the process
14 of providing the staff a GE view on Appendix F.
15 There's many issues there. Unless you want to, I
16 don't propose to go through all of them.

17 COMMISSIONER REMICK: No.

18 DOCTOR WILKINS: But I think generally
19 they fall into a couple categories. There's one
20 category where the view expressed in there was valid
21 at the time it was expressed, which I think was in
22 February of this year, but we have submitted, as I
23 mentioned, six amendments since then. The control
24 room and advanced C&I area was a particular one that
25 we had worked hard on this year. We had a meeting in

1 March with the staff and tried to hammer out how to
2 close that gap and then we've since submitted
3 information consistent with that meeting.

4 There's another set of issues in Appendix
5 F where the staff observes that they do not have or
6 could not obtain certain information, but we think--
7 we don't understand the safety relevance of that
8 information. We think it's very much tied to the SECY
9 90-377 view of standardization as opposed to safety.
10 So, I think there's probably going to be a lot of
11 continuing discussion in that area as to exactly what
12 is the safety determination and what can we provide
13 the support and we'll provide it.

14 COMMISSIONER REMICK: Okay. Mr. Caso, do
15 you have any views from Westinghouse? I guess they
16 would apply to the advanced -- impact on advanced
17 reactors.

18 MR. CASO: Correct. We are on a different
19 situation than GE because we have not submitted our
20 application and therefore our views are not related to
21 what we have submitted, whether it is adequate or not,
22 but to the extent or detail that we see would be
23 required if we were to apply 377. Indeed, the issue
24 for us at this point in time would be the cost,
25 additional cost and additional effort that would be

1 required to satisfy 377 versus what we understood to
2 be the amount of detail needed for the design
3 certification.

4 When we participated and we achieved the
5 successful completion of the contract with the
6 Department of Energy to achieve design certification,
7 we specified in the work breakdown structure
8 specifically the task that we thought were necessary
9 to achieve the final goal. When we compared the
10 effort that we estimated under that scope of work with
11 what we understand 377 would require, we do see
12 significant additional effort. Some of it is the man-
13 machine interface which basically will require to go
14 to a higher level of development of type of prototypes
15 of systems and so on to verify the working of the
16 system, construction drawing, performance
17 specification, the detail design specification, pipe
18 stress calculations and so on. Altogether, it's going
19 to end up in a significant additional amount of work
20 to satisfy the requirement of 377.

21 So, we have not submitted our application
22 and therefore we do not have the situation that Doctor
23 Wilkins just mentioned where he has to amend what he
24 has. But we will not be able to achieve the design
25 certification with the program submitted to DOE if we

1 were to implement 377.

2 The other point that I think is of concern
3 to us that I think goes back to some broad
4 interpretation of your question is the concept of
5 feasible and practical versus sufficient for safety
6 because not only do we believe that 377 requires a
7 high level of detail, but we are in a situation where
8 we do not have the same definition of what is going to
9 be needed for safety that we assume and therefore we
10 end up in a situation that is much broader and much
11 wider, more open.

12 COMMISSIONER REMICK: Well, you touched
13 upon one of the points I was going to ask you because
14 you seemed to stress it would take additional work and
15 I don't think that's necessarily the question. The
16 question is does it go beyond the information that we
17 need to make our safety findings. Then the other
18 matter that has been addressed this morning of whether
19 it requires vendor-specific information to be able to
20 provide that information.

21 MR. CASO: If I may address your specific
22 point.

23 COMMISSIONER REMICK: Yes.

24 MR. CASO: When we submitted our program
25 to the Department of Energy, to DOE, obviously we

1 submitted everything we thought was necessary to
2 achieve safety. To the extent that the work we have
3 to do goes beyond that, it is work that we do not
4 believe is necessary to achieve the safety
5 verification. So, perhaps I was not clear, but
6 obviously we did not submit the program to DOE which
7 obliges us to obtain design certification for a fixed
8 DOE contribution and we are already by that. We did
9 not submit a program that was going to eliminate items
10 we thought were necessary. So, the items I mention
11 are items that we did not think were necessary to
12 achieve the safety evaluation of the plant.

13 COMMISSIONER REMICK: Okay. How about
14 would it require vendor-specific procurement item
15 knowledge to be able to provide some of the
16 information that's been suggested?

17 MR. CASO: In some areas it will because
18 in some areas, for example, it will require a
19 definition of some components. In the man-machine
20 interface, for example, it will require definition of
21 some components in order to be able to verify some of
22 the items specified in 377 which are not necessary for
23 the design certification effort.

24 COMMISSIONER REMICK: Ed, do you want to
25 add anything?

1 MR. SCHERER: Well, our position is
2 relatively close to the position that GE articulated
3 and I agree with their position. I would like to make
4 one further statement.

5 In my reading of SECY-90-377, it appeared
6 to be a misunderstanding of what is and is not in
7 ITAAC and its purpose. There seemed to be a feeling
8 or a misunderstanding on the part of the staff that
9 somehow ITAAC was intended to defer design decisions
10 and that unless the staff were to review a new tier 3,
11 there was a chance that the final design somehow to be
12 done after the design certification stood a chance of
13 not looking like the one that we submitted.

14 Nothing could be further from the truth.
15 It is our intention to submit the design in our final
16 safety analysis report and the ITAAC, as I said
17 earlier, are the elements which will be considered up
18 front as part of the design certification process to
19 be necessary and sufficient to demonstrate to the
20 staff that we have, in fact, complied with that
21 design.

22 But this is not our first plant. This is
23 not our first standardized plant. We intend to take
24 every step to make sure that everything in tier 1
25 remains unchanged throughout the design process. We

1 have controls in place to do exactly that. This is
2 not a vague set of design criteria that we hope will
3 be implemented in the as-built plant. These are
4 requirements that will be in the as-built plant and
5 that will remain unchanged.

6 I've read transcripts and attended
7 Commission briefings where the Commission may have
8 been led to believe that unless the Commission audited
9 our process before issuing design certification the
10 chance is we might come back later and tell you,
11 "Well, gee, the diesel generators are undersize."
12 That's just not going to happen. If we're going to
13 size diesel generators up front, they will be
14 adequate. Not only will they be adequate, but the
15 margins that we said the diesel generator will have
16 will be the same margins at the end of the process
17 because we're not going into this process blind and
18 we're not going into it in a naive manner.

19 We've designed a few plants. We've
20 designed standardized plants. Our System 80 is a
21 standardized plant. So we intend to make sure that
22 the outcome of this product is not going to change as
23 we go through the implementation phase. I'm just
24 trying to put in context some of the comments that
25 we've made. Certainly I agree with General Electric

1 in their comments on the control room and on the
2 status of the design.

3 COMMISSIONER REMICK: If I recall, NUMARC
4 has an ITAAC definition effort underway. Is that
5 correct? If so, what is the status? Am I correct
6 there's an effort underway to define what might
7 specifically be in ITAACs or am I wrong?

8 CHAIRMAN CARR: That's the next hurdle.

9 MR. LEE: Yes. Well, where the ITAAC is,
10 we have the expert on the ITAAC program right here
11 with us. So I'll ask Dave Rehn to --

12 CHAIRMAN CARR: Dave, would you go to the
13 microphone and identify yourself, please?

14 MR. REHN: Dave Rehn, Duke Power Company.

15 The efforts that we have underway
16 currently is to take the next step from what we have
17 already described in terms of how we see the design
18 certification and the ITAAC and to carry that forward
19 to the COL stage as well, to look forward. But to
20 take real life examples associated with some of the
21 various components and, in fact, some of the items
22 you've discussed here today, such as control systems,
23 and to look at how you're going to define the
24 functional characteristics and then verify that that
25 is indeed what you have procured and what you have

1 installed in your plant and then what are the tests,
2 if you will, inspections and analysis that are
3 necessary and sufficient to demonstrate that.

4 I think the points are very key that you
5 raised here today. That is we will be providing that
6 level of detail up front that's analogous to that
7 FSAR. I think it meets the intent of that LRB that
8 you read. However, the minus aspect in there that is
9 very important is that we will be absent vendor-
10 specific information.

11 Heretofore, if the analogy back to a car
12 is that we in the past have had both the
13 specifications and the ability to go out into the
14 showroom and kick the tires. At this point, we're
15 going to have the detailed specifications and what we
16 must define then is what allows us enough detail to
17 ensure that what is going to be out there meets what
18 we have.

19 Quite frankly, the difficulty in that is
20 to take that philosophical approach and then work
21 through the particulars. I think that's what we saw
22 to some extent in 377, the first attempt to try to
23 translate this concept, if you will, into some real
24 life examples.

25 CHAIRMAN CARR: Of course, our problem is

1 at the time of that FSAR and the operating license
2 we've been able to go to the control room and look at
3 it and this time we aren't going to have that and
4 we've still got to certify the safety of the plant.

5 COMMISSIONER REMICK: Mr. Council, you, in
6 your presentation, mentioned the \$500 million and I
7 didn't want to home in on that, but I didn't
8 understand if that was the incremental cost or total
9 cost.

10 MR. COUNCIL: No, that's an incremental
11 cost. In other words, it's transferring money that
12 would have been spent probably later in this whole
13 process of the combined operating license and moving
14 it up front.

15 CHAIRMAN CARR: Across three vendors?

16 MR. COUNCIL: Yes, sir.

17 CHAIRMAN CARR: But not each vendor?

18 MR. COUNCIL: No, not \$500 million per
19 vendor, total. It's an estimate. Something in excess
20 of \$500 million total for the three vendors in this
21 process.

22 MR. LEE: Four designs.

23 COMMISSIONER REMICK: And just a comment.
24 In your comments you address the staff. The staff has
25 proposed, but we must remember that they are

1 responding to their perception of what the Commission
2 wanted. So, if there's criticism, why, it has to be
3 shared with this side of the table and not necessarily
4 the staff's --

5 CHAIRMAN CARR: Well, I think it's
6 important to note that that draft appendix that they
7 put in there has two columns, one technical and
8 feasible or maximum technically available, and the one
9 they recommended. Those are different columns, which
10 leads me to believe the one they recommended is what
11 they think they need for the safety determination.
12 Now, I don't know whether that's the column you're
13 attacking or if the one that says maximum technically
14 available is the one you're attacking. Now, that's
15 the one we asked them to give us. The one they give
16 us in addition to that is the one they think they need
17 for safety. So, you're on notice.

18 COMMISSIONER REMICK: That's all the
19 questions.

20 CHAIRMAN CARR: Commissioner Curtiss?

21 COMMISSIONER CURTISS: I just have two or
22 three areas that I want to cover.

23 Let me begin with picking up on a point
24 that we discussed at the last meeting, this question
25 of what's in tier 3 and what the safety relationship

1 is to that information.

2 If I understand what you've said and I've
3 read the comments of the vendors and listened very
4 carefully, Bill and others here, to what you've laid
5 out. On this question of how much detail in tier 3
6 would be required, I gather your argument is that the
7 staff is proposing to cast the net so broadly in that
8 tier 3 category that it would capture a whole lot of
9 detail. Maybe \$500 million is simple rule of thumb
10 that one could use to capture how much detail, beyond
11 what's necessary for the Agency to make its safety
12 determinations.

13 The staff on the other hand, if I
14 understand their argument, based upon their experience
15 with plants that have been licensed before -- and I
16 want to ask you in particular on that point in a
17 minute -- their argument, I gather, is that the tier 3
18 information has the potential when fleshed out to
19 affect matters in tier 1 and tier 2. That is to say
20 once you develop that tier 3 information, it may
21 indeed suggest a modification to, an addition to or in
22 some respect a change to an issue that's addressed in
23 tier 1 and tier 2. Then that procedurally would be
24 kicked up in the tier 1, tier 2 level.

25 I guess the question that I have, staff,

1 as you know, at the last meeting pointed to the
2 difficulty of knowing ahead of time precisely which
3 information has that potential for affecting design
4 issues addressed in tier 1 and tier 2. But is that a
5 plausible hypothesis that tier 3 information, when
6 fleshed out, could indeed have an impact on the issues
7 addressed in tier 1 and tier 2, first. And secondly,
8 if that's the case, tell me how we know in advance
9 which tier 3 information to require because you're
10 suggesting that some of the tier 3 information, that
11 is to say that which is necessary for the Commission
12 to make its safety determination, ought to be required
13 but not all the rest of that stuff. I guess I'm
14 asking you how do you predict that in advance and
15 considering the experience that we've had with the
16 licensing of the previous 110 plants where you get to
17 an FSAR stage and you may have a whole list of
18 amendments to the FSAR based upon fleshing out the
19 design detail. Can you speak to that?

20 MR. COUNCIL: Yes, sir. Let me take a
21 shot first. Maybe I'm going to be too simplistic and
22 if I am, stop me. But tier 1 is analogous, in my
23 view, to the technical specifications, if you will.
24 We're giving them to you up front. Tier 2 is your
25 FSAR. Tier 3, which is not a tier 3, but it's there,

1 it's in our files, or has been in the past, backs up
2 the tier 1 and tier 2 information. For instance, if I
3 tell you that under certain conditions we will not
4 exceed a DNBR or 1.3, you should be able to go into
5 the backup files of the various vendors, pressurized
6 water vendors, and look at that analyses that says,
7 "Okay, we will not exceed the 1.3 DNBR, go less than"
8 and so forth.

9 What we are deeply afraid of at this point
10 in time is that when you specify what will be
11 developed in tier 3, we are going to have a whole new
12 plethora of things to choose and pick from that people
13 have on a plate today, such as floor flexibility, of
14 certain things during a seismic analysis. There's a
15 lot of people that would love us to do all kinds of
16 great new things with floor flexibilities at this
17 point in time. That belongs in tier 3 if you specify
18 it, but it's not specified today, it's just a means of
19 putting that on the plate, that that's what we're
20 afraid of. We are absolutely obligated to back up
21 tier 1, tier 2, and it will be in our files. But we
22 will back it up. If, in fact, you don't feel we've
23 got enough or sufficient information, you can ask us
24 to provide more. But what we're afraid of, if you put
25 that plate out there in the beginning, there's going

1 to be a heck of a lot more than just those specific
2 questions.

3 COMMISSIONER CURTISS: I'm not sure I
4 understand the answer to my question. The premise of
5 the staff's approach is that in some respects the
6 information in tier 3 has the potential for affecting
7 the actual design set forth in tier 1 and tier 2. Is
8 that a plausible premise? Have we seen that happen?

9 MR. CASO: May I --

10 COMMISSIONER CURTISS: Yes, go ahead.

11 MR. CASO: May I answer the question maybe
12 in a different way? If indeed when you review tier 3
13 you have a change to the information in tier 1 and
14 tier 2, I assume that this is going to happen after
15 design certification because if it happens before you
16 can incorporate whatever information that we call tier
17 3, which is the rest of the information, and put it in
18 tier 1 or tier 2. So, I'm assuming that this happens
19 after design certification.

20 COMMISSIONER CURTISS: Yes. Well, there's
21 that body of information that you're proposing not be
22 included in tier 3 because it's not safety related.
23 My question is, with respect to the body that you
24 would excise from tier 3, have we seen with that kind
25 of information instances where that information has

1 led to design changes in tier 1 and tier 2?

2 MR. SCHERER: That's the point I was
3 talking about earlier and that's the confusion I was
4 talking about earlier. I tried to -- I think the
5 point is tier 1 and tier 2 ought to be the basis for
6 the licensing. That's it. We will be doing tier 3.
7 We had not considered to call it a tier 3 because we
8 didn't recognize that as being a licensing document or
9 a licensing commitment. We will not -- and I tried to
10 make the point, we're not naive in establishing and
11 agreeing to a tier 1 set of requirements. We think
12 the chances of design information being generated
13 after design certification that would somehow change
14 tier 2, much less tier 1, is very, very small.

15 Can I eliminate it totally? No. What
16 would happen in developing my detail design, the
17 calculation -- let's take Bill's analogy, that I do a
18 detailed thermal hydraulics analysis and fail to show
19 that I meet a DNBR of 1.3 using current methods. Well
20 then, I might have to go back and change tier 2, which
21 would probably be a notification to the staff. If I
22 had to change a tier 1, I'd have to pay the penalty
23 and the penalty would be I'd have to come back to the
24 Commission and reopen my design certification because
25 I failed to comply with the tier 1.

1 We are going to do everything in our power
2 to make sure that the tier 1 will not be violated.
3 We're not going to do that by accident. We're not
4 going to trust that an analysis that we deferred to
5 after design certification will come out okay. We are
6 going to pick the criteria, and agreed upon criteria
7 and agreed upon methods, so that we have a very, very
8 high degree of assurance that when we do those
9 detailed analyses they will by definition come out
10 okay.

11 MR. LEE: Let me see if I can take a whack
12 at it and if there's anybody else. But it seems to me
13 that as a part of the whole design certification
14 process that there will be lots of materials that will
15 be developed that are needed in that design process,
16 but the applicant does not believe that they're
17 necessary to be a part of tier 1 or tier 2. I think
18 we all agree that there is that whole set of
19 information that will be back there.

20 As we review the SECY document, it seems
21 to open the door to the point that if it has not been
22 reviewed it's considered kind of unresolved and it's
23 an open issue. So, if somebody has not looked at all
24 of that information that's out there, it is now
25 information that could come back sometime, at the COL,

1 at the OL or at the finding at the post-construction
2 period as a possible area that needs to be reviewed
3 through a potential hearing.

4 I think the other side also, if there's
5 data back there in the certification process that's
6 needed to make those decisions, it will be drawn up.
7 If it's there or if it's not there, it will have to be
8 developed and submitted to the staff as a part of that
9 certification process.

10 MR. SCHERER: Let me reinforce that. I
11 never perceived a tier 3 remaining, that if the staff
12 came back to us and needed design information which we
13 had not already submitted in our SAR, our safety
14 analysis report, that was needed to make a final
15 safety determination, we would supply it. It would
16 become tier 2. It would no longer be a tier 3
17 information or anything else, it would be part of the
18 record. The issue as to the standing of tier 3 would
19 go away.

20 MR. LEE: But there might be some
21 information that they'll audit, look at, decide that,
22 "Yes, it really isn't important," or, "I don't need
23 that for the decision" and it's there. But there's a
24 whole bank of that information that will be around
25 that appears to be subject to resolution in the

1 future.

2 COMMISSIONER CURTISS: Yes, I'm not -- I
3 guess the mechanics of what the staff has proposed
4 lead me to conclude that the procedural problem of
5 litigation at some future stage is less of a problem
6 because of the mechanism of saying, if we come across
7 the information in tier 3 that is safety related, that
8 gets placed into tier 2 and thereby specifically
9 identified in terms of what the staff needs. So, the
10 staff, I think, has a mechanism for addressing the
11 question of would the rest of the information that
12 doesn't get kicked up into tier 2 be subject to
13 litigation? I think the answer to that is no.

14 Bill, you've been through this most
15 recently with a specific plant and maybe that would be
16 edifying to talk about it. I had my staff go back and
17 take a look at Comanche Peak because it is one of the
18 most recently licensed and on this question of how
19 much detail gets developed after we get out of the
20 blocks at the front end. The FSAR for Comanche Peak
21 was amended 75 times, approximately.

22 MR. COUNCIL: That's right.

23 COMMISSIONER CURTISS: And I've got a list
24 here, and this is just what the staff has given me,
25 not my list but what they consider to be the major

1 design issues that arose in the process of amending
2 the FSAR those 75 times and a result of fleshing out
3 the design detail. I'll just read them to you.

4 "Inadequate design requiring reanalysis
5 and redesign of a substantial portion of ASME pipe
6 supports, conduit supports and component supports.
7 Number two, inability to determine the adequacy of U
8 bolts used in pipe supports. Number three, HVAC duct
9 joint design inadequacies resulting in insufficient
10 structural integrity.

11 COMMISSIONER ROGERS: Would you read that
12 one again, please?

13 MR. COUNCIL: I'm going to address each
14 one of these, believe me.

15 COMMISSIONER CURTISS: HVAC duct joint
16 design inadequacies resulting in insufficient
17 structural integrity, and finally, service water
18 piping internal coating failures.

19 Now, before you get into the details, this
20 isn't a licensing board and I'd rather not get into
21 all the details, but I guess the question that I would
22 ask and then in as much detail as you'd like to
23 address, are those the kind of issues in a recently
24 licensed plant that has seen its FSAR amended 75 times
25 that the tier 3 detail, if fleshed out at the front

1 end, would ameliorate in terms of the need to address
2 those later in the process and understanding that you
3 address them at the OL process but here it would be at
4 the CPOL process.

5 MR. COUNCIL: Sir, the current Part 52
6 process wouldn't have helped us a bit. We got thrown
7 into a regulatory arena whereby our plant was designed
8 to codes and criteria established in 1974. Through a
9 hearing process that we became tied to, we were forced
10 to update that plant in 1988, approximately 1988.

11 Now, I'm going to give you an example,
12 pipe supports, one of my favorite subjects. I took
13 the procedure from Millstone 3 when I went to Comanche
14 Peak in 1985. I knew pipe supports were an issue. I
15 accepted that. I accepted everything else everybody
16 said whether it was true or not true at Comanche Peak.
17 I took that Millstone 3 approved procedure and said I
18 was going to update Comanche Peak to Millstone 3. By
19 the way, they're very similar plants. They're both
20 3525 Westinghouse four loops. So, I should have been
21 able to do it, shouldn't I?

22 I took a Millstone procedure of 250 pages,
23 very complex procedure. When I got finished with the
24 staff reviews, intervenor reviews, judges reviews, I
25 had 880 other pages. That was the most complex thing

1 I've ever seen in my born days. I just sat on the
2 stand and I'm testifying in a rate case to this. I'm
3 having a very difficult time. I spent 33 hours
4 talking about it and I do get emotional about it
5 because why I want Part 52 is so this never happens
6 again, never. I don't think any utility should be
7 subjected to this type of risk.

8 Now, if you'd like, I'll go on with U
9 bolt, HVAC, service water and I've got about 35 others
10 I can list in addition.

11 COMMISSIONER CURTISS: Let me just ask
12 you, were there instances where design detail that in
13 the tier 3 context to what the staff has proposed, if
14 that information had been developed here at the time
15 of design certification, at the front end, would have
16 affected what you did on a tier 1 -- or what we call a
17 tier 1, tier 2 issue here?

18 MR. COUNCIL: No, no. Here's why. In the
19 FSAR tier 2, you certify in there that you're going to
20 meet certain standards to the SME and so forth, and
21 you're going to certify your design, your seismic
22 design of your plant. All that other information,
23 some 100,000 or so pages of information then is in
24 tier 3. It's there for audit. What happened
25 basically was in that audit process whole new criteria

1 started popping up. A great many new criteria started
2 popping up. For instance, additional loadings added
3 to pipe supports and thermal loadings that had been
4 negligible before and always had been negligible but
5 now had to be considered specifically in the analyses
6 of all support.

7 So, what happened basically was new
8 criteria were being added. Tier 2 didn't change. The
9 certification was still there and we had it all in the
10 back-up but now the back-up was no good.

11 COMMISSIONER CURTISS: Your argument is
12 that you had all that information fleshed out and
13 designed and set forth in all your documents --

14 MR. COUNCIL: Yes.

15 COMMISSIONER CURTISS: -- every one of the
16 respects addressed in the 75 amendments that it was a
17 set of changing requirements?

18 MR. COUNCIL: That's correct.

19 COMMISSIONER CURTISS: Okay.

20 MR. COUNCIL: What we ended up doing on
21 those 75 requirements was invoking code cases, one
22 thing or another, that were not applicable. I can
23 give you a good example, the SRP program. We were not
24 an SRP plant. We were told in 1986, "Go back and
25 review the plant totally to the SRP process, Part 88,"

1 and we did. We went back and did it. We had to do
2 it. But we were not an SRP plant.

3 COMMISSIONER CURTISS: Okay. There's one
4 other question I want to ask you, Bill, and then I
5 have one concluding question here.

6 I guess I didn't understand, Bill, when
7 you were talking about the -- let me just read the
8 note that I took here, that the treatment of tier 3
9 information raises the potential for a CPOL or a pre-
10 OL hearing because of the ambiguity in which the staff
11 would treat that. Let me go back to the point that I
12 made earlier. The staff approach, as I understand it,
13 would require tier 3 information to be developed and
14 where that information is necessary for a safety
15 determination, that gets kicked up into tier 2,
16 thereby becoming part of the certification and thereby
17 permitting that issue to take advantage of the issue
18 preclusion scheme of Part 52.

19 Why is it that either at the CPOL stage or
20 pre-OL, that issue identified in that manner raises
21 the potential for reopening the question at either of
22 those two stages?

23 MR. COUNCIL: Let me go back and see if I
24 can tell you basically. Let's take pipe supports
25 again.

1 In tier 2, we'll tell you how we're going
2 to analyze the seismic structures and thermal
3 hydraulic performance of pipe supports and why the
4 piping systems are going to be okay. If, in fact, now
5 in that analyses I've got it all laid out there and
6 I'm going to do it by specific approved code by the
7 staff, so forth, and then in tier 3 the staff tells
8 me, "Well, include within the analyses thermal
9 hydraulic considerations of the accident itself within
10 the containment system." In other words, include on
11 those pipe supports within containment the heat-up of
12 the containment as one of the loads placed upon the
13 support, self-exciting of the support itself, which
14 isn't part of the system to start with. That tier 3
15 will affect tier 2.

16 COMMISSIONER CURTISS: Is that a safety-
17 related --

18 MR. COUNCIL: No, it is not. The SME code
19 ignores it, but there are members of the staff that
20 would love to see it included.

21 COMMISSIONER CURTISS: But your argument
22 is there's a whole host of information that the staff
23 is going to incorporate by reference or use as the
24 basis for its determinations?

25 MR. COUNCIL: That's what the theory is.

1 COMMISSIONER CURTISS: And that it's
2 really a procedural concern here.

3 MR. COUNCIL: Yes, sir, it is. That's why
4 we had sought in some cases protection under 5109 back
5 under Part 50. There were backfit requirements being
6 imposed upon the power plants after we had agreed as
7 to what we were going to do in building such a plant.

8 Do you understand where I'm coming from?

9 COMMISSIONER CURTISS: I understand what
10 you're saying. Now, let me boil down what I've heard
11 here in the last hour and a half. It will be awful
12 expensive to develop this information, \$500 million,
13 A. B, it's not necessary for safety determinations
14 and, C, from the utilities' perspective there is a
15 concern that all the issues in tier 3 may be
16 bootstrapped into the process at either the CPOL stage
17 or at some later stage pre-OL.

18 MR. COUNCIL: Well said.

19 COMMISSIONER CURTISS: Let me just ask a
20 couple of questions on what you're taking a look at
21 here between now and January. We've had the paper out
22 on the street for some time and, in fact, this issue
23 has been rattling around the Commission since April
24 when it came up at a collegial meeting and then I
25 think the July meetings on the SECY paper at the time

1 where you all came in, or most of you. The recent
2 SECY paper has been out since November for public
3 comment.

4 Now, you all indicated -- I just want to
5 clarify what your thinking is in terms of the timing
6 here. You were going to put together a statement of
7 principles. I think I understand the principles here.
8 It was pretty -- discussed in quite a bit of detail.
9 But between now and the end of the month you are going
10 to put together a statement of principles and then you
11 would like an opportunity to what, comment in more
12 detail after the input of NPOC in January?

13 MR. LEE: Two separate issues.

14 MR. BAYNE: What we're developing at the
15 Nuclear Power Oversight Committee is we're trying to
16 define what we mean by standardization and how we're
17 going to get there, which is a difficult issue because
18 we've got to get a lot of utilities on board with that
19 issue. And so we've been working very hard trying to
20 get that definition and that policy statement down,
21 what do we mean by standardization and how are we
22 going to get there. We would like to -- it hasn't
23 been approved by the Nuclear Power Oversight
24 Committee, full committee. What we want to do is
25 continue to develop that policy, take it to the

1 Nuclear Power Oversight Committee, have them approve
2 it and then bring that policy statement to you to show
3 you what we feel we mean by standardization, hoping to
4 convince you that we really are serious about
5 standardization of these plants.

6 COMMISSIONER CURTISS: And what's the time
7 frame for that?

8 MR. BAYNE: That meeting will take place
9 on the 9th of January. It's fortuitous because the
10 meeting will be held just prior to an EEI-CEO meeting
11 which could be very helpful in at least letting all
12 the utility CEO's know what's coming down the pike and
13 perhaps convincing them that --

14 COMMISSIONER CURTISS: Shortly thereafter
15 we'll have the --

16 MR. BAYNE: And we would bring it to you.
17 I think the most profitable way is to have somebody
18 like Sherwood Smith and myself bring it up and show
19 you what we mean.

20 COMMISSIONER CURTISS: That's all I have,
21 Ken.

22 CHAIRMAN CARR: Commissioner Rogers?

23 COMMISSIONER ROGERS: I wonder if we could
24 go back to this available for audit question because
25 this is one of the very big questions.

1 In our presentation a week or so ago from
2 the staff, one of the points that came out was that in
3 doing their safety reviews they do not do a -- and of
4 course you all know this, but they do not do a repeat
5 of every analysis that every designer has made in
6 designing the plant. Can't do that. So they have to
7 do it on a sampling basis of some sort.

8 When they are faced with that kind of a
9 prospect, of doing a sampling, taking a sampling
10 approach to looking at safety issues in the design,
11 then wherever they do a probe on this, if they don't
12 have the necessary detail of design to complete that
13 they're going to get stuck. Well, your answer to that
14 might be, "Well, just come to us and we'll supply that
15 information." The problem that I see there is that--
16 in that approach, although it might be a way to deal
17 with the issue, is that they will never do a complete
18 review of every analysis and every conceivable safety
19 question on that design. They simply don't have the
20 resources and time to do it.

21 So, wherever they do an analysis, if they
22 run into a problem and the vendor simply says, "Well,
23 we'll give you that additional information if that's
24 what you need to complete that," then the nagging
25 question in back of your mind after that is, "Well,

1 what about those other areas that we didn't sample?"

2 So, the staff is saying, "Well, give us
3 everything and then we can do it."

4 There's the dilemma. How do you address
5 this? How do you propose addressing this issue?

6 MR. COUNCIL: Let me take it first, all
7 right?

8 Tier 3. What the staff is basically
9 saying is, "Put everything in your files. Then we'll
10 pick and choose what we want to look at." Well,
11 that's fine up to a point. Let me see if I can give
12 you, Doctor Rogers, an example on a pressurized water
13 reactor today. We got a design of 2500 psia on a
14 pressurized water reactor. We go through a whole
15 transient analysis, all right? We put reliefs on the
16 pressurizer, safety valves on the pressurizer. Those
17 have a certain blow-down capability and so forth. We
18 say we're going to protect the plant to 2500 pounds.
19 We do not provide the analyses that says, "Okay, this
20 blow-down on this reset point is okay with one safety
21 valve out of service. It doesn't work, whatever."
22 But it's there. It's in the files. The SRP says
23 we've got to have it and we're going to live to the
24 SRPs right now. It's there for audit.

25 But what has happened in the past is the

1 staff assumes that they don't have to go look at that.
2 That's a very easy calculation for a mechanical
3 engineer to make, so they don't look at it. They'll
4 look at more the esoteric, the new ones that are
5 coming out such as the I&C design of this new control
6 room if, in fact, that control room is every licensed.
7 Those are the type things they should look at because
8 they're new and they're different.

9 But I think what we're reading in tier 3
10 at this point is, "We'll give you a menu of everything
11 we want you to put, and therefore it would be any
12 possible question that we could possibly ask in the
13 foreseeable future. You do all of that and it's there
14 and we'll audit some of it and therefore the plant is
15 bound to be safe."

16 Well, that's too open-ended. We're trying
17 to sit with what right now we have been doing, and
18 that is with the SRP. There are other issues with
19 tier 3 too, believe me there are. If we could just
20 take one moment and we'll let Marc Rowden what else
21 can happen with tier 3 that we fear.

22 Mark, can you do it in two minutes?

23 COMMISSIONER ROGERS: Well, I'd like to
24 hear on this particular concern that I expressed how
25 you deal with that dilemma.

1 MR. COUNCIL: I guess I would say that --

2 MR. LEE: When Mark finishes, I'd like to
3 come back to that, Commissioner Rogers.

4 I'm not sure that submitting the data to
5 that dilemma is going to solve the dilemma. If the
6 capabilities aren't there to analyze and to understand
7 I need it, I guess by just submitting our data, I have
8 a feeling one of our problems in the past is we have
9 submitted tons and tons of data that have required a
10 lot of effort and have been of no value to the
11 process.

12 MR. SCHERER: I'm concerned we're talking
13 past each other. I think there remains confusion
14 about what information we're going to supply before
15 design certification and what information after. I
16 don't think there's controversy here except when we
17 try to understand what is in the design certification
18 for the FDA and what is a part of ITAAC.

19 In my view, we're going to submit the
20 design for certification. That does not involve
21 walking through our warehouse or a need to walk
22 through our warehouse at that point. We will submit
23 the design and an ITAAC plan both for review and prior
24 approval. Elements of that ITAAC plan by definition
25 will involve the staff verifying and signing as they

1 go that as we implement the detail design and build
2 the plant, that we have continued to comply with the
3 design which was reviewed and approved by the staff.

4 Elements of that plan will, without doubt,
5 involve the staff coming to our files over the years
6 after design certification and auditing calculations
7 and auditing compliance and auditing the physical
8 building of the plant to the ITAAC criteria which we
9 will, for the first time at licensing hearing agree is
10 necessary and sufficient to verify that the plant has
11 been built in accordance with the design. At that
12 point, the staff will have material and an acceptance
13 criteria for them to review.

14 The question and the confusion only arises
15 in SECY-90-377, the staff implies that they must do
16 that before design certification and we're saying, no,
17 those are elements which we will agree on that you
18 will do after design certification based on the ITAAC
19 plan which has the acceptance criteria and verify that
20 the design which you've certified is indeed the one
21 that we're building --

22 COMMISSIONER ROGERS: Oh, that's a second
23 issue. That's not the issue I'm talking about. I'm
24 not talking about that at all.

25 I'm talking about what the staff needs to

1 do a safety analysis, what they feel they need to do a
2 safety analysis.

3 MR. LEE: I think the answer was given
4 before, that you will get all of the information that
5 you need to do the safety analysis.

6 MR. SCHERER: There's nothing in tier 3
7 that the staff needs.

8 MR. LEE: There also is a massive quality
9 assurance program involved with all of these efforts
10 that will have a high degree of control, again, over
11 these programs. I know there will be the concern that
12 we had problems with quality assurance programs in the
13 past. Again, I would second that, as Bill Council
14 said, that was a changing set of requirements also
15 during a lot of that period in the same vein that Bill
16 was talking about on his examples before.

17 COMMISSIONER CURTISS: Just for
18 clarification, Ed, do I understand you to be saying
19 that there would be some ITAAC -- maybe all the
20 ITAAC -- that would be submitted and developed
21 sometime after design certification?

22 MR. SCHERER: No.

23 COMMISSIONER CURTISS: You will submit the
24 ITAAC at the time of design certification?

25 MR. SCHERER: Yes.

1 COMMISSIONER CURTISS: And need that
2 approved as part of the design certification?

3 MR. SCHERER: Yes, sir.

4 MR. LEE: Yes.

5 COMMISSIONER CURTISS: Okay.

6 MR. LEE: Mark?

7 MR. SCHERER: But implementing the ITAAC
8 would occur.

9 MR. LEE: Marc?

10 MR. ROWDEN: Marc Rowden, NUMARC Lawyers
11 Committee. I assume the two minute whistle has
12 sounded.

13 Let me try and put a focus on the tier 3
14 issue in terms of our two fundamental problems, and
15 I'll start as the point of departure, Commissioner
16 Curtiss' question about is it inconceivable that there
17 might be need for access to audit category information
18 in order to assure that tier 1 and tier 2 will be
19 properly implemented. Whatever the factual predicate
20 for that is, let me assume that hypothetically that
21 can and would be the case.

22 The two basic questions are: is this the
23 most sensible and practical functional way to go about
24 meeting that need, namely the preparation of a
25 comprehensive regulatory guide prescribing the

1 preparation of pre-prescribed what the staff calls
2 design products, which they would audit only in part
3 and even a lesser part would actually be incorporated
4 in the record of the design certification review
5 proceeding? Bill Council's most recent statement on
6 that point is, I think, directly responsive to your
7 question with regard to the functional aspect of that.

8 Yes, audit category information could be
9 required. No, the staff does not know what
10 information it will require to conduct that safety
11 review. I thought the comments made by the staff in
12 the December 7 briefing to the Commission were
13 transparently candid in that regard, and I believe
14 Doctor Murley said, "If we were to prepare that
15 regulatory guide today, we do not know what
16 information would be necessary to serve that purpose.
17 Therefore, the staff would require the maximum amount
18 of that information." And I think that picks up a
19 thought that Chairman Carr expressed before as to what
20 the staff's intentions are in that regard.

21 Let me address a point which I don't think
22 has been adequately covered, and that is our abiding
23 concerns about the procedural consequences for
24 preparation of a regulatory guide for tier 3. The
25 staff is institutionalizing the available for audit

1 category in a way which I believe is going to
2 transform at a minimum the combined license
3 proceeding. The staff is saying "this information is
4 necessary for us to be able to adequately discharge
5 our safety review responsibilities and we will audit
6 part of that information."

7 In my judgement, this immediately opens as
8 major issues, open-ended issues in a combined license
9 proceeding, the adequacy of what the staff has
10 prescribed for pre-preparation in this regulatory
11 guide. Remember, this won't have the status of a
12 regulation. Nobody's going to be able to rely on it.
13 All it does is introduce another issue. And
14 furthermore, it will introduce the further issue of
15 the adequacy of the staff's audit of that information.

16 I believe that this holds the potential
17 for converting the combined license proceeding into
18 something other than what the Commission contemplated
19 and certainly the industry understood Part 52
20 prescribed in this regard. I would urge the
21 Commission to give various consideration to the
22 procedural consequences of this action as well as to
23 the cost and other consequences of requiring
24 preparation of such a regulatory guide.

25 COMMISSIONER CURTISS: If your premise is

1 that everything that the staff would require in tier 3
2 we can say today and it will hold throughout is
3 safety-related. I do think it has the potential, if
4 it's not included in the design certification, for
5 being addressed at some point downstream.

6 At the risk of over-simplifying, I guess I
7 see three ways to approach this if it is plausible
8 that information in this category has an effect on
9 tier 1 and tier 2 design information.

10 Number one, you do what the staff did,
11 which is to say we're not quite sure precisely what
12 information has that potential, but in this category
13 generally we think that information does have the
14 potential and we'd rather err on the side of
15 requesting more rather than less, the "Why does it
16 take three ships to discover America?" analogy that
17 Tom Murley mentioned. We'd like to have more, so that
18 when we get into the process we'll have that
19 information available to us.

20 Secondly, I guess, the alternative that
21 you're suggesting, which is we can define with
22 precision at the outset what you all think, the vendor
23 think will be necessary to address the safety
24 determinations and hit the mark right out of the
25 blocks.

1 Or, third, which is probably the more
2 likely scenario it seems to me if the staff's approach
3 isn't pursued, you take your best shot at it, but when
4 you get into the process you discover that there will
5 indeed be safety information that you have to stop and
6 go develop or go find or in some manner incorporate
7 into the review.

8 The procedural question, it seems to me,
9 though, I'm not sure that's not a curable problem if
10 there is a focus as the staff's proposal suggests on
11 what the safety nexus is between the information that
12 they are requesting at the outset, ultimately relying
13 on, and then incorporating in tier 2. That just seems
14 to me to be a very -- to use your word -- transparent
15 process that would specify that category of the tier 3
16 information that ultimately proves to be safety-
17 related prior to the design certification.

18 You raise an interesting point. I'm not
19 sure I agree with it, but I would like to think about
20 the procedural question, whether it's a curable
21 problem, because I don't think it's intended to boot-
22 strap all that information that normally necessary and
23 may ultimately not prove to be necessary into the
24 adjudicatory process at the CPOL stage. I certainly
25 don't support that and I don't think the staff intends

1 that, but I would like to think --

2 MR. ROWDEN: I know the staff doesn't
3 intend it and I'm sure the Commission doesn't support
4 it, because it's totally at odds with the basic
5 procedural concepts in Part 52. What I'm suggesting
6 is a deep concern on our part that that will be the
7 consequence. You will have these additional issues
8 introduced into what was intended to be a proceeding
9 which would take as a given the design which has been
10 certified and approved in both tier 1 and tier 2 of
11 the design certification proceeding.

12 COMMISSIONER CURTISS: Okay. I understand
13 the point.

14 CHAIRMAN CARR: Well, I'm concerned, I
15 guess, that we've lost sight of the original intent of
16 Part 52 and that was to avoid the litigation and solve
17 all the problems before the spade was put in the
18 ground. From what you tell me today, there's going to
19 be a hell of a lot of problems out there after the
20 spade's been put in the ground and I'm concerned about
21 when they're going to appear and what the effect of
22 those are going to be.

23 You know, this is not the first time that
24 we've done a safety analysis on a plant, to use your
25 analysis. We certainly ought to know what those major

1 issues are, both the staff and everybody else. Your
2 saying the staff's going to require a lot of things
3 that are not needed for safety doesn't make a lot of
4 sense to me. If you don't like that draft appendix or
5 whatever it is, then seems to me the ideal way to work
6 that out is to argue out what ought and ought not to
7 be in there and come to some agreement.

8 So, I'm a little uneasy as to why you
9 don't like a reg guide. How about somebody telling me
10 why you don't want to work that out with the staff and
11 come to some agreement on "yes, we agree this is
12 what's needed."

13 MR. LEE: Bill?

14 MR. COUNCIL: I'll take the first shot.

15 I don't think -- for instance, there are
16 four reg guides or the potential for four parts to a
17 reg guide that are in 90-377. An explanation of what
18 should be in a reg guide or in a reg guide
19 determining, say, for a Westinghouse tier 1, tier 2, I
20 suppose, could be done, or for a CE tier 1, tier 2
21 split, or a GE tier 1, tier 2 split, but they're all
22 different and they will be different. And I don't
23 think that has been recognized. I don't believe, for
24 instance, that it's necessary to do that. Part 52
25 allows you to work that out during the process --

1 CHAIRMAN CARR: We're not arguing about
2 the necessity. We're trying to figure out wouldn't it
3 ease the process.

4 MR. COUNCIL: I don't think so. I think
5 what it's going to do is add more burden on the
6 process, because what's going to happen are the
7 resources that should be reviewing the docket now for
8 CE or the docket now for GE are going to be writing
9 the reg guide or waiting for the reg guide to do the
10 review.

11 CHAIRMAN CARR: My understanding is
12 there's not a lot of argument over the NSSS piece of
13 what we want. Everybody agrees that's pretty much the
14 same. I don't understand why steam plants aren't
15 pretty much the same no matter who's going to -- these
16 guys aren't -- you take some kind of steam out and you
17 run something with it. Why couldn't they agree on
18 what they need in the back end of the plant? What's
19 the problem?

20 MR. COUNCIL: It's not just the back end
21 of the plant. Tier 1 and tier 2 between these three
22 vendors will be different.

23 CHAIRMAN CARR: But not from a safety
24 standpoint.

25 MR. COUNCIL: Oh, absolutely. Absolutely.

1 CHAIRMAN CARR: Why can't we settle on
2 what is required from a safety standpoint and put that
3 in some kind of guidance to these three people?

4 MR. SCHERER: I think you already have
5 that. That's our point. If the Commission were to
6 tell the staff that we want you to collect and
7 document only that information necessary to make final
8 safety determinations and make them final, then we
9 think that the basis is already in place. It's called
10 a standard review plan. It may need some tweaking in
11 different areas, but the standard review plan
12 essentially tells --

13 CHAIRMAN CARR: The standard review plan
14 is only a guide to a guy who is reviewing something
15 else. That's not going to help us any. What we want
16 to look at is the design. That's what the plan tells
17 the guy, to look at what parts of the design. Right?

18 MR. SCHERER: That's what the case looks
19 at. In every case that's submitted an FSAR, it looks
20 at the design.

21 CHAIRMAN CARR: Staff's already told us
22 standard review plan won't work in this case.

23 MR. SCHERER: I think the staff's told you
24 that it needs revisions in certain areas like advanced
25 control room, but in many of the areas it's already

1 perfectly adequate and tells you the level --

2 CHAIRMAN CARR: You still haven't told me
3 why it wouldn't be a good idea. You're just saying we
4 don't need it. We've got a lot of things around here
5 we don't need.

6 MR. SCHERER: For example, we submitted
7 material on CESSAR. We can't seem to get reviewers
8 sufficient to review our design and give us questions
9 back as to -- so that they understand the design we
10 submitted, now you're asking me whether I agree that
11 maybe we take another person off a design, whereas I
12 understand that I only have about one and a half
13 equivalent people reviewing my design in the first
14 place. How many people can you take off that before
15 my design grinds to a standstill?

16 CHAIRMAN CARR: That's my manpower
17 problem. I'm trying to figure out if it wouldn't be
18 advantageous to have that reg guide in place so that
19 you'll know at least the kinds of things the staff
20 thinks they need, put some bound on the problem of
21 tier 3 or whatever that is.

22 MR. COUNCIL: We think the standard review
23 plan does that now, and we're willing to work with the
24 staff to upgrade the SRP in the areas of I&C, in
25 particular, because of their concern on advanced

1 control rooms. But, right now, the SRP provides that
2 information. We believe that it's not in our best
3 interest to start with a new document today.

4 CHAIRMAN CARR: Well, don't forget we're
5 doing this without anything to go look at.

6 MR. COUNCIL: But you're also doing it,
7 sir, with an ITAAC that you never had before.

8 CHAIRMAN CARR: No. We haven't designed
9 this ITAAC yet. It's going to be the second major
10 problem that we're going to face.

11 MR. COUNCIL: Well, it's going to be given
12 to you as part of the design cert phase, and you will
13 have it.

14 CHAIRMAN CARR: But, I say, that's another
15 hurdle to get over. The first one we've got to get
16 over is this level of design detail. If you put it
17 off until ITAAC, that ain't going to work.

18 MR. COUNCIL: ITAAC will be submitted
19 during this design cert phase.

20 CHAIRMAN CARR: That's fact, yes.

21 COMMISSIONER REMICK: Ken, could I add a
22 question on that?

23 CHAIRMAN CARR: Please.

24 COMMISSIONER REMICK: Am I correct that
25 your point is that what would be in the reg guide is

1 best developed during the give and take of the
2 certification review and the rulemaking, that that's
3 going to determine what's in tier 1 and tier 2?

4 MR. COUNCIL: Yes.

5 COMMISSIONER REMICK: If that's the case,
6 would you have any objection after the certification
7 to take that wisdom of what you decided was in tier 1
8 and tier 2 and documenting that for future vendors?

9 MR. COUNCIL: For that class of plant?

10 COMMISSIONER REMICK: For that class of
11 plants.

12 MR. COUNCIL: I would have no problem with
13 that.

14 MR. SCHERER: Philosophically, I have no
15 problem with the revealed standard, if you will,
16 approach to this issue, assuming that the guidance
17 from the Commission is that the information that he is
18 seeking and that his reviewers in the level of detail
19 is sufficient to make final safety determinations.
20 With that caveat, I have no problem with the revealed
21 standard approach.

22 CHAIRMAN CARR: Let me -- there seems to
23 be some real desire to keep material out of tier 1 and
24 tier 2.

25 MR. COUNCIL: That's correct.

1 CHAIRMAN CARR: I don't understand that,
2 if the object is to avoid litigation. Because, if we
3 get it in there and solve it before you dig into the
4 ground, then we solve a lot of problems that are never
5 going to come up.

6 MR. COUNCIL: Right now, if you take a
7 look at tier 1 -- and I'm not prepared to give you all
8 examples of tier 1 right now today -- but in tier 1
9 the staff has placed certain industry codes that may
10 or may not be in date, let's say, five years from now
11 or three years from now.

12 CHAIRMAN CARR: I can solve that problem
13 by just saying "or successor."

14 MR. COUNCIL: "Or successor"? Well, I
15 guess you think you can, and as far as -- if it's a
16 design cert, as I read it, it's a rule.

17 CHAIRMAN CARR: Yes.

18 MR. COUNCIL: And if it's a rule and the
19 things in the rule are spelled out, if you make a
20 change to it you've got to have another rulemaking
21 hearing.

22 CHAIRMAN CARR: No. When you come in for
23 your application, if you're the fifth plant down the
24 line and it says "or successor," then the date of that
25 approval is where you're going to be, whatever is in

1 effect at that date. I don't understand why that's a
2 problem.

3 MR. LEE: But then I think you're -- in a
4 sense, you're really deviating from the
5 standardization and the family of plant approach. The
6 whole idea --

7 CHAIRMAN CARR: I'm not the guy who
8 changed the criteria for the ASME standard, which I
9 guess we wanted to do or we wouldn't have changed it.

10 MR. COUNCIL: But they will change, and
11 we're quite certain they will change.

12 CHAIRMAN CARR: Well, I would hope so.

13 MR. COUNCIL: You know, what we believe
14 that should be in tier is the actual design criteria
15 for the plant, not the code from which -- not even the
16 code, the standard from which it was developed.

17 MR. LEE: That's a question of continually
18 going back and upgrading everything you've done in the
19 past to the latest code. The code is an evolving
20 issue and hopefully it makes improvements. But,
21 again, they're marginal step types of improvements
22 that are not significant enough to have to have
23 everybody in the world go back and modify everything
24 they've done in the past and I think the whole idea of
25 the Part 52 and the certification process was that it

1 was going to be constant long enough, not even with
2 those kinds of changes, to give people confidence that
3 they can order that certified design --

4 CHAIRMAN CARR: Okay, so I don't change it
5 to the ASME standard.

6 MR. COUNCIL: Well, that was just one
7 example. We haven't done a detailed review of those
8 tables yet. We haven't had time. But, those were
9 examples of --

10 CHAIRMAN CARR: Well, that's slow. We put
11 this out in November.

12 MR. COUNCIL: Well, I'm so slow, sir --

13 MR. LEE: We got it just before
14 Thanksgiving and we have been working on it pretty
15 diligently.

16 CHAIRMAN CARR: Well, are you going to do
17 that in your detailed comments, whatever you promised
18 us here in your comments? Are you going to say, "Hey,
19 these are the products that you've got in there I
20 don't think you really need"?

21 MR. LEE: We have not, at this point in
22 time, committed to do that. We are going to give you
23 some of the, again, as I said, general principles that
24 we've talked about here. But, again, I think one of
25 the concerns, Mr. Chairman, is that, again, if we lay

1 down the specific regulatory guide as such, that locks
2 in -- and the issue, we think, it's better to use the
3 standard review plan that exists today and to work out
4 these issues.

5 CHAIRMAN CARR: Well, but we're on what's
6 in level 1, level 2, why you're trying to keep
7 material out of there issue. If it's not in there, as
8 far as I'm concerned, it's subject to litigation
9 anytime.

10 MR. COUNCIL: Not if it's not safety-
11 related.

12 CHAIRMAN CARR: But that's what the
13 litigation will be over.

14 MR. COUNCIL: Well, I don't think, for
15 instance, a question of whether IEEE 383-19, whatever,
16 is safety-related or not. It's an IEEE code. Unless
17 you make it safety-related, it is not safety-related.
18 The results, the design that says we meet that or meet
19 something is safety-related and will be in tier 1, but
20 that standard doesn't have to be there, especially if
21 it changes at a later date, and it will. IEEE changes
22 everything every week.

23 CHAIRMAN CARR: So, you could tell me what
24 you want to take out of tier 1?

25 MR. COUNCIL: Out of tier 1?

1 CHAIRMAN CARR: In 377.

2 MR. COUNCIL: We believe tier 1 is
3 adequately defined right now by the standard review
4 plan and we are providing that information. And, tier
5 2, we are providing that information --

6 CHAIRMAN CARR: Well, standard review plan
7 was written before there was a tier 1.

8 MR. COUNCIL: Of course, but there was a
9 standard technical specification.

10 MR. LEE: It was safety issues that --

11 CHAIRMAN CARR: But, don't forget the
12 staff's got to come up and recommend that we approve
13 this, certify this design is safe. Always before when
14 the staff did that they could go down and look at the
15 plant if they had a question before we had to let it
16 operate. The staff is working with paper only.

17 MR. SCHERER: On your Part 52 there, you
18 still go to look at the plant before you let it
19 operate, but let me point out that I think that --

20 CHAIRMAN CARR: Say that again?

21 MR. SCHERER: Under your Part 52, they
22 still go look at the plant between the time you issue
23 a COL and it starts to operate.

24 CHAIRMAN CARR: But, you've already got
25 your operating license.

1 MR. SCHERER: That's right, but I still
2 haven't --

3 MR. COUNCIL: We don't have a go until you
4 bless it.

5 MR. SCHERER: I haven't implemented my --

6 MR. LEE: But there's a requirement at the
7 end before operating can start that --

8 CHAIRMAN CARR: Let me step in.

9 COMMISSIONER CURTISS: I can't resist
10 making just a general observation here. Part 52, I
11 thought, came about in large part because of a concern
12 that we were seeking to encourage and foster -- by
13 "we," I mean this agency. I don't mean the commercial
14 standardization effort. I mean this agency. I sat
15 through a lot of meetings and a lot of hearings when I
16 was on the Hill and heard a lot of concerns about how
17 it was the process of this agency that inhibited
18 standardization, that there was a disincentive for the
19 utilities to come up with complete design information
20 at the CP stage because they knew it had to be
21 relitigated at the OL stage, so let's come up with as
22 little as possible. There wasn't any financial or
23 institutional incentive to come up with complete
24 design information. Let's get out of the blocks with
25 whatever we need to have at the front end, knowing

1 that we'll have to litigate that at the pre-
2 operational stage.

3 These are complicated issues, but I must
4 say I find myself somewhat puzzled now, given all of
5 that years of concern about the process here
6 inhibiting standardization, that we've as we've sought
7 in Part 52 to come up with a process that does the
8 opposite, to encourage standardization, and in a
9 positive way that at each juncture, tier 1, tier 2,
10 tier 3, litigation and so forth, the comments are
11 consistently and I think uniformly in a direction that
12 on particular issues, what ought to be in tier 1
13 versus tier 2, what ought to be in tier 2 versus tier
14 3, what ought to be in tier 3, what's safety related,
15 what ought to be litigated and so forth.

16 I guess I'm just troubled by the undertow
17 here that on each one of these I think very important
18 issues that you seem to be coming down on the side--
19 on the other side of an argument that the
20 institutional structure that we establish and the
21 regulatory framework that we impose, given a choice
22 between a regulatory framework that it seems to me
23 would foster a good deal of standardization and in a
24 manner that is in my view directly related to safety.
25 I see those almost as inseparable.

1 The sum and substance of the comments seem
2 to suggest that it's not the regulator's role, that
3 it's the responsibility of the industry's commercial
4 standardization effort or the Department of Energy or
5 who-have-you, after hearing years of concern that it
6 was the process here that inhibited it, and I guess I
7 find that frustrating. I don't have anything other
8 than that observation to make, but just consistently
9 the strain that I hear throughout the comments I think
10 troubles me.

11 MR. CASO: May I try to answer?

12 COMMISSIONER CURTISS: Please.

13 MR. CASO: I think we have seen the
14 frustration, at least from our point of view. On the
15 one hand, we are terrified of the possibility of
16 having a second hearing. And some of the discussion
17 you heard on tier 3 that were made by Marc Rowden
18 specifically addressed the point that we see the
19 possibility of tier 3 to reopen the hearing later on,
20 and I think there are no questions in anybody's mind
21 that if the second hearing or the possibility of
22 having a challenge to design certification as COL is a
23 real opportunity. Nobody's going to move ahead.

24 So, a lot of the comments that we have
25 provided tended to indicate that to the extent that

1 changes or making available for audit or those kind of
2 statements open up the possibility for a second
3 hearing, we are really worried that it would make the
4 process unworkable.

5 The other issue that is related to tier 1
6 and tier 2 is the issue of maintaining that
7 flexibility that is necessary to operate the system.
8 We talked about code and standard. Maybe Chairman
9 Carr has the solution. We're going to modify that to
10 indicate that, but those things have to be worked out
11 and it is not possible to build a plant and ten years
12 later or five years later, whatever it is, to build
13 the same plant without having some flexibility to
14 modify those items that are not related to safety but
15 that may be necessary because are not available
16 anymore. The supply has gone out of business or there
17 is something that is necessary to do because the
18 technology evolved or there is a problem we have
19 identified. And, therefore, to the extent that some
20 of those concerns are -- some of those constraints are
21 put in tier 1, you will require to open up the hearing
22 again.

23 So, I think we understand your
24 frustration. I think we have very similar frustration
25 on our side to eliminate those two big specters that

1 we see: on the one hand, the possibility of having
2 more than one hearing; on the other hand, the real
3 question that we have to maintain some flexibility.

4 I think that, first of all, are we willing
5 to work with the staff? And I think you heard from
6 the previous discussion, yes, we're very much willing
7 to work with the staff. The biggest concern we have
8 in terms of a reg guide is the reg guide that address
9 tier 3, because by establishing a reg guide you
10 establish tier 3, which, as I said before, we see that
11 as an opportunity to open hearing later on.

12 From the Westinghouse point of view, we
13 believe the SRP is an adequate tool to get the tier 1,
14 tier 2 definition, but we would not have anything
15 against working out a process whereby we can define
16 the tier 1 and tier 2. But the point is, I think that
17 in order to reach a solution to this problem we have
18 to understand the reciprocal concerns.

19 COMMISSIONER CURTISS: That's a good
20 example.

21 CHAIRMAN CARR: Well, a reg guide by any
22 other name, whatever we call it. I don't care what we
23 call it, a certification guide or something.

24 MR. CASO: Yes. But, again, we're very
25 concerned if we were to do that for the tier 3,

1 because that is implication that go beyond the
2 definition of what we --

3 COMMISSIONER CURTISS: Well, I think what
4 we ought to do is ask our lawyers to take a look at
5 that particular problem --

6 MR. CASO: That would be fine.

7 COMMISSIONER CURTISS: -- and see whether
8 it's procedurally curable. I don't know if it is. I
9 guess my impression is that that doesn't seem to be an
10 intractable problem.

11 The thing that frustrates me -- and that's
12 just one example of sort of the theme that I'm
13 concerned about -- is that given a choice between
14 looking at the procedural routes to cure that problem
15 versus not having any tier 3 at all, not requiring any
16 of that information, in instances where those choices
17 have arisen in the discussion that we've had here this
18 morning and where there look to be opportunities such
19 as a procedural cure to that particular problem,
20 there's a consistent theme here that just seems to me
21 on every one of these points to come down on the other
22 side of the Agency having a role in standardization as
23 a safety matter.

24 I realize there will be responsibilities
25 and steps that the industry will take that go way

1 beyond our responsibility to encourage standardization
2 from a commercial standpoint. This isn't the be-all
3 and end-all to standardization, in my view. There are
4 a lot of things that we ought to do.

5 Somebody mentioned the French experience.
6 I've been over there and seen the plants. Their pumps
7 in their reactors are the same design, same component
8 manufacturer in every single plant. We cite the
9 benefit of the French experience in standardization.
10 Staff's not proposing that here, but there are
11 significant benefits when you go in and you have a
12 problem with the pump. It's got the same bar code
13 label on every single design in that generation, every
14 single pump of that design. Now, those are benefits
15 that I encourage you all to proceed with and to pursue
16 and try to accomplish.

17 But, this, I thought, was a pretty
18 reasonable effort, say, from a regulatory standpoint,
19 and in view of the years of concerns that we've heard
20 about how our process here inhibits standardization,
21 to redress those concerns. I don't think we've got
22 the final word on it. I think the reg guide makes a
23 good deal of sense to put out there in the industry's
24 court, and let's get to work chewing on it. If there
25 are issues in there that under no circumstance are

1 safety-related, let's find out what those are.

2 Let's get down to rolling up the sleeves
3 and working out the issues in that reg guide in tier 3
4 that you think under any circumstance conceivable just
5 wouldn't have a safety nexus whatsoever. Let's get
6 our lawyers to work on the question that you've raised
7 about the procedural downsides of a tier 3 type
8 approach and see if that's procedurally curable. I
9 happen to think that it may be cured already in the
10 way the staff has recommended that approach.

11 I'm going to stop there. I've gone on too
12 long already, but I just wanted to impart that
13 concern.

14 CHAIRMAN CARR: Been very quiet this
15 morning on the independent design review. My
16 understanding is you're against that as well, but it's
17 also my understanding the staff has added an
18 integrated design inspection or an independent design
19 verification before making the final safety
20 determination on all the recent operating licenses.
21 How are we going to get around that? Maybe you're for
22 it. I don't know.

23 MR. COUNCIL: You have not had it in all
24 of the last --

25 CHAIRMAN CARR: No, but most of the recent

1 ones.

2 MR. COUNCIL: Well, we feel overall that
3 the quality assurance requirements and the program and
4 the ITAAC make that point moot in the staff's sign-as-
5 you-go process. If in fact they do have a very strong
6 sign-as-you-go process, you shouldn't need an IDI done
7 by the staff. In fact, they would have been doing an
8 IDI all along.

9 CHAIRMAN CARR: So, you're not just
10 against that per se? It's one of those things you
11 don't think is necessary?

12 MR. LEE: We think all of the concepts are
13 already incorporated into the program, and just to
14 have a separate program --

15 CHAIRMAN CARR: Let's go back to this
16 prototype of innovative designs question a minute.

17 How do you expect the NRC to make a final
18 safety conclusion on an innovative design if we don't
19 have any prototype testing?

20 DOCTOR WILKINS: We have frequently
21 licensed designs with requirements for qualification
22 testing, and performing those tests and getting
23 acceptable results can certainly be part of the ITAAC
24 process.

25 Now, I don't think in anything we're doing

1 in the advanced control room area that we're out in
2 the R&D area. We are talking about application of
3 digital control and multiplexing systems and fiber
4 optics, all of which have been done in nuclear plants
5 and licensed, only here we're talking about applying
6 them on a larger scale and in a more integrated
7 system. So, I don't see that we're out on the fringes
8 of technology. We're just talking about doing a more
9 system-engineered job of things that have already been
10 done before.

11 CHAIRMAN CARR: May have more effect on
12 the passive designs that come down the pike, though.

13 MR. CASO: But, there are tests -- there
14 is a pretty significant series of tests that are being
15 scheduled to guarantee the operation of the plants, so
16 I do not --

17 CHAIRMAN CARR: You don't object to
18 prototype testing per se, if we --

19 MR. CASO: It depends what you mean.

20 CHAIRMAN CARR: -- if it's necessary to
21 make a safety determination.

22 MR. CASO: We have tests of the different
23 phenomena that are needed to be reviewed as part of
24 the safety. I'm concerned about your word, "prototype
25 testing." If you mean that you have to build a plant

1 in order to license, yes, I would object to it,
2 because the aspect that we are going to test are going
3 to provide the answer that are needed to determine the
4 safety of the plant.

5 In terms of the passive design, we are
6 talking about calculating a transfer coefficient,
7 basically, and a methodology for convection and the
8 natural circulation. Those items are going to be
9 calculated much more in a test that is specifically
10 designed for that purpose, rather than have a
11 prototype test which will never ever answer all the
12 question. And you're not going to have an accident
13 just to test the safety of the plant.

14 So, I think we are planning tests. We're
15 planning specific tests to calculate heat transfer,
16 the circulation, all the behavior of the different
17 surface phenomena, and those are definitely going to
18 be part of the certification of the plant. We're
19 running them now, and we plan to run significant more
20 in the future.

21 CHAIRMAN CARR: On the issue of finality,
22 so you agree with the staff in their position on issue
23 finality or have you got some problems with issue
24 finality as 377 pitches it?

25 MR. LEE: Yes. In part of -- in Bill's

1 discussion, we tried to cover that. And in
2 particular, with regards to this tier 3 issue, we have
3 serious concerns -- that's what we've been talking
4 about -- on the issue of finality.

5 I think back to your question about,
6 earlier, the fact that if you put everything in tier
7 1, then you have it resolved and it's not subject to
8 litigation. The problem is, if there is any
9 modification or any change that is needed in that
10 process, it does open it up to an amendment and a
11 hearing.

12 Now, again, if it's a safety type of an
13 issue or if it's a design or it's a modification that
14 is felt is to the benefit of that particular design to
15 go through that process, whether it's for safety or
16 whether it's for economic reasons, you'll have to make
17 that decision on doing it, and you may do it. I think
18 our concern is, if it's all up in there, it may not be
19 of a magnitude that it ought to open that door to a
20 hearing.

21 CHAIRMAN CARR: Part of my concern with
22 this whole problem is we're talking about design work
23 that's going to have to be done anyway.

24 MR. LEE: Yes, sir. We agree with that.

25 CHAIRMAN CARR: Before the plants ever

1 going to operate, it's going to have to be designed
2 and built. From what I hear, you've all probably got
3 somewhere in the neighborhood of \$200 million involved
4 in your advanced designs now. You're talking about,
5 if we say 500 over four plants, another \$125 million
6 apiece to get to where 377 evidently predicts they'd
7 like to go. Since that money has got to be spent
8 anyhow, it appears to me it would be a lot easier to
9 certify the safety of that plant and not only that, to
10 build it, to build it on time for a reasonably
11 accurate amount of money.

12 I guess I have a real problem
13 understanding why it's impossible to get the money up
14 front. Somebody want to --

15 MR. CASO: I can try to give the answer,
16 and I'd like to give the answer in two different
17 bases.

18 Let me answer directly to your particular
19 question. In today's environment, it's very difficult
20 to collect the amount of money that is necessary to
21 the complete design, given the fact that there are
22 significant uncertainties relative to the possibility
23 to place a plant, look at a plant, what the things are
24 going to be.

25 So, in this environment, I think even the

1 economical issue will raise the feasibility of being
2 able to complete the design and get design
3 certification. Without design certification, nobody
4 is going to step forward to buy a plant, and therefore
5 you get very much in a catch 22, that you need the
6 money to do the design certification. Without design
7 certification, nobody is willing to buy and plant and
8 it's very difficult to collect the money needed for
9 design certification without the commitment to the
10 plant. So, there is that particular issue of the
11 concern in terms of the amount of detail.

12 However, the second part of the answer, I
13 really believe that, while the issue of the money is a
14 significant issue, in the presentation that we have
15 made today we raised the issue that are not related
16 only to the money. There are some issues that are
17 related to concerns that we are not going to achieve
18 the goal that Commissioner Curtiss eloquently
19 described, to get a standardized plan that is a
20 certainty in the license.

21 So, I think we should not eliminate the
22 two aspect, because it's not only the money aspect
23 which is a great concern to us, but is also the fact
24 that there are aspect in the rules which we believe
25 are going to create a problem rather than provide a

1 solution.

2 MR. SCHERER: I agree with that, share
3 that concern, and I want to say that my concern is
4 that even if we had the money -- and where's Senator
5 Dirksen when you need him -- \$100 million here and
6 \$100 million there and pretty soon you add up to some
7 real money. I don't see people with hundreds of
8 millions of dollars to invest on potential sales of
9 nuclear power plants. But be that as it may, even if
10 I had that level of information --

11 CHAIRMAN CARR: We heard the gentleman say
12 they're going to build nuclear power plants.

13 MR. BAYNE: We're going to build nuclear
14 power plants if we can clarify some of these issues
15 and solve some of these problems. If we have an
16 uncertain --

17 CHAIRMAN CARR: One of which is
18 certification.

19 MR. BAYNE: Right. One of which is
20 certification, and one of which is --

21 CHAIRMAN CARR: Which seems to me would be
22 easier if we had a complete design.

23 MR. BAYNE: And one of which is certainty
24 of licensing. But, you're not going to get anybody on
25 Wall Street to go out and raise money for you to buy a

1 nuclear power plant if they think we're going to go
2 through what we went with the last ones.

3 CHAIRMAN CARR: That's how we came up with
4 Part 52, I thought.

5 MR. BAYNE: Right. And we support Part
6 52. We really do.

7 What I'm worried about with the tier 3
8 business is a giant fishing expedition. You give me
9 all this information and then I'll go fishing in there
10 and try to find something and maybe it could -- I
11 always take things to the simplistic end to see where
12 things could go. And, in my mind, you give a bunch of
13 guys all this information and the simplistic end is
14 you prove to me that it's not safety related, instead
15 of me proving to you that I need the information for
16 safety. And that could happen and it's happened in
17 the past, and that's just an untenable --

18 CHAIRMAN CARR: Yes, but I'm not sure that
19 you're going to end up in the position where, if the
20 staff says they need it, they're going to have to
21 prove they need it. If you want certification and
22 they say they need it --

23 MR. BAYNE: We'll probably go out and get
24 it, but, you know, if they say "give us everything you
25 got and then we'll certify the plant," we probably

1 won't do it because we can't afford to.

2 MR. LEE: Because we may need it.

3 MR. SCHERER: I have a very high degree of
4 confidence that the level of information we're
5 prepared to submit at this point in time comes very,
6 very close to the level of information the staff has
7 in the past required to approve plants for operation.

8 Now, let me point out that in addition to
9 the concern that we've been expressing about the
10 classic catch 22 which we may be building for
11 ourselves in that the money won't be available until
12 the design certification and the design certification
13 may be contingent on the money, but let me go further.
14 If I had the level of information in my warehouse, I
15 would still share Phil Bayne's concern that so much
16 information would then be part of the record under
17 which the design certification was made that I would
18 have great difficulty operating the plant past the
19 first day. As the first parts start to wear out, the
20 level of information which would have been part of the
21 record for this plant would reopen ever time that I
22 had to change a pump valve or heat exchanger. I would
23 end up having to relicense through rulemaking this
24 plant, because the tendency is when in doubt throw it
25 into the public record and if it's available in that

1 warehouse let's have some trucks back up and bring it
2 here to Rockville and make it part of the record.

3 CHAIRMAN CARR: I think you're all
4 overlooking the tremendous thought process the staff
5 has always had when they've approved a design of
6 before it ever operates I can really go look at it.
7 Certifying this design is something they haven't done
8 before and it's going to be very hard from all
9 standpoints.

10 MR. SCHERER: I beg to differ. They can
11 still go look at the plant. What they can't do this
12 time is change the regulatory standards as they look
13 at the plant. I have no problem --

14 CHAIRMAN CARR: Oh, they can if they think
15 it's not safe when they see it.

16 MR. SCHERER: No doubt, if we fail to
17 comply.

18 CHAIRMAN CARR: And you're telling me
19 they've changed it without it being a safety
20 consideration?

21 MR. SCHERER: Part 52 eliminates the
22 practice where the staff has to go --

23 CHAIRMAN CARR: Answer that question.

24 MR. LEE: I think Bill Council's examples
25 that he talked about before borderline on that

1 situation.

2 CHAIRMAN CARR: Borderline, yes.

3 MR. LEE: And that's the problem, I think,
4 with --

5 CHAIRMAN CARR: He wouldn't have changed
6 it if he hadn't thought he had to.

7 MR. LEE: Well, he had to because he was
8 under extreme financial pressures to do it.

9 CHAIRMAN CARR: Well, he's going to be
10 under that again.

11 MR. LEE: Well, I think that's the point
12 we were trying to make.

13 MR. COUNCIL: Hopefully, I will be
14 changing the plant, though.

15 MR. LEE: We will have a standardized
16 certified design. I think that was the point in
17 Commissioner Curtiss' comment. And, as Phil Bayne
18 said, we did agree and accept the Part 52 rule. I
19 think it's what we now appear to think is an expansion
20 of that rule into areas that will just turn the risk
21 back to the licensee eventually in the future, and I
22 think that's the risk that the utilities, on the
23 second part, just feel unable to cope with in the near
24 future.

25 COMMISSIONER ROGERS: I wonder if I could

1 just ask a question here that relates to this
2 financial aspect, not the legal aspect.

3 Would some kind of an NRC licenseability
4 opinion prior to a full certification of a design be
5 of any help in this regard?

6 MR. SCHERER: Aren't you essentially
7 reinventing a construction permit? And haven't you
8 turned a one-step licensing into a classic two-step
9 licensing, Part 50?

10 COMMISSIONER ROGERS: I'm asking you
11 whether it would be of any help.

12 MR. LEE: I think not. I think it does
13 not give that kind of assurance that all of those
14 questions have been answered and that we can build
15 that plant and it will be acceptable to the safety
16 regulator of this industry.

17 CHAIRMAN CARR: Let me -- on 12/11/90, at
18 a plant not to be named, sanitary discharge line
19 violates secondary containment integrity. They have a
20 four -- they're in a four hour LCO because penetration
21 seismically qualified sanitary discharge line from the
22 refueling floor restroom to the reactor building
23 basement and an associated vent line which connects to
24 the radioactive floor drains HVAC system. You would
25 normally think that the sanitary discharge system

1 wouldn't be a safety-related operation.

2 MR. COUNCIL: I wouldn't normally put one
3 inside containment. If I needed it, I'd bring in a
4 port-a-potty.

5 CHAIRMAN CARR: I don't know whether
6 that's tier 3 or not.

7 MR. LEE: And I think a part of, again,
8 the requirements documents and all the efforts going
9 on in these designs, unless it is safety-related, that
10 ought not happen in the -- which I'm not sure how back
11 that design goes. Remember, most of these designs are
12 1960 or early '70 designs.

13 CHAIRMAN CARR: That one's not that old.

14 MR. LEE: Operational-wise, but look at
15 the design.

16 CHAIRMAN CARR: Let me ask you, you're
17 talking about you need it to be there by the year
18 2000. The end of the decade is what you said. I
19 assume that's --

20 MR. BAYNE: Let me clarify what I said. I
21 said we would like to have the nuclear option when the
22 need for capacity, baseload capacity, develops.

23 Now, it's up to the utility --

24 CHAIRMAN CARR: Where did I get the words,
25 "by the end of the decade"?

1 MR. BAYNE: We would like that.

2 CHAIRMAN CARR: That was your pitch,
3 right? You want it on-line by the end of the decade?

4 MR. BAYNE: We think we will need it by
5 then and have to have it on-line by --

6 CHAIRMAN CARR: We're getting a lot of
7 heat from, shall I say, the vendors and from the
8 Department of Energy that we're the guys holding up
9 the show. I guess my real question to you is do you
10 want it so bad that you get it bad, or do you want to
11 take some time and work this problem out? How bad do
12 you want it?

13 MR. BAYNE: Well, there are a lot of other
14 areas where it's being held up and we're trying to
15 work them all at the same time, and we don't want it
16 bad enough to get a bad process. We don't want it bad
17 enough to get a process that we then cannot find an
18 investor so that we can buy one of these plants. No,
19 we don't want it that bad, but we certainly feel that
20 the economy of the United States needs a supply of
21 electricity, because everything we do is -- our whole
22 gross national product tracks the use of electricity
23 and has for a lot of years.

24 There are some excess capacity in the
25 states, but we're running short everywhere and we're

1 going to need capacity. Now we get in the competitive
2 situation where we've got one or two sources, namely
3 coal and gas. You know, these plants run for 50, 60
4 years. I've heard we've got 60 years of gas left.
5 Are we going to go build plants where the fuel supply
6 is going to run out towards the end of their life? I
7 don't know. Do we want to just say, "Okay, we'll just
8 build coal plants?" I don't think we want to do that.
9 What we'd like to do is give the utilities the
10 capability to use nuclear if they want, to use coal if
11 they want, and use gas if they want.

12 We don't think you can get the capability
13 to build a nuclear plant unless you solve these
14 issues, which means that when you go out and raise the
15 money to buy a nuclear power plant, there's a
16 reasonable assurance that you will get that plant
17 licensed and operating and be able to get a reasonable
18 return on your investment. If we cannot get to that
19 point, we won't build any plants and we won't buy any.

20 But I think I read the utility executives
21 that I talk to, and I talk to almost all of them,
22 really think we need this option and they're ready to
23 go out and, in essence, they're betting their company
24 when they're talking about this.

25 CHAIRMAN CARR: I guess my concern is I'm

1 not -- until we decide on this level of detail, we're
2 not going to be able to predict when the certification
3 date is going to be.

4 MR. BAYNE: Well, you have to do what you
5 think is necessary in the time frame you think it's
6 necessary. We're here to try to help you in every way
7 we can to try to meet the schedule that we feel is
8 essential to provide the electricity supply that we
9 think this country needs.

10 MR. LEE: And I guess we have indicated
11 we're willing to work with the staff. We think it is
12 an important question and that we need to be sure we
13 all understand the issues completely. So, we do not
14 want to rush to a decision.

15 CHAIRMAN CARR: Any other comments or
16 questions?

17 COMMISSIONER ROGERS: Yes. I'd like to
18 just come back on what NPOC is expecting to produce
19 and get to us, that you're asking us to wait for.

20 I heard that it would be a definition of
21 standardization.

22 MR. LEE: Yes, sir.

23 COMMISSIONER ROGERS: I think that's great
24 because it seems to me one of the big problems in this
25 whole business is that everybody's been using the word

1 "standardization" without really having a very precise
2 meaning when they're talking about it. Will you be
3 trying to separate or draw a distinction between
4 standardization and a level of design detail in that
5 or will you not?

6 MR. BAYNE: Yes. We think that we'll end
7 up with the definition of four types of
8 standardization. Certainly one of them will be the
9 design certification process. But there's also design
10 detail, detailed design after the certification
11 process that we feel would be necessary. That will
12 produce a level of standardization that will be
13 economical for the utilities and for the vendors. It
14 will make the plants more constructable and more
15 predictable.

16 Then we think there are even things beyond
17 that, like how you maintain a plant, how you operate
18 it, how you train your operators, all those things.
19 That's the reason that we've taken a little bit longer
20 than we wanted to to get that policy statement out,
21 because those are hard issues and they're hard issues
22 that we've got to convince people to sign onto.

23 MR. LEE: But it will not, I don't think,
24 Commissioner, give you a specific schedule of what it
25 is that we think needs to be in design certification.

1 NUMARC has been charged with that effort as a part of
2 that program and that's what we've been working on and
3 will continue to work on.

4 CHAIRMAN CARR: Commissioner Remick?

5 COMMISSIONER REMICK: Just a couple
6 comments on what we've discussed this morning.

7 One, I don't like to focus in on what it's
8 going to cost because there's no question the bottom
9 line is we have statutory safety finding
10 responsibility. It will cost what it costs for the
11 Commission to do that.

12 Now, there's always been this warehouse of
13 information. It's always existed. I think what
14 you're saying, and I believe that that warehouse will
15 exist in this case also, it will be there. The
16 question is when does all that have to be developed?
17 Now, the staff will have to issue an SER and to issue
18 that SER they're going to have a lot of questions to
19 ask, I'm sure. You're going to submit an SSAR.
20 You're hopefully going to be complete. My guess is
21 they're going to have lots of questions.

22 Out of that tier 3 you're going to have to
23 provide some information. If you haven't properly
24 anticipated their questions, it might take some
25 further development. But there's a large amount of

1 that warehouse that they will probably not ask in
2 making their safety determinations.

3 So, I think, Jim, that even though we
4 might hope that there might be on SSAR, I would assume
5 there are going to be a number of revisions of that
6 SSAR before the staff ever issues an SER based on the
7 additional information they receive. I hope it's less
8 than the case that you've indicated.

9 From my perspective, I think what should
10 be in tier 1 and tier 2 and what from tier 3 might be
11 moved up to tier 2 or possibly tier 1 can best be done
12 through the staff getting on with the specific
13 reviews, working with the vendors, ironing these
14 things out in the FDA review process and the
15 certification process. I think that's the best way we
16 can proceed rather than asking the staff in advance,
17 which is hypothetical, on what they might need and not
18 case specific and therefore, and I can understand the
19 staff's position to be safe, they're going to have to
20 ask for everything in that up front type of thing.

21 So, I would think the way to do this is
22 get on with these reviews, staff ask whatever
23 information they need if they don't have it and so
24 forth and that's the way to proceed at this time, in
25 my view.

1 CHAIRMAN CARR: Any other comments?

2 Well, I'd like to thank the industry
3 representatives for their briefing.

4 The Commission has been considering the
5 level of detail required for the next generation of
6 nuclear power plant designs over several months and
7 has received significant input from the industry on
8 this issue.

9 The industry and the NRC staff have
10 reached consensus on a number of important issues such
11 as the two-tier approach to design certification, the
12 use of a change process similar to 50.59 during
13 construction for tier 2 information, a graded approach
14 to level of detail depending on the safety
15 significance of the system, the philosophy that the
16 level of detail should equate to a final safety
17 analysis report minus as-built and as-procured
18 information.

19 The key to the whole issue, however, is
20 that the staff must have enough information to reach a
21 final conclusion on all safety matters.

22 The Commission received a letter from the
23 Advisory Committee on Reactor Safeguards on December
24 10th, 1990 and now that we've heard from the industry
25 it's our hope to complete this matter as soon as

1 possible. The Commission will carefully consider the
2 additional information you've provided today in
3 reaching a decision.

4 Any of my fellow Commissioners have any
5 closing comments?

6 If not, we stand adjourned.

7 (Whereupon, at 11:20 a.m., the above-
8 entitled matter was concluded.)
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

CERTIFICATE OF TRANSCRIBER


This is to certify that the attached events of a meeting
of the United States Nuclear Regulatory Commission entitled:

TITLE OF MEETING: BRIEFING BY NUMARC ON LEVEL OF DESIGN DETAIL FOR
PART 52

PLACE OF MEETING: ROCKVILLE, MARYLAND

DATE OF MEETING: DECEMBER 19, 1990

were transcribed by me. I further certify that said transcription
is accurate and complete, to the best of my ability, and that the
transcript is a true and accurate record of the foregoing events.



Reporter's name: Peter Lynch

NEAL R. GROSS
COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVENUE, N.W.
WASHINGTON, D.C. 20005

DISCLAIMER

This is an unofficial transcript of a meeting of the United States Nuclear Regulatory Commission held on December 19, 1990, in the Commission's office at One White Flint North, Rockville, Maryland. The meeting was open to public attendance and observation. This transcript has not been reviewed, corrected or edited, and it may contain inaccuracies.

The transcript is intended solely for general informational purposes. As provided by 10 CFR 9.103, it is not part of the formal or informal record of decision of the matters discussed. Expressions of opinion in this transcript do not necessarily reflect final determination or beliefs. No pleading or other paper may be filed with the Commission in any proceeding as the result of, or addressed to, any statement or argument contained herein, except as the Commission may authorize.

NEAL R. GROSS
COURT REPORTERS AND TRANSCRIBERS
1323 RHODE ISLAND AVENUE, N.W.
WASHINGTON, D.C. 20005

(202) 234-4433

(202) 232-6600