

ORIGINAL ACRS-3101

OFFICIAL TRANSCRIPT OF PROCEEDINGS  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

Title: MEETING: MATERIALS AND  
METALLURGY

TRO4 (ACRS)  
RETURN ORIGINAL *only*  
TO BJWHITE *Do Not*  
M/S T-2E26 *Send*  
415-7130 *copies*  
THANKS!

Docket No.:

Work Order No.: ASB-300-1035

LOCATION: Rockville, MD

DATE: Wednesday, December 1, 1999

PAGES: 1 - 150

ANN RILEY & ASSOCIATES, LTD.  
1025 Connecticut Ave., NW, Suite 1014  
Washington, D.C. 20036  
(202) 842-0011

**ACRS Office Copy - Retain  
for the Life of the Committee**

*PROCESSES T-3101*

DISCLAIMER

UNITED STATES NUCLEAR REGULATORY COMMISSION'S  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

DECEMBER 1, 1999

The contents of this transcript of the proceeding of the United States Nuclear Regulatory Commission Advisory Committee on Reactor Safeguards, taken on December 1, 1999, as reported herein, is a record of the discussions recorded at the meeting held on the above date.

This transcript had not been reviewed, corrected and edited and it may contain inaccuracies.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

\*\*\*

MEETING: MATERIALS AND METALLURGY

U.S. NRC  
Two White Flint North, Room T2-B3  
11545 Rockville Pike  
Rockville, MD  
Wednesday, December 1, 1999

The subcommittee met, pursuant to notice, at 8:05  
a.m.

MEMBERS PRESENT:

- WILLIAM SHACK, Chairman, ACRS
- JACK SIEBER, Member, ACRS
- THOMAS KRESS, Member, ACRS
- ROBERT UHRIG, Member, ACRS
- JOHN BARTON, Member, ACRS
- MARIO BONACA, Member, ACRS
- DANA POWERS, Member, ACRS
- ROBERT SEALE, Member, ACRS

ANN RILEY & ASSOCIATES, LTD.  
Court Reporters  
1025 Connecticut Avenue, NW, Suite 1014  
Washington, D.C. 20036  
(202) 842-0034

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

[8:05 a.m.]

1  
2  
3 CHAIRMAN SHACK: The meeting will now come to  
4 order. This is a meeting of the ACRS Subcommittee on  
5 Materials and Metallurgy. I am Dr. William Shack, Chairman  
6 of the Subcommittee meeting.

7 ACRS members in attendance are -- well, I see Jack  
8 Sieber, Tom Kress, Bob Uhrig, and John Barton --

9 DR. KRESS: Bob Mario's here.

10 CHAIRMAN SHACK: Mario Bonaca, and Dana Powers are  
11 coming.

12 DR. KRESS: Dana's here. Rob Seale's probably  
13 coming later too.

14 CHAIRMAN SHACK: Okay.

15 The purpose of this meeting is to review the  
16 Staff's proposed revision to 10 C.F.R. 50.55a, Codes and  
17 Standards. It eliminates the requirement to update  
18 in-service inspection and in-service testing programs to the  
19 latest American Society for Mechanical Engineers code  
20 edition every 120 months. The Subcommittee will gather  
21 information, analyze relevant issues and facts, and  
22 formulate pr4oposed positions and actions, as appropriate  
23 for deliberation by the full Committee. Mr. El-Zeftawy is  
24 the cognizant ACRS staff engineer for this meeting.

25 The rules for participation in today's meeting

1 have been announced as part of the notice of this meeting  
2 previously published in the Federal Register on November 16,  
3 1999.

4 A transcript of this meeting is being kept, and  
5 will be made available as stated in the Federal Register  
6 notice. It is requested that speakers first identify  
7 themselves and speak with sufficient clarity and volume so  
8 that they can be readily heard.

9 We have received no written comments or requests  
10 for time to make oral statements from members of the public.

11 I believe Dick Wessman wants to start with a few  
12 introductory remarks before Tom Scarbrough from the Staff  
13 begins.

14 MR. WESSMANN: Good morning. Thank you, Dr.  
15 Shack. My name is Dick Wessman. I'm the Deputy Director of  
16 the Division of Engineering. With me here at the table is  
17 Gene Imbro, who's Chief of the Mechanical Engineering  
18 Branch.

19 I feel kind of bad -- I'm speaking to the backs of  
20 all three of you. I should probably have snuck around to  
21 the other table. I just wanted to say just a few words  
22 before turning it over to Tom Scarbrough, who has had the  
23 lead for the work on our rule making activity, just to kind  
24 of set the framework for our discussion and point the  
25 direction in which we think we're headed.

ANN RILEY & ASSOCIATES, LTD.  
Court Reporters  
1025 Connecticut Avenue, NW, Suite 1014  
Washington, D.C. 20036  
(202) 842-0034

1           As you know, there's been the long-standing  
2 requirement for licensees to update their ISI and IST  
3 programs every ten years, to the latest version of the ASME  
4 code that's been endorsed by the Staff by Part 55 of the 10  
5 C.F.R. Recently, after a number of years, we completed rule  
6 making that updated that staff endorsement to the '95 code  
7 and '96 addenda with certain limitations. And this was all  
8 done in September.

9           Last spring we were with you and, and I think it  
10 was in April where we discussed the concept of eliminating  
11 or replacing the requirement of the 120-month update with a  
12 baseline code edition and allowing the concept of voluntary  
13 updates to later approved versions of the code. At that  
14 time -- this was before the completion of the rule making --  
15 we had proposed the idea of the 1989 version of the code,  
16 which was currently in the rules as a proposed baseline, and  
17 pointed out that a lot of licensees and utilities were on  
18 that particular version of the code, just by virtue of the  
19 passage of time.

20           Later, the ACRS expressed their reservations on  
21 that to us and, and suggested that the '89 baseline did not  
22 represent the most mature version of the code. And I think  
23 the ACRS also indicated that if we did eventually establish  
24 a baseline, whatever it was, that the concept of voluntary  
25 updates seemed reasonable if licensees took whole versions

1 of the code and not parts and pieces.

2 This has been a complex activities and there's  
3 been a lot of concerns and issues raised on this over the  
4 course of the last year or so, and some of it has a history  
5 even before that. And you'll hear some of those views  
6 regarding this particular process from the Staff and from  
7 NEI and ASME in the court of the morning.

8 On balance, after we had completed our work over  
9 the last few months, we believe the right approach is to  
10 replace the required 120-month update with a baseline  
11 representing what's currently on the books -- the '95 code  
12 and the '96 addenda -- and include the provision for  
13 voluntary updates to later endorsed versions of the code as  
14 the years move forward. And this is the concept that we'll  
15 go into with a little more detail with you, as Tom takes you  
16 through it. But we think this represents the best  
17 compromise and balance of consideration of regulatory burden  
18 for licensees and maintaining plant safety.

19 The Staff presentation represents a consensus of  
20 NRR and research and regional folks that have been involved  
21 in this. And we spent some time with our respective  
22 management in the various offices, and so I think we are  
23 presenting to you a product that has been, that had fairly  
24 rigorous staff and management involvement already before we  
25 come to you. But we want your views, we want our discussion

ANN RILEY & ASSOCIATES, LTD.  
Court Reporters  
1025 Connecticut Avenue, NW, Suite 1014  
Washington, D.C. 20036  
(202) 842-0034

1 and look forward to the dialog that we can work together on  
2 today.

3 With that, Dr. Shack, let me turn it to Tom and  
4 let him take you through the view-graphs, and he'll touch a  
5 little more on the history and some of the public comments  
6 that went on last spring as we worked down toward this. Go  
7 ahead, Tom.

8 MR. SCARBROUGH: Thank you. Good morning. My  
9 name is Tom Scarbrough. I'm in the Division of Engineering  
10 of NRR. As Dick sort of laid out the groundwork for you, we  
11 want to walk you through what we've learned since we've last  
12 met, in terms of the public comments we've received and the  
13 further Staff review and the consultations among the Staff,  
14 and give an overview of what we're recommending and what the  
15 options that we derived were.

16 As an overview, we were back here in April of this  
17 year to discuss our proposed rule to replace the 120-month  
18 ISI/IST update requirement with a process of voluntary  
19 updating. And in April of this year -- April 27th -- we did  
20 issue that proposed rule for public comment. And in that  
21 rule we included the 1989 edition as the proposed baseline.

22 On May 27th, we had a public workshop here in  
23 Rockville to discuss the proposed rule and we had  
24 participants, about 60 participants from the Nuclear Energy  
25 Institute, ASME, several utilities and private citizens. On

1 June 24th, the Commission directed the Staff to complete the  
2 incorporation by reference of the '95 edition with the '96  
3 addenda into the regulations, and to require licensees  
4 approaching their 120-month update to apply that code  
5 editions. And they directed us to further consideration of  
6 the ISI/IST update issue until the next rule-making.

7 On June 28th, the public comment period closed.  
8 We received about forty letters; some of them were --

9 CHAIRMAN SHACK: Tom --

10 MR. SCARBROUGH: Yes sir?

11 CHAIRMAN SHACK: They would update when they  
12 reached their 120-month period? I mean, when do they have  
13 to update to the '95 edition with the '96 addenda?

14 MR. SCARBROUGH: Currently, on the books, the next  
15 time they come up to their 120-month update --

16 CHAIRMAN SHACK: 120-month update.

17 MR. SCARBROUGH: -- that's when they would update.  
18 That's, that is the current -- on the books right now. And  
19 that's what we envision would happen.

20 On September 22nd, we did finish that, that rule  
21 to incorporate by reference the '95 edition and '96 addenda,  
22 and that basically established as the baseline currently, in  
23 the regulations. And so where we are is, right now today,  
24 is we're preparing a commission paper to summarize public  
25 comments, describe the options that we've, that we've

ANN RILEY & ASSOCIATES, LTD.  
Court Reporters  
1025 Connecticut Avenue, NW, Suite 1014  
Washington, D.C. 20036  
(202) 842-0034

1 derived, and present some recommendations to the Commission  
2 for their consideration. And based on their response in an  
3 SRM, we'll take the next step, whatever they direct us to  
4 do.

5           There we go. Right there.

6           In terms of the public comment sources, we  
7 received letters from ASME, the Illinois Department of  
8 Nuclear Safety, NEI, and several utilities -- and they're  
9 listed there -- I won't repeat them, but they're listed --  
10 and several individuals associated with ASME code and/or ISI  
11 and IST programs, and then a legal firm, Winston & Strawn.  
12 So we received quite a wide spread of different sources of  
13 comments and views, and we considered all the comments to be  
14 credible in terms of their presentation of their views.

15           In the Federal Register notice for the proposed  
16 rule, we asked commentators to focus on several areas to try  
17 to make sure we capture all the possible ramifications of  
18 this change. And this is a list of them: potential effect  
19 on safety; what's the proper baseline; the benefits and  
20 hardships; effect on the number of submittals; consistency  
21 in the range of code editions that might be applied; the  
22 potential effect on the risk-informed initiatives, because  
23 that's a high priority for the Staff and the industry -- we  
24 didn't want to adversely affect that; the potential effect  
25 on states and other organizations; and the application of

1 the portions of ASME codes, this sort of a cherry-picking  
2 concept that we talked about. And then we also received  
3 miscellaneous comments, which were actually very helpful,  
4 that I'll mention briefly of some of the more important  
5 ones.

6 What I'll do now, I'll go through a little bit of  
7 some of the examples of the public comments. We received  
8 quite a few more than what I'll, what I'll kind of touch on.  
9 But I wanted to give you a flavor of the dichotomy of the  
10 types of comments we received.

11 In terms of the potential effect on safety, NEI,  
12 several nuclear utilities, the legal firm, did not believe  
13 that the periodic revisions of the code resulted in safety  
14 and significant improvements.

15 DR. KRESS: Was this just a statement of belief,  
16 or did they have anything to back it up? Like a risk  
17 analysis, or a --

18 MR. SCARBROUGH: This was just their views. Their  
19 views.

20 DR. KRESS: Just their views.

21 MR. SCARBROUGH: Right. Their views. Now there  
22 were -- in some of the areas that we asked about, for  
23 example, the cost effects, there were actual numbers that  
24 were provided, things of that nature. But in terms of  
25 safety, most of it was the fact that the plants are running

1 safely now and so why do we need to update to another  
2 edition? That was sort of the gist of their comment.

3 ASME and the Illinois Department of Nuclear Safety  
4 (IDNS) and several individuals pointed to recent editions to  
5 the code and the positive effect of small cumulative changes  
6 as evidence of improvements over time. And they also noted  
7 that the actual process of updating had a potential benefit  
8 of identifying weaknesses in the ISI and IST programs, that  
9 they pointed out to us.

10 There also was some concern among some commentators,  
11 principally ASME and some of the individuals, that there  
12 might be reductions in the licensee participation on the  
13 code. And they were worried about the unforeseen impacts on  
14 -- the adverse effect from a successful code process that  
15 has served us well for many years. NEI and utilities  
16 believe that the code participation will continue because of  
17 common interest, such as code cases and the efficiency  
18 process of making the code provisions more effective.

19 DR. KRESS: Did the utilities share that view? I  
20 see you had just one utility on that last view.

21 MR. SCARBROUGH: Oh, many times utilities would  
22 just, like say, we agree with the NEI comments and things of  
23 that nature, and so I didn't -- but in the case where our  
24 utility would actually provide additional views beyond NEI,  
25 I added them and identified them.

1 DR. KRESS: I see.

2 MR. SCARBROUGH: But for the most part, many of  
3 the utilities had beginning, introductory language which  
4 says they agreed with NEI comments.

5 In terms of the baseline, the NEI and several  
6 utilities believe that the 1989 edition of the code provided  
7 an appropriate level of safety, and that would be an  
8 appropriate baseline. And then, the more recent code  
9 editions would be available for voluntary use.

10 DR. KRESS: Did they, did they -- you know, words  
11 like "appropriate level of safety," did they say what that  
12 was and how they determined that a particular edition gave  
13 that appropriate level? Or, were these once again just  
14 statements of belief?

15 MR. SCARBROUGH: Well, it was a statement of  
16 belief in the fact that, that more of the utilities are  
17 currently using the '89 code edition and there's no current  
18 concern with the safety of the plants in terms of their  
19 operation. So therefore, extrapolating that, then that  
20 should be a reasonable baseline.

21 DR. KRESS: It's an extrapolation of experience?

22 MR. SCARBROUGH: Right. Right.

23 DR. KRESS: And the experience is that they  
24 haven't -- in-service testing and inspection haven't turned  
25 up any risk-significant things to worry about.

1 MR. SCARBROUGH: Well, in terms of the current  
2 process, I would assume that what they're indicating is that  
3 the current ISI and IST programs are working effectively as  
4 they are and wouldn't necessarily need to be updated to a  
5 later edition, like between '89 and '95, what were their  
6 significant changes that would mandate a need to update to  
7 the more recent version to change procedures and such to  
8 come to the more recent version . And they felt that the  
9 '89 edition, the programs based on the '89 edition were  
10 working effectively and there wasn't a need to do that.

11 DR. KRESS: Isn't that in essence saying that the  
12 changes in the codes themselves were not worthwhile?

13 MR. SCARBROUGH: Between '89 and '95, yes. They  
14 basically were saying that the changes were not that  
15 safety-significant that it would, it would be necessary to  
16 mandate their implementation at the plants.

17 MR. WESSMANN: Dr. Kress, it I may -- excuse me.  
18 Dick Wessmann again. If I may butt in on Tom briefly, first  
19 of all let me suggest that when NEI makes their  
20 presentation, I think we can explore that a little further  
21 with them.

22 There are quite a number of incremental  
23 improvements to the code over the years, between '89 and the  
24 various addenda. And as you get up to '95, it's very  
25 difficult to quantify a lot of little bits and pieces, and

1 yet in the aggregate I think we've recognized that there are  
2 improvements. And I think some of the, some of the things  
3 that we could illustrate to you in the way of changes that  
4 came about are things such as different guidance concerning  
5 welding techniques.

6 In the IST area, a change to the pump testing  
7 provisions for a more comprehensive pump test. They make  
8 some changes to some of the methods for evaluating flaws in  
9 thin-wall piping. As we get up through the '95 version of  
10 the code, the O&M Code is now in existence and the Staff has  
11 endorsed it for the first time in that September  
12 rule-making. There's changes to the check-valve testing  
13 requirements.

14 But each of these -- you might say these are tiny  
15 bits and pieces, but these are in fact incremental  
16 improvements, recognizing the change in technology and the  
17 change in experience. And that helped get us from '89 to  
18 '95. It is true that when we first looked at this, we  
19 looked in terms of '89, and in this concept of recognition  
20 it would be very difficult to quantify those incremental  
21 improvements. And that's why when we first were with you  
22 last April, we thought in terms of '89.

23 But I think we recognized, over the course of the  
24 last six months, a little more clearly some of the  
25 incremental improvements and here's where we are now with

1 '95 on the regulations. And this, I think, makes good  
2 sense. It represents relatively recent technology and  
3 thinking.

4 Okay, go ahead, Tom.

5 MR. SCARBROUGH: Sure --

6 DR. SEALE: Could I ask one question?

7 MR. SCARBROUGH: Sure.

8 DR. SEALE: In one of the bullets there, you refer  
9 to not justifying the backfit of Appendix VIII. In the past  
10 where a requirement has existed to comply with the latest  
11 edition of the ASME codes or with an updated -- has the  
12 backfit criterion been applied to that change?

13 MR. SCARBROUGH: In the sense that where we  
14 incorporate by reference the next edition of the code --

15 DR. SEALE: Yes.

16 MR. SCARBROUGH: -- like '95, as itself, the  
17 application of that, that incorporation by reference, has  
18 always been considered to be exempt from 51.09 backfit.

19 DR. SEALE: I wanted to make sure I understood  
20 that. Thank you.

21 MR. SCARBROUGH: Right. Right.

22 CHAIRMAN SHACK: But this was an accelerated  
23 implementation, right? That was the backfit argument with  
24 Appendix VIII?

25 MR. SCARBROUGH: Appendix VIII was accelerated,

1 yes.

2 CHAIRMAN SHACK: Right, and so it's the  
3 acceleration that they wanted justified by the backfit  
4 argument?

5 MR. SCARBROUGH: Right. They felt that the, that  
6 Appendix VIII justification for accelerated backfit was not  
7 appropriate.

8 CHAIRMAN SHACK: And the compliance argument here  
9 was basically saying that there was always an implicit  
10 requirement that you inspect effectively, and this was  
11 essentially intended to assure that you were meeting that  
12 requirement?

13 MR. SCARBROUGH: Right, in terms of the  
14 effectiveness of the testing examinations that were ongoing  
15 --

16 CHAIRMAN SHACK: Yes.

17 MR. SCARBROUGH: -- based on actual experience of  
18 some examinations that were, that were performed in terms of  
19 the quality of the ability to perform those examinations, it  
20 was felt that there was such a weakness it, this was not  
21 appropriate to let it ride until the next ten-year update.  
22 It needed to be done much more promptly.

23 My next bullet there goes into the point that Dick  
24 was just talking about, in terms of -- ASME and several  
25 individuals pointed to the evolutionary process and specific

1 improvements, and didn't feel that a baseline was  
2 appropriate to be established at all. And I won't repeat  
3 those improvements, but I had a similar list that I was  
4 going to share with you, that Dick just gave, so I'll move  
5 on.

6 But there were two utilities that recommended the  
7 selection of the 1998 edition as a baseline, so it wasn't  
8 all one side or the other.

9 There wasn't concerns, as we'd talked about, in  
10 terms of the backfit of Appendix VIII, accelerated backfit  
11 of Appendix VIII. The Illinois Department of Nuclear Safety  
12 raised an interesting point in terms of the multiple-code  
13 editions and addenda that were presented in the baseline of  
14 the proposed rule, where they pointed out by their state  
15 inspectors, they were concerned that multiple levels of  
16 editions might cause confusion in terms of, you know, having  
17 '89, and '92, and '95, were all sort of part of that  
18 baseline. So they pointed out something that we had not  
19 really noticed at first.

20 Uh, and there, there was a concern among NEI and  
21 one utility that if there was a selection of a baseline  
22 other than the '89 that was presented in the proposed rule,  
23 that that would prevent public comments on that new  
24 baseline, and we don't agree with that because we felt there  
25 was quite a bit of comment on what the proper baseline was.

ANN RILEY & ASSOCIATES, LTD.  
Court Reporters  
1025 Connecticut Avenue, NW, Suite 1014  
Washington, D.C. 20036  
(202) 842-0034

1 DR. UHRIG: Is there any significant difference  
2 between the '95 and the '98 editions? Just --

3 MR. SCARBROUGH: Well we're currently reviewing  
4 the '98 edition, so I can't say where we are so far in terms  
5 of what we've seen. In terms of IST, I don't believe  
6 there's significant differences between '95 and '98. I  
7 don't know if anyone has, wants to add or venture any  
8 additional --

9 MR. TERAU: This is David Terau with the Staff.  
10 There was one significant change in the '98 edition of the  
11 boiler and pressure vessel code, Section XI, which dealt  
12 with the inspection of containments, in-service inspection  
13 of containments. So Subsections IWE and IWL have been  
14 changed significantly to represent, I'd say, more current  
15 views on how containment in-service inspection should be  
16 performed. But we're still, the Staff is still reviewing  
17 those changes.

18 DR. UHRIG: Thank you.

19 MR. SCARBROUGH: Also in terms of the public  
20 comments, we received comments regarding potential burden  
21 implications regarding the NRC staff. NEI believed that a  
22 constant baseline would increase our stability in the  
23 regulatory space and lead to higher quality inspections and  
24 more efficient use of resources.

25 DR. KRESS: Explain to me what you mean by

1 "constant baseline." That means, you choose one of these  
2 years like '95 and say, all right, that's it, and if you  
3 want to update, it's voluntary from now on?

4 MR. SCARBROUGH: Well --

5 DR. KRESS: Is that what you mean?

6 MR. SCARBROUGH: That's how they, how they termed  
7 it, that if a baseline, if you set the baseline and kept it  
8 there for long, long, very periods of time, that would lead  
9 to an understanding of, that is the rule and everyone gets  
10 to know the rule and they have an understanding other than  
11 changes over time, then you kind of have to relearn it a  
12 little bit.

13 I think that's what they're assessing there. We  
14 didn't feel that that was a, a very significant burden  
15 reduction on our part because the changes are not that, are  
16 every ten years anyway and we do have relief requests coming  
17 in, so we have plants that have different programs. So  
18 there's an ongoing flux in terms of the programs anyway. So  
19 this was just a comment that came in from NEI that it might  
20 be, there might be a beneficial aspect of, of a more stable  
21 baseline than we certainly have right now.

22 CHAIRMAN SHACK: Would it at least -- when you get  
23 a relief request, is that essentially to have to be renewed  
24 every time there's a 120-month update so that, in fact, you  
25 get -- you know, if you've got a relief request from one

1 edition, as soon as you go through the 120-month updates you  
2 then have to re-request the relief?

3 MR. SCARBROUGH: Yeah, as you come up to your next  
4 program review for a ten-year update, you look back and see  
5 if you're able to meet that new version, and if you're not,  
6 then you would submit relief requests for that.

7 CHAIRMAN SHACK: So there is a continuing  
8 generation of relief requests associated with the update?

9 MR. SCARBROUGH: Right. Right.

10 There was one utility that believed that  
11 elimination of the ISI/IST update would allow us to review  
12 and endorse code editions more timely. And that was one  
13 point that they made, where we hoped to move these  
14 endorsements on more promptly as it is, that's one of our  
15 goals.

16 There was a concern by ASME that the reduced  
17 emphasis on the code process might delay endorsement of the  
18 code editions. And our feeling is, we're not going to  
19 reduce our emphasis on the code process. We're continuing  
20 to review all the ongoing editions, addenda that come out.  
21 We're going to continue to endorse them by reference in the  
22 regulations. So our emphasis on the code is going to  
23 continue; it's just a different process that we're gonna  
24 have.

25 One utility did point out that it might be

1 scheduling difficulties in terms of, if you had relief  
2 requests coming in sort of randomly -- licensees updating,  
3 as they voluntarily updated and they would have different  
4 relief requests coming. And that may be true, and that's  
5 part of our thought process in terms of the baseline and  
6 when we would consider updating the baseline and what the  
7 schedule for implementing that new baseline would be, and  
8 that would be part of the consideration of that.

9 DR. KRESS: Are there -- excuse me.

10 MR. SCARBROUGH: okay.

11 DR. KRESS: Are there conflicts between the  
12 proposed ISI/IST risk-informed regulations and the  
13 endorsement of the codes and standards, or what is spelled  
14 out in the codes and standards themselves?

15 MR. SCARBROUGH: I don't, I don't -- I wouldn't  
16 say it's a conflict. It's a different approach. The  
17 risk-informed process changes a number of the different  
18 provisions that would be required by the ASME code because  
19 they implement a sort of a risk-informed process, where  
20 certain higher-risk components are tested more frequently  
21 than lower-risk components. So it's a change; I wouldn't  
22 say a conflict.

23 But there is, there's a different there that, you  
24 know, has to be taken into account as we review the  
25 risk-informed programs. And we've done that for a couple of

1 utilities already that are implementing that.

2 DR. KRESS: The risk-informed programs don't  
3 really address an update period, do they?

4 MR. SCARBROUGH: That, that's a good question.  
5 I'm not sure how the risk-informed programs deal with the  
6 longer-term aspect of that.

7 MR. WESSMANN: Dick Wessmann again. I think they  
8 -- first of all, the provisions in the regulation allow the  
9 utilities to implement an approved alternative to that which  
10 is endorsed in the regulation. And that's the basic process  
11 by which, at this point in time, they come in the door with  
12 the risk-informed alternative. And of course we've put the  
13 regulatory guides out there, the 1.174, 175, etc. that give  
14 guidance regarding an acceptable risk-informed program.  
15 They will then reference that risk-informed program and its  
16 relationship to the existing code of record, because that's  
17 what they have as the code of record. And for many of them  
18 it's '89.

19 In the area of IST, many of the provisions in the  
20 '95 versions of the code are slightly more attractive from a  
21 risk-informed standpoint, and so the one major risk-informed  
22 initiative that we had approved for Comanche Peak is based  
23 upon mostly the provisions of the '95 version of the code --  
24 with certain exceptions, but that was the concept that was  
25 there.

1           Now, when -- if the law and the regulations stayed  
2 the way they are right now, when the 120 months time comes  
3 up, the licensee would have to look at, what is the current  
4 version of the code that's on the books, and how does that  
5 approved risk-informed program comport with it, and then as  
6 they do that program update, have to do either relief  
7 requests or, you know, supplement that old submittal. You  
8 know, we're trying to look into the future to indicate how  
9 they all comport.

10           If we have a baseline, regardless of the baseline  
11 that it is, this concept of a little more stability in a  
12 program that's there, then they are not faced with that as  
13 this 120-month interval comes up, the "next time around"  
14 type of thing. And so, in that sense I think there's a  
15 little less burden for the utility and a little less burden  
16 for the Staff.

17           DR. KRESS: Is there an expectation that the code  
18 and standards -- this particular one on ISI/IST -- is  
19 becoming very mature and that it's sort of a diminish in  
20 returns on the changes to it the future, that you've already  
21 reached the stage where you're not going to improve it very  
22 much?

23           MR. WESSMANN: I think, I think that's a  
24 subjective call, and it's hard to know. And then we're  
25 trying to speculate, you know, new technology or something

1 that's in the future. From the -- certainly, as we've  
2 talked, the incremental improvements have come along over  
3 the years. And yet, if we say is there a maturity now  
4 compared to the early '80s or something like that, I think  
5 we would, we would like to think, yes, that's the case.

6 And yet we're in an industry with evolving  
7 technology and, you know, a new test method or a new gizmo  
8 will come along, or a new way of evaluating a flaw, or  
9 something like that, and come into the code. This is one  
10 reason why, as Tom continues here, he'll talk about, we will  
11 continue to review later versions of the code as they come  
12 and would endorse them for voluntary implementation.

13 And then somewhere along you say, the cumulative  
14 approach. All right, and now I'm saying I'm in 2010, the  
15 cumulative activities over a ten- or fifteen-year period  
16 represent enough of a cumulative change that we think a new  
17 baseline should be put in place. To say that '95 as the  
18 baseline from now until 2030 is a little hard to say and  
19 speculate on, so to have the provision for making a change,  
20 we believe it's the right way to work forward in this area.  
21 Let me turn it back to Tom.

22 CHAIRMAN SHACK: Oh yes. Oh yet, come up. Come  
23 up, Gil.

24 MR. MILLMAN: Gilbert Millman with the Office of  
25 Research. We talk about the cumulative improvements that go

1 on from edition to edition. In many cases these  
2 improvements are improvements in practice. And as a result  
3 of there being a change to the code in one edition, from  
4 relative to another, the relief requests that would  
5 frequently be needed in the next 120-month update are  
6 eliminated because the relief requests are often due to a  
7 hardship. And as a result of a revision to a code in the  
8 next edition, those reliefs are no longer required.

9 MR. SCARBROUGH: Okay. Let me go on and talk a little bit  
10 about the public comments we received regarding burden  
11 implications for licensees and vendors. NEI and several  
12 utilities reported that the savings from the elimination of  
13 a mandatory program updating with the fewer relief requests  
14 that would be involved was greater than what was predicted  
15 in the proposed rule. And they suggested that it could be  
16 up to \$1-1/2 million for every ten years, to update the  
17 programs.

18 ASME and some individuals considered the benefits  
19 to be, to be minimal in terms of cost per year and actually  
20 might result in additional relief requests for licensees to  
21 use portions of those later code editions and code cases.  
22 ASME also pointed to the burden reduction regarding economic  
23 benefits and reduction in radiation exposure from the  
24 improvements, code improvements.

25 DR. KRESS: \$500,000 every ten years doesn't sound

1 like much of a burden to me.

2 MR. SCARBROUGH: Yeah, we didn't consider the  
3 burden issue to be significant.

4 One individual was concerned about --

5 DR. POWERS: Wait a minute -- you didn't, but  
6 apparently NEI, from everything I read, does think it's a  
7 significant burden.

8 MR. SCARBROUGH: Yes.

9 DR. POWERS: Why the dichotomy? It's not your  
10 million dollars, I guess. That's why you don't think it's a  
11 burden, right?

12 [Laughter.]

13 DR. POWERS: I mean, it's easy to be generous with  
14 other people's money.

15 [Laughter.]

16 MR. SCARBROUGH: I think, in terms of the cost to  
17 review relief requests and the cost per year, that might,  
18 that would be involved in terms of additional relief request  
19 submittals that might come in, that's, that was what we were  
20 thinking about in terms of whether or not --

21 DR. POWERS: I mean, I see these qualitative words  
22 all the time and I see assurances that this or that is going  
23 to reduce burdens on the NRC Staff. But I never see any  
24 numbers. At least with NEI, I get some numbers from what  
25 the costs are. But I always see these words that says, this

1 option or the other option. And it just depends on whose  
2 document I'm looking at, is going to relieve burden on the  
3 NRC staff. But I never see anything quantitative. Have the  
4 other members seen anything quantitative on that?

5 DR. BARTON: No.

6 DR. KRESS: There was one thing, where we saw a  
7 reduction of three FTEs per year.

8 DR. POWERS: Oh, okay -- I mean, that's a useful  
9 thing. That's a lot of money there. I'm not sure what an  
10 FTE runs for the NRC, but I assume it's around \$180,000.

11 DR. KRESS: I mean, I guess it would be something  
12 like that.

13 DR. POWERS: Okay, so --

14 DR. KRESS: That wasn't for this.

15 MR. SCARBROUGH: But we don't actually see any  
16 change, significant change in burden one way or another on  
17 the staff regarding any of the options.

18 DR. POWERS: But it says in various documents  
19 that, in your case by having this, that this will relieve  
20 and avoid licensees' applications. And NEI, on their  
21 behalf, say they're generously trying to protect you from  
22 overwork as well. According to their -- I mean, both of  
23 them say, I've never seen anybody come up and prove one way  
24 or the other.

25 MR. SCARBROUGH: Much of it is qualitative in

1 terms of their views of what --

2 DR. POWERS: We'll give you 180 degrees apart and  
3 say this is qualitatively correct. I mean, NEI in their  
4 document -- I can probably find the word that says, by  
5 following their proposed course of action, it'll save work  
6 on the part of the Staff. And you say, by following your  
7 course of action, it'll save work on the part of the Staff.

8 MR. SCARBROUGH: No, we think that any, any path  
9 is going to have a significant effect on the work of the  
10 Staff. We still have to review the code editions that come  
11 up. We still have to compare them. The only, actually in  
12 terms of the burden for eliminating the ten-year update and  
13 replacing it with a voluntary process, we actually increase  
14 our burden slightly because now we have to look at the  
15 valuation of the new code editions in terms of 50.109. So  
16 there's a small increase there in terms of what we haven't  
17 done before. It's sort of a learning process for us.

18 But in terms of, we're still going to be reviewing  
19 the new codes, the new codes that come out. We're still  
20 gonna be repairing rule-making to endorse them. The process  
21 is going to basically be the same.

22 DR. POWERS: Okay, not significant. Okay.

23 MR. SCARBROUGH: Now there was some suggestion  
24 that there might be some hardships on vendors that supply  
25 non-destructive examination services to various plants

1 between nuclear and non-nuclear because there might be  
2 differences in the requirements from the various  
3 jurisdictions in terms of what might be applied for that.

4 DR. KRESS: Did you take comment seriously? It  
5 looked kinda like the kind of comment you can deal with.

6 MR. SCARBROUGH: Yeah, that's a, that's a hard one  
7 to deal with. I think there -- you know, because now  
8 there's a potential for us to be out of sync somewhat  
9 because there is a ten-year process, a ten-year anniversary  
10 where you do update every ten years. So there's always that  
11 potential for them to be out of sync somewhat over time.

12 In terms of potential effects on states, the  
13 Illinois Department of Nuclear Safety provided some good  
14 comments in terms of how they synchronize their rules to the  
15 code editions as accepted by the NRC. And they did raise a  
16 concern that there might be a possibility that we could be  
17 out of sync with the state requirements, if the State of  
18 Illinois decided to update to a more recent code edition.  
19 So that was something that we thought about carefully, to  
20 see how that would work.

21 There was also some concern that there might be an  
22 impact on states and vendors and nuclear insurers and other  
23 organizations from a perception of a reduced emphasis on  
24 safety. And we tried, we tried to make clear, we're trying  
25 to make clear in the Commission paper and in any proposed

1 rule-making, further rule-making, that we're not reducing  
2 our emphasis on the code; we're raising the process for  
3 making changes to the baseline. We're changing the bar, so  
4 to speak, in terms of what would be the process for updating  
5 to a more recent version of the code.

6 A couple utilities indicated they didn't see a  
7 significant impact. And one individual believed that some  
8 insurance companies or inspection agencies might be  
9 adversely affected by the reduction, a reduction in research  
10 of approved techniques.

11 In terms of the application of portions of the  
12 ASME code, NEI and one individual recommended that licensees  
13 be allowed to use portions of future codes. And one  
14 commentor suggested that that be handled by the 50.109  
15 process -- I'm sorry, excuse me, 50.59 process.

16 In terms of -- one individual also suggested that  
17 the need for prior NRC approval might preclude incentives  
18 from the ASME code committees to prepare code sections that  
19 might be identified portions, that can be identified without  
20 conflict. And we have tried, in the current rule-making  
21 that we just issued in September, we did identify certain  
22 aspects or code cases, or certain aspects of the ASME code  
23 that could be implemented without prior approval. So we  
24 recognize that there are portions that, that can be  
25 implemented in advance and we've tried to indicate those in

1 the rule-making.

2           There was a suggestion that we prepare generic  
3 relief requests to allow broad uses of that, and that's  
4 something that we'd have to explore with, with OGC and such.  
5 And then there was an individual that suggested that in  
6 addition to some of the other areas that we pointed out at  
7 individual without prior approval would be the IWA repair  
8 sections on repair, replacement and modification.

9           DR. KRESS: But when the ASME codes or standards  
10 committee are considering making some sort of change to the  
11 code or standard, do they do a cost-benefit analysis to that  
12 proposed change to see whether it's worthwhile making it?

13           MR. SCARBROUGH: Not explicitly, but it's always  
14 been assumed implicitly that because of the wide spectrum of  
15 participants on the code -- you have utilities and  
16 consultants and regulators and such -- that there is an  
17 implicit consideration of the cost of doing this change.  
18 But it hasn't been set out and presented in an explicit  
19 manner.

20           In terms of the miscellaneous comments -- I'm  
21 sorry. Go ahead.

22           DR. SEALE: I'm impressed by what appears to be a  
23 suggestion of really cherry-picking in selecting the  
24 sections of various code cases, depending upon what a  
25 particular utility might want or desire. And the question

1 of consistency bothers me when you get a whole diverse set  
2 of requirements for different utilities, and perhaps even  
3 individual plants. Have you discussed this at all with the  
4 inspection people as to what the implications would be if  
5 you balk at the regulations in this manner?

6 MR. SCARBROUGH: In terms of the, the -- we have  
7 sent this out to the regions for the inspectors to evaluate,  
8 and we have received comments back that, that we've  
9 addressed. And they're supportive of the proposed options  
10 that they've talked about.

11 One of the things that we tried to do is, we're --  
12 our recommendation is that future editions of the code that  
13 we incorporate by reference, if a licensee picks it up and  
14 wants to make that the code of record, they would pick up  
15 the entire code. And that would make sure that the  
16 inter-related aspects of the code are pulled together, so we  
17 don't have the cherry-picking.

18 Now in certain cases in the rulemaking, we might  
19 select areas that we see are, are very significant that  
20 might be helpful for, and endorse those as a separate, so  
21 they don't have to go through the whole next version. For  
22 example, in the September rulemaking on appendix 2 on  
23 check-valve condition monitoring, that's a separate area  
24 that's such an improvement over what was done in the past  
25 for check-valve testing that we endorse that, so the

1 licensee could pick that up and use that portion.

2 But yeah, we look at that very carefully because  
3 you have to look at all the ramifications of, when you pull  
4 out a piece and endorse it separately that you don't end up  
5 having a --

6 DR. SEALE: When you say an improvement in this  
7 particular instance, in what sense?

8 MR. SCARBROUGH: In terms of the quality of the  
9 information that you gather on the checkvalves, in terms of  
10 the examination process. You monitor it more closely rather  
11 than --

12 DR. SEALE: Is there a focus in this that might in  
13 fact reduce the burden on the utility?

14 MR. SCARBROUGH: I think there is because there is  
15 a way to extend these intervals of examination out farther,  
16 so you're not sort of a, a stroke of the check-valve every  
17 quarter or so.

18 DR. SEALE: So clearly, some of these changes in  
19 the code requirements cut both ways?

20 MR. SCARBROUGH: Absolutely, yes.

21 MR. WEINMANN: If I may supplement Tom very  
22 briefly on the aspect of the inspectors and different  
23 versions out there in the field, that's a reality of life  
24 out there, and it's there now and to some degree it will  
25 always be, because you have, of course right now, a majority

1 of plants on '89, some plants on earlier versions, and as  
2 the clock counts out, that clock, the plant will update now  
3 to '95 and some other will still be on '89 until that  
4 partiucular click counts out.

5           You have -- under the provisions of the  
6 regulation, licensees have come in and request a particular  
7 alternative, or they can come in and request the use of a  
8 code case, and the Staff evaluates. So then, a particular  
9 licensee on that unit may be using the provisions of a  
10 specific code case. This is a challenge for the inspection  
11 staff, and yet the, the inspection in the ISI and IST area  
12 are a very mature group of individuals that have been  
13 involved in it a number of years and recognize, you know,  
14 the differences of the programs for the different units at  
15 the different facilities. And we've always had to deal with  
16 this, and I believe our experience base will allow us to  
17 continue to deal with this.

18           I think, as we get to a baseline concept, it might  
19 get a little simpler, but there will always be different  
20 code cases and alternatives that are out there or built upon  
21 a relief request. So this diversity is a fact of life out  
22 there.

23           MR. SCARBROUGH: Okay, just a last couple  
24 miscellaneous comments that I wanted to point out was, no  
25 matter which side of the argument you were, just about every

1     commentor emphasized the importance of a more prompt NRC  
2     review and endorsement of the revised code editions and  
3     addenda, and the code cases. And we've taken that to heart  
4     and we're trying to improve that process. Also, ASME  
5     believed that there might be a concern regarding the  
6     National Technology Transfer and Advancement Act of 1995, if  
7     we did replace ISI/IST update requirements, and based upon  
8     the option that we're recommending, we don't believe that  
9     that's going to be adversely affected by our process.

10             Okay, that's a summary of the public comments. And  
11     let me outline for you the options that we derived based on  
12     the review of those comments.

13             Option 1 was to replace the ISI/IST update  
14     requirement with a baseline and allow voluntary updating to  
15     later NRC-approved code editions and addenda, unless that  
16     baseline is revised based on 50.109. And within that  
17     option, we have three sort of sub-options that we would  
18     consider in terms of what would be the initial baseline.

19             DR. KRESS: Would that revision under 10 C.F.R.  
20     50.109 require a backfit analysis?

21             MR. SCARBROUGH: It would be a backfit analysis,  
22     but it could be qualitative and quantitative. It doesn't  
23     have to be only quantitative. So that was something, yes.  
24     It would be under 50.109.

25             Option 1.A is basically the proposed rule

1 baseline. The 1989 edition for ISI and IST; '92 edition for  
2 the IWE/IWL subsections for containments; and then the '95  
3 edition to pick up the Appendix VIII for ultrasonic  
4 qualification of personnel.

5 Option 1.B would be the '95 edition and '96  
6 addenda, with the limitations and modifications are spelled  
7 out in the regulations currently. That was issued on  
8 September 22nd of this year.

9 And then Option 1.C would be a later version, and  
10 currently the latest version is '98. I think the '99  
11 addenda is coming out. But that would have an option of  
12 going to something even more recent.

13 Option 2 was to retain the current 120-month  
14 update requirement and there'd be no change in the current  
15 approach that we have.

16 Option 3 is sort of a slight difference from  
17 Option 2 in the sense that we retain the regulatory  
18 requirement for the update but we develop guidance for  
19 plant-specific alternatives to that requirement and make  
20 that a more organized outline approach in terms of how you  
21 might request an alternative to that update requirement.

22 Okay, in terms of the options, under Option 1,  
23 we'd continue the review of the future code editions and  
24 incorporate them by reference in 50.55a for voluntary use,  
25 and then evaluate the code improvements under 50.109 for

1 backfit implementation. We would evaluate the ongoing  
2 changes, both quantitative and qualitative improvements to  
3 the code, and determine whether or not it's sufficient to  
4 revise the baseline under the 50.109 criteria.

5 Licensees would be allowed to voluntarily  
6 implement an entire edition or addenda without prior NRC  
7 approval, if it was incorporated by reference in the  
8 regulations. Once a licensee selected a particular code  
9 edition or addenda, that would be their code of record.  
10 That would be what would be applied in their regulatory  
11 requirement. Prior approval would be required for portions,  
12 and that would make sure the inter-related requirements were  
13 imposed without reducing the effectiveness of the code.

14 And we continue to participate in the code process  
15 the way we do without any changes in that regard. And what  
16 we did was we tried to outline the advantages and  
17 disadvantages of each of these options. And under Option 1,  
18 the burden on licensees might be reduced, but there is a  
19 potential for an increase in relief requests as they  
20 voluntarily want to use portions of later code editions.  
21 And that might reduce their savings. We would apply safety  
22 significant improvements to the code through the 50.109  
23 process, which would be consistent with NUREG requirements.  
24 So we'd make it a level playing field regarding the ISI/IST  
25 requirements and all the other requirements that we impose

1 these days.

2 We would continue to emphasize the importance of  
3 the code to our participation in the code committees and  
4 also the revision of the baseline and specific backfits.  
5 And where there wasn't a baseline established, we would have  
6 that update review that has been shown to help identify  
7 program weaknesses.

8 Under the sub-options there, Option 1.A might  
9 provide more burden reduction because most plants are  
10 currently apply the '89 edition. Option 1.B would apply to  
11 the current requirements that are in the regulations that  
12 were issued on September, in September of '99. And Option  
13 1.C would allow the most recent version to be used as a  
14 baseline.

15 DR. UHRIG: The most recent being '95 or '98?

16 MR. SCARBROUGH: It would be '98.

17 DR. UHRIG: '98.

18 DR. BONACA: Have you identified any of the  
19 advantages with Option 1 or yes?

20 MR. SCARBROUGH: Yes. Yes. In terms of the  
21 disadvantages, we are removing historical exclusion of  
22 50.109 from ISI and IST updating. And that's a significant  
23 change. Before, we didn't have the burden of reviewing each  
24 of the changes in editions for the 50.109 criteria. In  
25 terms of the additional resources, we estimated that the

1 total now for, of FTE, about one FTE would be required to  
2 review future code editions, the changes that have been made  
3 due to do the rulemaking process, and then also included in  
4 that now would be looking at what significant changes were  
5 made from the previous edition to see if the baseline needed  
6 to be revised. So there's additional work aspect in this  
7 new process for Option 1 that wasn't --

8 DR. POWERS: Can I go back to the first one?

9 MR. SCARBROUGH: Sure.

10 DR. POWERS: Say that option removes their  
11 historical exclusion, at least the updates from the 109  
12 backfit rule. Have you looked at your history and said, if  
13 we'd had, if we'd pursued Option 1 ten years ago, how would  
14 it affect things you did in the past?

15 MR. SCARBROUGH: No. One of the things we have  
16 tried to do is go back and look back to the '89 and see what  
17 were significant changes, not to the level of maybe a 50.109  
18 type task, but what would be, what were some of the  
19 significant improvements or changes that have been made  
20 since '89.

21 DR. POWERS: And so you --

22 MR. SCARBROUGH: And that's, and that's where some  
23 of those, you know, would not have been implemented in that  
24 sense. They may not have been raised up to the level --

25 CHAIRMAN: -- most of them have been implemented.

1 MR. SCARBROUGH: Right. Right, but we haven't  
2 done it quantitatively --

3 CHAIRMAN: We've been through this for the ISI, of  
4 the piping, in some detail associated with the risk-informed  
5 inspection. And in fact, GSI-190. I mean, GSI-190, the  
6 whole analysis is based on no inspection, and you still end  
7 up with CDF increments of 10(-6), therefore, you conclude  
8 that you can't impose any new requirements. So even without  
9 inspection, at least in terms of the piping, you're, you  
10 can't really justify this on a CDF kind of basis.

11 DR. KRESS: So does this mean that there never  
12 would be a revision to the baseline, because it would never  
13 pass the backfit rule?

14 CHAIRMAN SHACK: Well it would seem as if you had  
15 to impose an ISI program, you'd have a hard time doing it.  
16 But --

17 DR. KRESS: As opposed to ISI --

18 CHAIRMAN SHACK: -- as well as updating the ISI --

19 DR. KRESS: As opposed to IST, which is even  
20 harder to --

21 CHAIRMAN SHACK: Well, IST, you know, I haven't  
22 seen the form -- you know, with the ISI, at least you, you  
23 have the analyses that have been done for the risk-informed  
24 inspections in GSI-190 in front of you, and so the numbers  
25 are --

1 DR. KRESS: I would guess if ISI doesn't pass, IST  
2 won't either.

3 [Laughter.]

4 CHAIRMAN: I would guess that's the case.

5 MR. SCARBROUGH: Yeah, we recognize the difficulty  
6 of trying to do a quantitative analysis in terms of a  
7 backfit or revision of the baseline. And one of the things  
8 we've discussed is the process for, for updating that  
9 baseline. In many cases, it would be more qualitative in  
10 terms of what are the changes and identifying those changes,  
11 and then deciding if those, if there's a sufficient amount  
12 of changes that have been made, that would give us good  
13 confidence that we should go to CRGR Committee and suggest  
14 that we change the baseline. It wouldn't only be the  
15 quantitative aspect, but I agree that that would be a  
16 difficult task if we only used that task.

17 In terms of the, the ongoing activities, we do  
18 have a number of activities ongoing, and you all have  
19 mentioned some of them this morning. There's a significant  
20 effort in terms of the risk-informing Part 50 that may  
21 change a lot of how we do business in terms of applying  
22 regulations. And that might fold into 50.55A as well. The  
23 ISI/IST risk-informed programs are ongoing and that has a  
24 different aspect in terms of how we apply the IST  
25 requirements.

1           CHAIRMAN SHACK: Just coming back to that, and in  
2 light of Dick's early comments, I thought most of the, at  
3 least the in-service inspection ones that we looked at,  
4 really replace the Section XI requirements for an  
5 inspection, so it was a wholesale change. And the updating  
6 was essentially built into the program in the sense that it  
7 was a performance monitoring requirement rather than a  
8 formal calendar requirement -- you would be required to  
9 demonstrate the fact that your leak rates weren't going up,  
10 your failure rates weren't going up. But as long as you  
11 were meeting those performance requirements, the program  
12 could proceed. And you indicated that in fact there was  
13 still an update requirement on that.

14           MR. WEINMANN: I guess I'm not sure quite how to  
15 respond. I think we're both a little bit right, that these  
16 performance requirements in the replacement for the ISI,  
17 like you're describing, that's correct. It is basically a  
18 replacement of the Section XI program. I think that the  
19 utilities at the hundred, you know, at the ten-year interval  
20 has to at least look at what's on the books and see whether  
21 there's an applicability or not. And I'm just not sure what  
22 the level of scrutiny is required there at that ten-year  
23 interval.

24           MR. SCARBROUGH: We'll look into that and get back  
25 to you tomorrow when we talk to you again, and you let you

1 know, because our risk-informed IC export isn't here, but  
2 he's back in the office and I'll talk to him and get back to  
3 you on that.

4 In terms of licensees, one disadvantage might be  
5 that a licensee might incorrectly, in our opinion, assume  
6 that we've reduced the importance of a code. There might be  
7 additional burden regarding additional updating if we want  
8 Option 1.B to '95 or 1.C to the '98 edition. We would not  
9 have the ongoing established time interval for periodic  
10 review of the ISI and IST programs which has identified  
11 weaknesses in the past.

12 There is a potential for inconsistencies between  
13 state and NRC requirements, if the states happen to update  
14 to a more recent code than we have. There was a concern,  
15 as we mentioned, about the multiple code editions in Option  
16 1.A, and there was a concern that the specific public  
17 comments would not have been obtained on the '98 editions or  
18 something other than the '89 edition as a possible baseline.  
19 But we think we do have, received a number of comments in  
20 that area that we're able to screen those and discuss those.

21 DR. POWERS: You have listed on there your, an  
22 issue -- you say licensees might assume less significance or  
23 less importance to the ASME code. Now that -- your  
24 conclusion on that was based on some psychological review of  
25 various members of the licensing community?

1 MR. SCARBROUGH: No, that was their comment.

2 DR. POWERS: How can you seriously come up and say  
3 what somebody might think?

4 MR. SCARBROUGH: That's what they commented.  
5 That's what their comment.

6 DR. POWERS: No, they said that comment. I mean,  
7 they said participation would be reduced. They were  
8 concerned about that, and that's why we're relating what  
9 their comment was. And our view is, we don't intend to  
10 reduce our importance on the code.

11 In terms of Option 2, which is the current process  
12 we have, some of the advantages are that there have been  
13 licensee event reports which reveal numerous program  
14 weaknesses that have been found during the program update  
15 reviews. And part of that's caused by the divergence over  
16 time of the programs as a result of procedural changes or  
17 modifications from different influences of, of different  
18 requirements or provisions that might cause them to diverge  
19 from where they originally were -- the priority isn't as  
20 high as it used to be on things of that nature.

21 So the program updates do help safety by  
22 incorporating experience and new techniques in identifying  
23 weaknesses. It does retain the public confidence if the  
24 code revisions are seen to be safety-significant in terms of  
25 the improvements to the programs over time. And it does

1 allow the NRC to respond through the ASME code process to  
2 emerging issues without the burden of having to go through a  
3 50.109 review.

4 DR. SEALE: Could you give us some help on  
5 assessing the severity or the seriousness of these numerous  
6 IST/ISI program deficiencies that have been discovered in  
7 the past. Were they category 5 or category 4 or what?

8 MR. SCARBROUGH: We summarized them in our  
9 attachment, which went into more detail on, for option 2.  
10 But in terms of the, the identifying components that had  
11 been, had been, failed to be included in the program, they'd  
12 somehow dropped out of their program somehow. So they hadn't  
13 really been tested over time. So that's the type of thing  
14 they found, where there were mistakes that were made, until  
15 they went back and re-reviewed it. But I can't give you a  
16 report. Maybe I can look into that and talk to you tomorrow  
17 about that in terms of, I'll talk to the folks who did that  
18 review and see if they had looked at what sort of result was  
19 that after, that they were finding? Was it a high level of  
20 concern that was raised?

21 But there were weaknesses in terms of components  
22 that were missed form the program.

23 MR. WESSMANN: Wally, can you add any dimension?  
24 Excuse us for a minute -- we're putting Wally Norris on the  
25 spot a little bit, but he did some of the work on the LER

1 review, and if he can shed any light on the perception of  
2 significance of some of these deficiencies or the quantity  
3 of them or something, that might help. Wally?

4 DR. SEALE: He probably has been on the spot  
5 before.

6 MR. WEINMANN: Yes, sir.

7 MR. NORRIS: Wally Norris, Office of Research.  
8 We're still looking into that, as you alluded in trying to  
9 determine what the real risk for many of these is the  
10 difficult process. We had determined that there were around  
11 140 LERs total in, relative to ISI and IST programs in the  
12 1990s. It turns out that somewhere, 20 to 25 percent of  
13 them are related to the update. It's a little difficult to  
14 tell because there's no standardization with regard to the  
15 wording of the LERs and right now we're looking at about 20  
16 of those. It appears that they will be something that is  
17 safety significant.

18 And as Tom mentioned, there are sometimes entire  
19 classes of components or either not putting the program  
20 through plant mod or other outside influences. The programs  
21 get changed and even they're still in the program, the  
22 procedures get changed. The tests are not completed.  
23 Examinations don't take place. So, we hope to have that  
24 within the next week or two.

25 SPEAKER: You've got a hand in the air behind you,

1 sir.

2 MR. WEST: My name's Ray West from ASME, today.  
3 And I looked at these LERs and a lot of them were very  
4 difficult to determine if they are related to the ten-year  
5 update. But the percentage I got was probably fifty percent  
6 for the related ISI ones were for the ten-year update when  
7 you read into them. But I didn't see a lot of them that  
8 were safety-significant. However, the way that the update  
9 is done at the utilities is that it's usually done in the  
10 third period of the ten-year interval. And it's done before  
11 the last refueling outage. And as a result of that update,  
12 if there are mistakes, they usually can be corrected in the  
13 inspections performed in that last period. But if you do  
14 away with the update, that does not get looked at. That  
15 focus goes away. And I'm not sure how many would be listed,  
16 and you could identify LERs if that was the case. Thank  
17 you.

18 DR. SEALE: Thank you.

19 MR. SCARBROUGH: One of the disadvantages of  
20 Option 2 is it could be considered to be not to reflect the  
21 current effort to improve our justification for new  
22 requirements using the 50.109 process where imposed on  
23 licensees.

24 Option 3 is a slight change to that aspect of  
25 Option 2, where we would retain the regulatory requirement

1 in 50.55a, but we would authorize plant-specific  
2 alternatives, pursuant to 50.55a(a)(3)(i), which, to provide  
3 acceptable level of quality and safety. We would need to  
4 develop guidance for evaluating those alternatives, and we  
5 might include such aspects as operating life and the  
6 safety-significance of the changes from the previous version  
7 of the code.

8 The advantage of option 3 is that it uses a  
9 current process. It does have -- the potential for reduced  
10 code participation is minimized because on the books it's  
11 still the 120-month update requirement. And the potential  
12 inconsistency for state and Federal requirements is reduced  
13 because it's really reduced to a more plant-specific issue.

14 The disadvantages would be that the licensees have  
15 the burden of justifying that alternative, and as a result  
16 it could have less burden reduction than Option 1 because  
17 licensees would have to address all the sections of the code  
18 in terms of their justification. And another aspect of  
19 concern would be that it might not involve public  
20 participation, where it was all done internally within the  
21 staff, and we would need to have resources develop that  
22 guidance for this process to make it clear as to what would  
23 be the success path for this option.

24 CHAIRMAN SHACK: So this is basically a global  
25 relief request? Is that what you envision? I mean, you can

1 now come in and request relief from specific provisions.

2 You're saying here they can request relief from the whole --

3 MR. SCARBROUGH: Yes. Yeah, they would come in  
4 and ask for relief and justify that, under 53(a)(i). Yeah.

5 CHAIRMAN SHACK: They already have this  
6 alternative, right?

7 MR. SCARBROUGH: Right. They can do that. And  
8 we've and had -- they came in and did that once before. But  
9 now we've taken a more organizaed approach in terms of the  
10 guidance, guidelines for following that pathway, rather than  
11 just kind of reviewing it haphazardly.

12 In terms of evaluation of the options, we did  
13 apply the strategic goals from the commission and, of the  
14 maintianing safety, increasing public confidence, and  
15 reducing regulatory, and making NRC activities more  
16 effective, efficiant and realistic -- I don't have much  
17 time. I don't want to go into all these, but we did, we do  
18 feel that each option would maintain safety. The process  
19 for updating is just different for each of these options.

20 Option 1, you have the 50.109 test; option 2, you  
21 have the process where it's automatically updated; and  
22 option 3 would be n a plant-specific basis. So we feel that  
23 safety would be maintained for all three options. We think  
24 that public options. We think that public confidence, you  
25 know, would be reflected by how it's perceived in terms of

1 what option. We think all of them have the potential to  
2 increase public confidence by the manner in which we intend  
3 to make sure that safety-significant changes are continued  
4 to be mandated.

5 In terms of reducing unnecessary burden, we think  
6 that option 1 provides the greatest flexibility for  
7 licensees, in terms of -- if they want to voluntarily update  
8 to a new version, they can, or they can wait until the  
9 baseline was changed. So that gives them the greatest  
10 flexibility.

11 In terms of activities, we're gonna need Staff  
12 resources to review relief requests regardless of the  
13 updating requirements. They're gonna continue to come in.  
14 Option 1 does remove the historical exclusion of 50.109 from  
15 updating, but it does make it consistent with all our other  
16 requirements that we have. So we think overall that process  
17 would work out to our advantage.

18 So all that said and done, we developed a  
19 recommendation that we plan to present to the Commission,  
20 that no particular option has an overwhelming advantage over  
21 the other options in terms of the strategic goals. We've  
22 gone through all those in detail and there's not an  
23 overwhelming process or argument that can be made for any of  
24 the options.

25 We think Option 1.B reasonably combines the

1 strategic goals and it would be recommended to replace the  
2 120-month update requirement with a voluntary updating  
3 provision unless the baseline were, was revised using the  
4 50.109 criteria.

5 We selected the 1995 with the '96 addenda as the  
6 initial baseline on two points. One is, it's already  
7 incorporated by reference in the regulations with the  
8 requirement that the licensees update at their next  
9 120-month interval. And second is the improvements that  
10 have been pointed, from the public comments and from our  
11 review, since 1989, to the code, which provides a number of  
12 improvements to the code provisions themselves.

13 DR. POWERS: Would this supersede the accelerated  
14 implementation of Appendix VIII, or that goes on --

15 MR. SCARBROUGH: That would continue. That would  
16 continue just the way it is as of today. Basically what  
17 would happen was, under Option 1.B what's currently in the  
18 regulations would be the baseline, and licensees approaching  
19 their next 120-month interval would update to that process.

20 DR. POWERS: But they have to do Appendix VIII  
21 sooner than that?

22 MR. SCARBROUGH: Yes. That was a backfit. That  
23 was an accelerated backfit. So that schedule would  
24 continue. And we've talked about, we've considered how to  
25 implement the process for updating the baseline and such,

1 and we've considered -- if, as we've reviewed future code  
2 editions, if we found specific provisions that, I mean  
3 backfit over time as we collected a number of different  
4 backfit provisions, that might be an indication that it's  
5 time to update the baseline. So we've started thinking  
6 about how that process would work. But it would be a  
7 learning process because it's something we hadn't done  
8 before.

9 MR. WESSMANN: I would point out that if something  
10 like Appendix VIII shows up in the future, and let's say  
11 it's in the 2004 edition of the code, there is something  
12 that is such a compelling improvement like the Appendix VIII  
13 and it passes the specific backfit test, that we would then  
14 go down the path, through the public comment process and  
15 all, to impose that on some sort of accelerated schedule,  
16 but that would have to be tested on its merits and, we're  
17 speculating, on some invention in the future.

18 But the concept we applied for Appendix VIII would  
19 certainly stand, no matter how we move forward from this  
20 particular activity.

21 MR. SCARBROUGH: That's all I had. Thank you.

22 CHAIRMAN SHACK: Yeah. Let's take a break until  
23 9:35.

24 [Recess.]

25 CHAIRMAN SHACK: I'd like to come back into

1 session. We have a presentation from the ASME and Jerry  
2 Eisenberg and James Perry start. And I see some other  
3 gentlemen -- I'm sure they'll introduce them.

4 MR. EISENBERG: Thank you very much. I'd like to  
5 thank the Committee for this opportunity to express our  
6 views on this important subject. I'm Jerry Eisenberg,  
7 Director of Nuclear Codes and Standards at ASME. With me is  
8 John Furgeson, the current Vice President of Nuclear Codes  
9 and Standards. James Perry, former Vice President of  
10 Nuclear Codes and Standards. Owen Hedden from ABBCCE,  
11 current Chairman of Subcommittee on Nuclear In-Service  
12 Inspection. And in the audience, Ray West who's a, from  
13 Northeast Utilities and a member of Subcommittee 11.

14 This morning, we'd like to summarize -- in the  
15 handouts in front of you, you'll see, we have ASME letters  
16 to the NRC and to the Chairman regarding this rulemaking.  
17 We intend to provide a summary of that. Also, to outline  
18 the important code changes over the last ten years and to  
19 provide a basis for supporting the retention of the  
20 120-month update.

21 And with that, I'd like to turn it over to Mr.  
22 Perry.

23 MR. PERRY: Thank you very much. It's certainly  
24 an honor and a pleasure to present our views before this  
25 august body. As Jerry mentioned, there are three different

1 handouts. The letters that were sent in, both dated June  
2 16th, reflect the views of the Board on Nuclear Codes and  
3 Standards, based on the committee members' or the board  
4 members' feeling, and the consensus of the majority of the  
5 people, as well as input from the effective subcommittees.  
6 That also was discussed at the next higher level within the  
7 organization, at the Council of Codes and Standards, and was  
8 voted on unanimously, endorsing the content of the  
9 information in this letter.

10 What was sort of unique and different in this  
11 instance is that the Council felt so strongly about this,  
12 they in turn made a presentation to the highest body of ASME  
13 -- that is the Board of Governors. And the Board of  
14 Governors also endorsed it, and that was reflected in the  
15 letter signed by the, our president, Bob Nickell. So that's  
16 a little bit unique, I think. We don't normally get that  
17 kind of audience and support all the way up on every detail.

18 The other point I'd like to make is that in the  
19 one handout that is titled "Important Section XI Subgroup  
20 NDE, Code Changes and Code Cases" -- that package sums 17  
21 pages -- is additional material beyond what was presented in  
22 our letters, and I will try to walk you through at least  
23 some of that to give you a much better feel from a technical  
24 point of view. What are these changes that were made? How  
25 relevant are they? What's the impact of those? What's the

1 benefits? And I think that I'll leave you with a little bit  
2 more ammunition than what was in our letter on specifics. I  
3 think it would be helpful.

4           Okay, the content -- next chart -- really  
5 parallels the information that's in our letter. And I'll  
6 try to summarize that briefly. Next please -- also the  
7 update.

8           The staff in their proposal indicated that the  
9 costs run around \$200,000. NEI has much higher numbers.  
10 And I'm not gonna dispute who's right or who's wrong. Those  
11 are big numbers. But a point that we want to make -- I  
12 guess there was an informal survey done by the Section XI  
13 Committee, with input from 7 people from different  
14 utilities. The estimated average was around \$200,000. But  
15 it doesn't matter -- whether it's \$200,000, \$300,00,  
16 \$400,000, or what have you, that's a big number. But I  
17 think the point we want to make is, that's a number that is  
18 spread out over a ten-year period. In other words, if you  
19 make the update, it's a one-shot deal over a ten-year period  
20 before you do it again. So if you annualize that, then the  
21 cost per year looks a little more reasonable. But it's  
22 still a big number.

23           Now the one-time cost adds significantly to the  
24 total and the point I want to make here is that if you look  
25 at what the Staff has required already, beyond '89 code,

1 namely mandatory implementation of IWE and IWL on containment,  
2 which is in addition to what used to be in the ISI programs  
3 that utilities had to make. That's a significant new  
4 increase. So a large percentage of the dollars associated  
5 with this update are associated with what's being mandated  
6 by the NRC anyway, whether you update it or not.

7           Secondly, Appendix VIII is a significant increase  
8 in the ISI program. So all the changes necessary to make  
9 that happen, including procedures, I think represent a  
10 lion's share of the cost, whatever it is -- \$200,000,  
11 \$400,000 or so. The other point I think that's significant  
12 is if you do not require future updates -- in other words,  
13 if you baseline it to the '89 or the '98 or whatever not in  
14 the future -- then you need to also factor into account the  
15 additional costs incurred that are associated with review  
16 fees necessary and costs on the part the utility and the  
17 staff in reviewing exemptions and relief requests to go with  
18 that baseline. In other words, if I take the 1989 -- and  
19 I'll show you many of the changes and code cases that I  
20 think are very attractive for utilities to want to get  
21 approved, they would have to go in with all these exemptions  
22 and release requests, and those are not insignificant costs.  
23 I think the Staff charges so much per hour for each one of  
24 those. You multiply that by all of the licensees, you're  
25 talking big numbers and additional staff burden.

1           If you were to impose the latest code, like what's  
2 in the regulation now, then I think you reduce -- because  
3 many of the changes they're talking about have already been  
4 incorporated in the code. Many of the previous code cases  
5 are incorporated. I think the numbers of exemptions and  
6 relief requests are considerably less, and it has a net  
7 savings on the utilities and the NRC.

8           Next, we say the code is a living document. You  
9 know, there's discussions as to whether it's mature or not.  
10 Certainly, you know, you can't argue that what we had in  
11 place in the past was not safe. But I think we're talking  
12 about what knowledge we've gained, what experience we had,  
13 what improvements we've made, and it makes sense that you  
14 don't want to just sort of ignore those. And I'll talk  
15 about changes that have big impacts on reducing radiation  
16 exposure. And I submit, those have impact on safety as well  
17 that and we can't ignore. I mean, you know, ALARA is the  
18 lowest impact on safety, on changes.

19           Changes result from new and improved inspection  
20 tests, materials and design methodology. So I think we were  
21 going through an evolution here over a period of time.  
22 Next, the changes also reflect lessons learned from over 30  
23 years of experience and also respond to user feedback. I'll  
24 just use one code case, as an example, in Section XI. B. J.  
25 Welds code case. That one, we admitted that we'd spent

1 billions of dollars in the past to do inspections on these,  
2 and we find out that we're not getting a pay-back on it. So  
3 the change in that, based on the history and what's  
4 important and where to look and what to look for, including  
5 improved methodologies, we can reduce the number of  
6 inspections, reduce the costs considerably on B. J. Welds,  
7 and also have a much greater confidence that its  
8 safety-significant aspects were really improving the health  
9 and safety from that.

10 Also the code moved from the prescriptive,  
11 repetitive type inspection we had in the past to tests that  
12 are more risk-informed and performance-based. And I think  
13 we talked about that. And there's pilot plants going on, a  
14 lot of action on that. And we think that's the right way,  
15 right way to go.

16 Also, numerous changes have occurred since the  
17 1989 edition that really improve safety -- not only the ones  
18 that NRC singled out on the IWI, IWL and Appendix VIII, but  
19 we'll talk about a couple more besides. In addition, there  
20 are many changes that have been made that really improve the  
21 industry standards and also reduce burden, reduce burden in  
22 terms of cost; reduce burden in terms of radiation exposure.  
23 And respond to inquiries. I think someone made the comment  
24 earlier that some of the routine changes that are made  
25 really pick up people who interpreted something wrong or

1 misapplied it or really didn't get the right point, as we  
2 learn and get experience.

3           The code is kind of complicated and you almost  
4 need to go through a maze to figure it out. And so I think  
5 it's not uncommon for someone to err in terms of  
6 interpreting. And these things are picked up as we get  
7 feedback.

8           Now to support our contention here, we have some  
9 -- the next viewgraphs really go into some specifics. And  
10 that's really, will be backed up by the handout that I have  
11 there. But in summary, for example in Section XI, just the  
12 changes to the code which are summarized on this chart that  
13 go from the 1989 version of the code to the 1990 addenda,  
14 and pick them up in terms of categories of changes, where IS  
15 is improved safety, IIS is improved industry standards, RRE  
16 is reduced radiation exposure to personnel, RR is reduced  
17 requirements, M is maintenance. And as we get to the O&M  
18 code, they have another one -- IR, increased requirements.  
19 So we had some where we increased.

20           So what we've identified here is a breakout by  
21 each of the subgroups under Section XI. The first has to do  
22 with the subgroup on nondestructive examination. The next  
23 group is a subgroup on water-cooled systems. Followed by  
24 the subgroup on repairs, replacements, and modifications.  
25 And then of course last, dealing with FFTF and overseas

1 plants, the subgroup on liquid metal cooling systems. So  
2 you can see from this table that for important safety  
3 changes -- there's a total of ten. I might point out that  
4 all ten, the tables that are in this handout only address  
5 what the Committee and Subcommittee consider as the more  
6 important changes; roughly about 50 percent of them are  
7 saying they're more important. All of those of course are  
8 included in the more important category.

9 Second, on improved industry standards, you'll  
10 notice there's 124. Of those, 55 are included in here as  
11 important changes. On reduced radiation exposure, we show  
12 only one, and that's a hundred percent and that's covered in  
13 "more important." Reduced requirements -- there's 29, and  
14 13 of those are identified as "important." On maintenance,  
15 there's a total of 91; one of those maintenance items shows  
16 up as important.

17 Now, the other thing that I'd like to bring to  
18 your attention is that if you take, for example, on page 1,  
19 in item number 1, this is part of the imposition of the  
20 ultrasonic requirements on performance demonstration tied in  
21 with Appendix VIII. Off on, in the center we described the  
22 purpose and the benefits derived by this change. Off on the  
23 right, you'll see we have a last column that says  
24 "classification." The first indication code is, it's  
25 predominantly, the reason for this is related to improved

1 safety. But you'll also note a secondary purpose, which you  
2 can't ignore, and it has it taken credit on this chart, is  
3 that it also has improved industry standards, impact, and  
4 has a significant impact with respect to reduced radiation  
5 exposure.

6           So I think the Committee did an excellent job of  
7 trying to summarize and categorize these, other than, you  
8 know, safety significant versus errata sheets and routine  
9 changes. If we can take a look at page 2 for a second, and  
10 if you look at item 14, that change involved improved safety  
11 and also improved industry standards as well. If you look  
12 at item 21 on page 2, here we're talking about a change that  
13 relates to going to leakage test in lieu of hydrostatic  
14 tests, and that one has significant saving man-REM exposure,  
15 because it allows ten-year pressure tests to be conducted at  
16 nominal operating, and this recognizes the difficulty of  
17 hydrostatic testing with no value-added benefit over system  
18 leakage. Plus, it also minimized the cycling of the plant,  
19 which is important from a safety point of view. So that one  
20 has merit with respect to reduced radiation exposure, which  
21 in my view relates to the health and safety of the public,  
22 as well as improved industry standards.

23           I could go on and on, but at any rate I don't want  
24 to do that. Let me just go to page 6 --

25           DR. POWERS: What you've presented here of course

1 is very interesting because we've seen another breakdown for  
2 a different period of time, prepared by NEI, which claims  
3 differently -- they claim lots of changes in punctuation and  
4 grammar and things like that.

5 MR. PERRY: Right.

6 DR. POWERS: Of course I'm tempted to ask you,  
7 does this square -- how does this square because it's a  
8 different period of time with them that all these changes  
9 occur between --

10 MR. PERRY: No, the ones that NEI had, and I'm  
11 familiar with that, addressed part of this period, not the  
12 total period. They didn't look at the whole ten years. We  
13 looked at the whole ten years. I don't argue with what NEI  
14 had, but I think that they tended to make a grosser analysis  
15 of the changes, and what I'm talking about is a more  
16 detailed analysis by the people involved in the code. I  
17 think it's more precise.

18 DR. POWERS: Sure.

19 MR. PERRY: And so when you break it down in not  
20 only what's safety -- and I think part of the confusion is  
21 that Section XI is gone to the point where trying to handle  
22 all these things during a meeting, they can't always get to  
23 the agenda so they have come up with a system that was  
24 suggested by Gil Millman of the NRC to classify these. Is  
25 it predominantly, is the change predominantly based on

1 safety? Is it predominantly based on economics? Or is it a  
2 maintenance item?

3 DR. POWERS: Let me ask you a different question.  
4 And that is, people come out with an update to the code  
5 itself every three years, I believe.

6 MR. PERRY: A new edition, a new edition and a new  
7 edition.

8 DR. POWERS: So why aren't you in there lobbying  
9 the NRC to go to a 36-month updating?

10 MR. PERRY: If I had my way, I would --

11 SPEAKER: That's the question.

12 [Laughter.]

13 MR. PERRY: We've had a lot of discussions with  
14 the Staff. Part of the difficulty is what it takes them to  
15 go through the public review, CRGR, and so forth. And so if  
16 you make it too frequent, they're caught in this maze here  
17 and can't get through it. And so three years, I think, is  
18 one you can almost breathe, you know, and do it.

19 DR. POWERS: Yeah, I'm sure the three areas could  
20 be done, but I just --

21 MR. PERRY: But that's, that's one of my own.  
22 That's one of my own personal feelings. I think it'd be  
23 nice if utilities were allowed -- you know, and there are  
24 certain ones that are very active in the code, and see  
25 what's going on. And I think it would be nice if they're

1 allowed to update their program every three years.

2 DR. POWERS: Well, they're allowed to upgrade any  
3 time they want to, I suspect.

4 MR. WESSMANN: If I may -- this is Dick Wessman  
5 from the Staff, and if I may butt in on you for a minute,  
6 Jim, we recognize that from the '89 version all the way up  
7 to September of '99, it was an inordinate long time, and  
8 there's a long story and lots of difficulties along the way.  
9 I don't expect that we'll ever walk into all those potholes  
10 again.

11 When you look at the general scenario of what you  
12 have to do to prepare a rulemaking and go through CRGR and  
13 go out for initial public comment and disposition it and  
14 come back with a final, it should be able to be done in a  
15 14- to 18-month period.

16 And I think we've recognized we stubbed our toe  
17 badly in the past, and I want to represent to you, we're  
18 going to try to make that happen in the future and we  
19 started working on that 1998 version. And, you know,  
20 regardless of how the path comes out on this, we'll have an  
21 opinion on the '98 version, either for voluntary use or for  
22 required use, depending on how this particular activity on  
23 120-month update finally comes out.

24 DR. POWERS: The pay's of course a different issue  
25 here. Really, the issue that I really wanted to get to the

1 heart of was why you guys aren't in here just pounding the  
2 table and saying, by God, we come out every 36 months and  
3 every 36 months you up -- and I think you've given me your  
4 answer.

5 MR. PERRY: I think we'll discuss some of the  
6 impact in terms of, if you don't continue the update  
7 process, greater disparity and more confusion between what  
8 the regulators in Washington say, versus what the states  
9 mandate. So the user just gets totally confused. One says  
10 update every year, and the other says maybe you don't have  
11 to update at all.

12 Okay. I was --

13 DR. SIEBER: Maybe I could ask just one question  
14 that's sort of mechanical in nature. Uh, the number, total  
15 255 on this chart, that actually is the result of some  
16 double-counting?

17 MR. PERRY: No, no. No, no, no, no. We only  
18 count once. What we show here are a hundred, or 80 of those  
19 255, which the Committee said are important. So you see,  
20 the heading says "important". The ones that they don't  
21 consider as important are not included. In other words, it  
22 was a big effort on the part of Owen's group to put this  
23 analysis together and present it to you now. And so --

24 DR. SIEBER: Well --

25 MR. PERRY: -- we said, let's concentrate on the

1 ones that you consider important.

2 DR. SIEBER: Just for the item number 1 on this  
3 document --

4 MR. PERRY: Yes.

5 DR. SIEBER: -- the classification has IS, IIS and  
6 RRE.

7 MR. PERRY: Yes. Right, it only shows up on this  
8 table under IS. In other words, whatever the first  
9 classification was, that's it.

10 DR. SIEBER: Okay. All right. Thank you.

11 MR. PERRY: Now, on page 6, at the end of each of  
12 these one of these subgroup write-ups, there's a summary.  
13 And the summary in note 1 shows on the left-hand column how  
14 many code changes there were -- and I think that kind of  
15 repeats what I have already shown you. But on the right,  
16 which I haven't discussed at all, is the code cases and case  
17 revisions. So these are ones that are not yet in the code,  
18 but these are options.

19 Now the reason I didn't include them and didn't  
20 discuss them yet is that when we talk about going to the  
21 latest code, these are options that are not mandatory. But  
22 they have a big impact on the part of utilities saying, hey,  
23 I think this is the latest thing, greatest since sliced  
24 bread and I need to implement that. So now they come in to  
25 the Commission, if they haven't endorsed it by Reg. Guide,

1 and have to get an exemption. And now you're incurring  
2 additional staff effort on a --

3 DR. BONACA: I have question for --

4 MR. PERRY: Furthermore -- excuse me.

5 Furthermore, on note 2, I think we do a better job of  
6 defining just what we mean by important safety, just what we  
7 mean by improved industry standards, and so forth. Yes sir?

8 DR. BONACA: The question I had was to do with the  
9 involvement in fact. I mean, clearly, looking at this table  
10 in general --

11 MR. PERRY: Yes sir.

12 DR. BONACA: -- shows to me that the utility has  
13 to have significant involvement with the ASME coding  
14 standards because of the update requirements, in part.

15 MR. PERRY: Yes.

16 DR. BONACA: Would you expect that involvement in  
17 this kind of, you know, information exchange would still  
18 take place if these, the requirements for the update is  
19 eliminated?

20 MR. PERRY: No. I think the level of support and  
21 interest is going to less, and let me tell you why. The  
22 pressure is on utilities to become more competitive in, in  
23 an environment, and I think they're looking at how can they  
24 reduce costs. And if you look at short-term, if you're  
25 short-term oriented and say, how can I reduce costs -- if

1 this not going to be mandated, I'm not going to spend the  
2 dollars to have people go to these meetings and pay for  
3 travel and wages. So I think there may be a reduction  
4 there. I think the emphasis will be probably more on code  
5 cases and not code changes.

6 And a lot of the research that goes on in back of  
7 all this, supported by the Welding Research Council  
8 eventually get in changes. I think a lot of that's going to  
9 go away.

10 DR. BONACA: I see --

11 MR. PERRY: So all this is built around 120 months  
12 update, but I think 120 months also makes sense from the  
13 point of view that the whole program is laid out so that  
14 you're looking at a ten-year interval to complete the entire  
15 cycle of all the inspections or all of the tests. And  
16 further, when you get to the end of that period, you need to  
17 assess what's happened. What have we found? And what  
18 shortcoming and what things have we missed? If you don't  
19 have the update, I don't think it's going to be done by all  
20 of the utilities.

21 DR. BONACA: Thank you.

22 MR. PERRY: Okay. With respect to code cases that  
23 I don't show on this table, under the NDE group, there's 94  
24 of those. And under the water-cooled systems, 41. Under  
25 the repair and replacement, 28. And then under the metal,

1 liquid metal. So there's 163 code cases in addition to the  
2 code changes.

3 I might point out that on page 7 through 9 is  
4 where you find the information on a water-cooled systems, 10  
5 through 14 covers the repair and replacement, and the liquid  
6 metal-cooled systems are on page 15 and 16. So that gives  
7 you kind of a thumbnail sketch there.

8 Now if I can just shift very quickly over to the  
9 next chart. And here we're talking about an analysis of the  
10 operations and maintenance code. And here, we're talking  
11 about what's changed from 1990 edition to the present code.  
12 This one kind of categorizes it along the same lines as the  
13 NDE did, except you'll notice that there's a new category  
14 near the bottom -- IR. And that one says, the essence here  
15 is to increase requirements, so we added new things.

16 To put this one in perspective, the first three --  
17 improved safety, improved standards, and reduction in  
18 radiation exposure -- all of those are listed on your  
19 handout, on the last page, 17. So this one was more  
20 abbreviated. I didn't get the same degree of detail from  
21 O&M that I did from Section XI with respect to a more crisp  
22 description of the change and a summary of the benefits.  
23 But let me just highlight --

24 CHAIRMAN SHACK: What's the difference between  
25 something that increases requirements and improves safety?

1 MR. PERRY: Beg your pardon?

2 CHAIRMAN SHACK: What is the difference between  
3 something that increases requirements and something that  
4 improves safety? Why would I increase requirements without  
5 improving safety?

6 MR. PERRY: I have a breakdown on that --

7 CHAIRMAN SHACK: You just have a category, a new  
8 category --

9 MR. PERRY: Right.

10 CHAIRMAN SHACK: -- improved safety and increased  
11 requirements.

12 MR. PERRY: Right.

13 CHAIRMAN SHACK: And I assume that they're  
14 mutually exclusive, as they were on the original table.

15 MR. PERRY: Well I think that -- again, I think  
16 that what they're saying is that the primary basis of that  
17 change relates to either improved safety or increasing  
18 requirements or something. And as we showed before on  
19 Section XI, many of the changes affect more than one class,  
20 but we only, we only showed it on what the primary  
21 classification was. So I can, I can have a change -- for  
22 example, Appendix VIII of Section XI, improves safety, but  
23 it also increases requirements, guaranteed. You know -- and  
24 improves industry standards, too.

25 CHAIRMAN SHACK: Yeah. I can, I can understand

1 improving safety while increasing requirements. I can't  
2 understand increasing requirements without, say, reducing  
3 exposure or improving safety, you know --

4 MR. PERRY: I think you're right. I think you're  
5 right there. And if we look at examples, on page 17, for  
6 example, the comprehensive pump test is one that is  
7 classified as improving safety, but it also has to do with,  
8 in some instances, increasing requirements and so forth.  
9 But I think it has to do with where you put the emphasis,  
10 how you perform the test, what the net benefits are.

11 DR. SEALE: But according to your ground rules, it  
12 only shows up the first time.

13 MR. PERRY: Whatever the Committee determined --

14 DR. SEALE: -- so you'll look under --

15 MR. PERRY: -- was the primary reason, that's  
16 right.

17 DR. SEALE: So you'd want to look under "valves"  
18 if you wanted to find out, a case --

19 MR. PERRY: right.

20 DR. SEALE: -- where you increased requirements  
21 without increasing safety, or industry standards

22 MR. PERRY: Well, the first thing is -- okay.

23 So, so also, when you look at the valves, for  
24 example, Item 2 on page 17 there, we're looking at condition  
25 monitoring and Appendix E for in-service exercising of

1 check-valves. So that's the basis for that and, yes, it's  
2 predominantly driven by improved safety.

3 Under "snubbers," Item 3, there we're looking at  
4 service monitoring of dynamic restraints. And that's a big  
5 improvement. Now, so when you get all done, there's 51  
6 changes in the O&M code over the last period, 9 years, that  
7 fall into these categories.

8 In addition to the code changes, there were 11  
9 code cases. And let me just highlight a couple of the code  
10 cases, which I think the Committee feels are rather  
11 significant, most important. One of them has to do with the  
12 OM-1 code case dealing with motor-operated valves. That has  
13 been endorsed by the NRC Reg. Guide, 96-05. So we've had a  
14 lot of action with respect to MOVs and how do you make them  
15 work, how do you test better to make sure that they're gonna  
16 continue to perform satisfactorily when called upon?

17 Three other code cases that are significant that  
18 were mentioned deal with the risk-informed in-service  
19 testing. So that's OMN 3 and 4 and 7. So I'd just point  
20 out those 4 for your benefit, as well. Okay, so that takes  
21 care of this handout package. Back to the viewgraphs.

22 The ASME process and system, in our view, provides  
23 what I call a multiplier effect, that is in direct support  
24 of the 120-month update. Now what I mean by "the multiplier  
25 effect" is that ASME provides us with a real unique

1 opportunity here in that it involves a collaborative effort  
2 of hundreds of volunteers working together toward a common  
3 objective of improving safety standards to protect the  
4 health and safety of the public.

5 And with that forum, we're able to accomplish a  
6 lot over a period of time -- granted, you can argue it takes  
7 a little long, but it's been very effective. And when you  
8 remove this, I think you lose that collaborative effort and  
9 collection of all this activity. If you try to do it  
10 individually, either by utility groups or by specific areas  
11 or individual utilities, you don't have the same effect.

12 Changes reflect operational experience to assure  
13 implementation of safety and ALARA considerations. The  
14 broad-based balance group of experts that are on the  
15 committees that produce these code changes and code cases  
16 use the consensus process. And the distribution of the  
17 membership in the ISI and IST really involve -- 30 percent,  
18 roughly, are from utilites; 30 percent, consultants; and  
19 then the other user groups, like enforcement regulatory  
20 agencies, manufacturers, insurance companies, you know,  
21 inspectors, account for 40 percent of the committee.

22 CHAIRMAN SHACK: Just, on this process, we know  
23 that there's no formal cost-benefit analysis. Is there, in  
24 fact though, an explicit requirement to qualitatively  
25 discuss cost-benefit impacts?

ANN RILEY & ASSOCIATES, LTD.  
Court Reporters  
1025 Connecticut Avenue, NW, Suite 1014  
Washington, D.C. 20036  
(202) 842-0034

1 MR. HEDDEN: You know -- this is, I'm Owen Hedden.  
2 In fact, we have done explicit cost-benefit analyses on a  
3 number of items. And over a period of time, the utility  
4 will come in proposing a change and they'll give us a basis  
5 for that. And we'll check that with other utilities and get  
6 numbers on that. The Appendix J code case that Jim  
7 mentioned is one that, in our supporting material on that we  
8 had quite a bit of cost-benefit information in that. But we  
9 do do that explicitly and have done that in a number of  
10 cases.

11 CHAIRMAN SHACK: Just how many of the, of the  
12 changes are brought to you by -- who suggests the changes to  
13 begin with?

14 MR. HEDDEN: Most come from the utilities, from  
15 our utility members.

16 CHAIRMAN SHACK: Thank you.

17 MR. PERRY: Okay. User feedback on operating  
18 experience also results in changes to the code.

19 DR. POWERS: Let me come back to asking just a  
20 little bit about this broad-based balanced group of experts.

21 MR. PERRY: yes, sir.

22 DR. POWERS: -- that slide you have up there. I'm  
23 getting more of an understanding of this, not in the,  
24 because of this particular code, but because of the efforts  
25 on PRAs. As I understand it, what you try to do is keep, so

1 that no group constitutes more than 30 percent of members,  
2 so you're gonna get some prejudice in the process, as I  
3 understand. What I've never understood is, you have 30  
4 percent utilities and 30 percent that are consultants. I  
5 mean, why are those treated as the same?

6 MR. HEDDEN: Jim, could I answer that?

7 MR. PERRY: Sure.

8 MR. HEDDEN: Owen Hedden again. They're not all  
9 consultants to the utilities. We also have a number of  
10 consultants to the NRC that are on our committee.

11 DR. BONACA: Okay, so there are consultants --  
12 consultants could be National Laboratory people that the  
13 Staff uses.

14 MR. HEDDEN: Yeah. Yeah, we have a lot of  
15 National Lab people that represent us, for instance.

16 DR. POWERS: okay.

17 DR. SEALE: Do they fall in that category?

18 MR. HEDDEN: Yes.

19 MR. PERRY: Yeah, the rule is, whoever your  
20 sponsor is that's paying your way for attending these  
21 meeting as salary, what's their primary business --

22 DR. SEALE: Interest.

23 MR. PERRY: -- interest. And that's what  
24 determines what classification you fall into.

25 DR. SEALE: And as Dr. Powers says, we can't have

1 anymore than one-third from any one of these different  
2 sectors on the committees. And the same thing is being  
3 applied, at least in Section XI where they, they try to  
4 maintain a balance as well.

5 MR. PERRY: I think that's healthy, because then  
6 you can't have any one group dominating.

7 MR. HEDDEN: In Section XI, we have about, more  
8 than 200 engineers participating in our committees as  
9 members. I think we have 20 from the NRC, for instance,  
10 that are participating in one committee or another. About a  
11 third, as we said there, are utilities representatives.

12 So we have a lot of people involved and roughly 80  
13 from the utilities, 70 or 80, plus other people who do come  
14 to the meetings regularly, from utilities, from the  
15 manufacturers, and the consultants. All these groups send  
16 people to the committee meetings and become familiar with  
17 their actions, propose actions, participate in the  
18 discussions that are not amongst those that are committee  
19 members.

20 MR. PERRY: Okay. Also, you know, I think it was  
21 mentioned earlier by the NRC individual, that when you look  
22 at these changes individually, they may not be real  
23 significant, but when you kind of look at all of them  
24 cumulatively over a 10-year period and look at what the  
25 impact is, they do have a cumulative, significant, I think,

1 beneficial effect that cannot be ignored. And I think the  
2 proposed recommendation on the part of the Staff recognizes  
3 that by saying, well, instead of baselining in '89, we  
4 really ought to baseline what's in the regulation now, which  
5 is the more recent one. So I think that speaks for that.

6 Also, many changes relate to reducing examinations  
7 and tests and new methods for repair and flow analysis. And  
8 the point I want to make here is that if you look at  
9 short-term gain, you could say, all right, the  
10 administrative costs are probably prohibitive; you don't  
11 want to make the update. But if you were to make all these  
12 changes in your update to the latest code, the benefits  
13 gained by implementing these changes over the 10-year period  
14 where now it's less costly to do the examinations or less  
15 frequent some of these are done, or more improved methods,  
16 all of those savings, in our judgment, exceed the  
17 administrative costs of making change.

18 It's almost like, if you're going to do a capital  
19 project, what's it cost and what's the return on investment?  
20 And if it isn't reasonable, you don't do it. I think the  
21 same thing is true here. If you were to add up the  
22 reductions in implementation costs over the ten-year period,  
23 in our view, it exceeds the administrative costs of updating  
24 it.

25 DR. POWERS: If that's the case, why do we have to

1 require it? Why wouldn't the utilities just do as a good  
2 business practice?

3 CHAIRMAN SHACK: -- beat 'em off. You'd have to  
4 beat 'em off from making these changes.

5 [Laughter.]

6 DR. POWERS: That's right. They would be sitting  
7 here saying, no you can't upgrade because we can't keep up  
8 with you. And things like that, and why not? I mean, we're  
9 getting in an era where people are looking at these costs --

10 MR. PERRY: I think it's the difference between  
11 short-term and long-term. If I were in senior management  
12 and someone says, do we need to spend \$200,000, \$300,000 to  
13 upgrade the ISI if it's not required? Hell no! I'm not  
14 going to incur that cost; I've gotta be competitive.

15 DR. POWERS: Yeah, but what if you were --

16 MR. PERRY: If you were to ask, here's what the  
17 benefits are and here's what you gain and here's a reduction  
18 of costs of the ten-year period and here's how it's  
19 offsetting the administrative costs, I think you might get a  
20 different answer. Short-term gain versus long-term benefit.  
21 I think we need to put it in proper perspective, all of  
22 those collectively, not just administrative costs.

23 DR. POWERS: I mean, people are fairly clever.  
24 We've got lots of people coming out of MBA school that can  
25 do these analyses and say, here's, here's what the return on

1 an investment of \$200,000 is. Help us here.

2 MR. LEWIS: My name is Steve Lewis, and I'd just  
3 like to comment on the point made by ASME. And that is  
4 exactly the point of this whole issue is, is it ought to be  
5 that utility's choice to make that update, and that choice  
6 is driven by cost and return. And it's not how it's -- and  
7 if it is a cost over a ten-year period, then that has to be  
8 factored into the up-front cost.

9 And several points that we've talked about that  
10 this cost is spread out over ten years, but the cost hits  
11 the budget in a single year. And it has to be evaluated on  
12 a net-present value for the return gain. If it's not, it's  
13 gonna cost me a half a million dollars, so that's \$50,000 a  
14 year. That's a half-million dollars for O&M that year.  
15 That means a half-million dollars of other O&M activities  
16 are not going to take place in order to fund that mandatory  
17 update.

18 But the point you made is, if there is return,  
19 then the utility would probably make the right decision to  
20 go forward with the update.

21 DR. POWERS: Right.

22 MR. LEWIS: Now this is separate of the safety  
23 issues. This is just, do I do an update in order to gain  
24 the benefits gained by new code rules.

25 DR. POWERS: Right.

1 MR. LEWIS: So I agree, I think you've made a very  
2 valid point.

3 DR. BARTON: I think people are looking at ten  
4 years, and I think they're looking at payback over the next  
5 year or two. And if they can't get it the next year, year  
6 or two, forget it.

7 MR. LEWIS: But see, all the inspections are  
8 spread over a ten-year period, so your payback is never in  
9 one year. Your payback is always spread over ten years. I  
10 made this very presentation --

11 DR. POWERS: The fact is that I know a lot of  
12 things where you can get paybacks -- where calculations are  
13 done on paybacks longer than ten years, just because of the  
14 tax law.

15 MR. LEWIS: That's right.

16 DR. POWERS: So people can do the analyses.

17 MR. LEWIS: Right.

18 DR. POWERS: You know, which I may be right, that  
19 if the management psyche is such that if somebody comes  
20 forward with something they only ask about the two-year  
21 payback, which I agree with them is very common now in  
22 capital projects, to ask what the two-year payout is. And  
23 if they don't want to hear about the ten-year, then we're  
24 not gonna do the cost-benefit analysis.

25 MR. LEWIS: But these aren't capital activities;

1 these are O&M activities. This comes directly out of  
2 maintenance budget.

3 MR. PERRY: But I submit that the driver for this  
4 supplemental proposed change in the rule was only identified  
5 as a burden reduction, so that's why we're trying to  
6 emphasize the cost aspects of it. But I think that ASME's  
7 views -- and I know the NRC's views -- are that the  
8 responsibility that we have is broader than just cost  
9 considerations. In other words, we shouldn't be driven by  
10 somebody that says, I'm only going to look at the economic  
11 impact. We certainly ought to be looking at it from the  
12 point of view of protection of the health and safety of the  
13 public and what really makes sense.

14 DR. SEALE: I would agree with you, but going back  
15 to this question of longer-term costs and so on. The nature  
16 of the cost-related activities, beyond the implementation of  
17 the up-front costs that we've already talked about, you use  
18 the words up there "individual" and "subtle".

19 MR. PERRY: Yes.

20 DR. SEALE: And it would seem to me there's a  
21 large issue of the copycat syndrome here in terms of  
22 identifying ways where you can reduce costs. And it's only  
23 after someone has gone through and done the detailed  
24 analysis and come up with the concept and implementation of  
25 a specific way to apply these changes, that you really can

1 determine then what the consequences are in reducing costs.  
2 So it's a lot -- the potential reductions are iffy on the  
3 front end. You have to, you really have to have examples  
4 before you --

5 MR. PERRY: They're not precise. They're not  
6 precise.

7 DR. SEALE: That's right. And they may not be the  
8 same for every plant type, you know.

9 MR. PERRY: That's true.

10 DR. SEALE: BWRs may be different from PWRs in  
11 respect -- we know that.

12 MR. PERRY: And that's the decision the utility  
13 makes as to whether it --

14 DR. SEALE: But it's usually buried down the road,  
15 and it's only if the enabling decision up front is made that  
16 you even have the opportunity to examine those changes.

17 MR. PERRY: Okay. Next chart. Okay, we made a  
18 statement that deleting the updating requirements, in our  
19 view, appears to be contrary to the spirit of the public law  
20 104-113 in OMB Bulletin A119. And what we mean by that is  
21 that the current process that we've been using for, I don't  
22 know, 30 years or so, which is a ten-year cycle and ten-year  
23 update of the programs, really is proven and it's  
24 successful.

25 And I can tell you a personal experience at one

1 utility I worked at where we had a real awakening at the end  
2 of the ten-year interval on in-service inspection because we  
3 really found -- this was an old plant, built to the P31.1 --  
4 that what happened is that we lacked proper checks and  
5 balances; we had left it to the ISI manager at the plant and  
6 he had consultants doing the inspections. And they found  
7 that many of the wells, for example, were supposed to have  
8 been UT'd. The note was written, "Can't do it because the  
9 well condition doesn't allow for it." It wasn't ground; it  
10 never was intended. And it got thrown in the filed; it  
11 never was done. When we got to the end of the ten-year  
12 period, we had hundreds of those. The more we dug, the more  
13 problems. That's just one example how all of these things  
14 tie in, where you do an assessment, an evaluation, a  
15 critical one, look at these. I think when you have to  
16 update, it causes you to revisit these things, and there's  
17 really benefits there. Now, many utilities are gonna do  
18 that automatically. But I submit, many won't. It depends  
19 on the pressures of management.

20           Next, I think that the evaluation and reports, as  
21 stated by the Staff in their notice, public comment on this  
22 proposal, said that they recognized that by doing away with  
23 the ten-year update, they will probably have to do  
24 evaluations and submit reports to OMB according to this, so  
25 that's an increased burden on Staff that you wouldn't have

1 to go through if you continue the process of updating every  
2 ten years.

3 By the NRC applying only selected parts of  
4 different code editions and licensees -- when you talk about  
5 what was in the proposal, the 1989 baseline plus the changes  
6 for the IWE/IWL, changes for Appendix VIII to different  
7 ones, now you're causing all kinds of perturbations that  
8 make it difficult. And I maintain, the code is rather  
9 complex in itself, and when we come out with revisions,  
10 we're not saying you ought to be just taking this out of  
11 context and not seeing how it impacts that part. So it  
12 becomes more complex.

13 Last, I think that the rulemaking creates greater  
14 inconsistencies -- and I think this was addressed in the  
15 Staff comments -- between the Federal requirements for  
16 what's the current version that you use versus what the  
17 states require. Many states require updating requirements  
18 each year, you know, whatever the latest code is.

19 DR. POWERS: I'm intrigued by the title of your  
20 slide. It says that "contrary to the spirit of the public  
21 law."

22 MR. PERRY: Yeah.

23 DR> POWERS: My impression, operating a little bit  
24 from memory, that the spirit of the public law was for  
25 government agencies to use consensus standards rather than

1 creating their own, wherever it as possible and fit their  
2 needs. That was the spirit. And I guess I don't understand  
3 why any of the options that the Staff has presented to us  
4 would be contrary to that spirit.

5 MR. PERRY: When we talk about the spirit, Dr.  
6 Powers, we're saying, you know, if there is a consensus  
7 standard out there that is a right thing to do, then the  
8 government agencies ought to endorse that as opposed to  
9 writing their own. Now I submit that the requirements up to  
10 now ahve been to update that to the later requirements as a  
11 matter of routine, 50.55a. So in terms of the practices,  
12 that was a given. That's been done. Now we're gonna change  
13 it. And according to the Staff's own analysis, if they  
14 change -- according to their interpretation, not mine --  
15 they're gonna have to now do an evaluation and they're gonna  
16 have to submit reports to OMB on this change, based on that  
17 public law. That's my understanding.

18 MR. WESSMANN: I guess, Dr. Powers and Tim, if I  
19 can butt in again on you, let me at least comment on that a  
20 little bit. John Craig and I, we talked on that on the  
21 break a little bit -- and John Craig is the agency standards  
22 executive, and I think our local expert on the OMB 119. But  
23 our perception is, we are not at odds with the spirit and  
24 the intent of the public law. If -- and I take a more  
25 extreme example to try to illustrate this -- if we decided

1 that we wanted to impose a new requirement on how to test a  
2 pump or a valve, and we wrote that into the regulations, as  
3 opposed to searching the ASME codes and determining, gee, is  
4 that requirement already there for working with the ASME  
5 committees and going through the ASME process and, and  
6 marketing that proposed new way of testing the pumper valve?  
7 And to some degree, the whole evolution of the MOV testing  
8 was some stimulus from the staff driven back towards the  
9 original static tests of valves that we felt was not good  
10 enough.

11 We worked through that spirit and the process of  
12 the OMB law. The idea of replacing the required 120-month  
13 update with a baseline, and then continuing to endorse for  
14 voluntary use with whatever limitations that we might see  
15 that, for the regulatory purpose, might be appropriate as a  
16 limitation. I think -- we think it's still consistent with  
17 the spirit of the law.

18 DR. POWERS: It seems to me that all the options,  
19 every single one of them, seems to be inconsistent with the  
20 spirit --

21 MR. PERRY: Yes, sir. That's our --

22 DR. POWERS: I actually understand the spirit now.

23 MR. PERRY: Now, we may have confused ourselves a  
24 little bit in the public comment period or something. I  
25 can't recall. But that's our perception at this point.

1 DR. POWERS: If in fact there's any deviation from  
2 the spirit of the law, then I would say it is not mandating  
3 the 36-month update. And I think that's what gets you in  
4 that trouble is -- if what you have now is against the  
5 spirit of the law, then not requiring the 36-month is  
6 against the spirit of the law.

7 MR. PERRY: Yes.

8 CHAIRMAN SHACK: But it's less against the spirit  
9 to update every 10-months, right?

10 [Laughter.]

11 MR. PERRY: I think all we're saying is, in our  
12 view it appears, when we talk about the spirit, we think not  
13 the letter, but the spirit. So it's a judgment call. But I  
14 think it's not the total issue, but it is a consideration.

15 DR. POWERS: And I think you for reminding us of  
16 this public law, because it is an important consideration  
17 that we --

18 MR. PERRY: Right.

19 DR. POWERS: But I think we're on safe grounds  
20 here.

21 MR. PERRY: Yeah, and I think -- I'll have to  
22 admit, by comparison, when I look at all the government  
23 agencies, NRC is out front and has been in terms of  
24 endorsing codes and standards. And so I don't want to say  
25 they're not doing it.

1 DR. POWERS: Here and everywhere.

2 [Laughter.]

3 MR. PERRY: Okay. The benefits outweigh the costs  
4 in our judgement, because we feel update cost, we think, is  
5 not significantly different from the costs associated with  
6 release requests that are utilized without the update. So I  
7 think there's some compensating factors here. And I think  
8 that one number that I think Ray West has in his submittal,  
9 a letter he wrote on code cases -- if you were to ask the  
10 Staff to consider adoption of a code case, depending on  
11 whether you're doing it individually or a group of utilities  
12 collectively, that cost for that one code case could be  
13 somewhere between \$15,000 and -- how much did you say?

14 MR. WEST: Provided it was done as a rule --

15 MR. PERRY: Right.

16 MR. WEST: -- develop the code cases through ASME  
17 to request relief, it's about \$15,000.

18 Ray West, ASME. If you have a code case that went  
19 through ASME, as a, an industry effort-type code case and  
20 it's recognized as such, then normally about \$15,000 to  
21 process that through and get it approved by the NRC. If as  
22 a utility you come in with a relief request and you want to  
23 request a relief from a code requirement, that could range  
24 anywhere from \$15- to \$500,000, depending on how much effort  
25 you have to put in and the Staff has to put in to justify

1 that. Those were the numbers.

2 MR. PERRY: So I think these are significant  
3 numbers, not only a burden on utility but a significant  
4 burden on Staff. And I think when you look at the proposed  
5 rule change, we talk about allowing, not, you know,  
6 voluntary implementation and allowing to cherry-pick, then  
7 that has to go back to Staff. I don't think they really  
8 assess what the impact on the Staff is, and I'm not sure all  
9 the Staff is that familiar with the ins and outs of the  
10 code. And so that creates another question as to the  
11 validity of the sanctions.

12 I believe when you talk about the people in the  
13 regional offices and inspectors at the plant, they're gonna  
14 pull their hair out with all of these things. We already  
15 have had problems under the current rules, where somebody's  
16 misinterpreting what the code says, and misapplying it in  
17 some cases.

18 Okay. Also, revisions and code cases since 1989  
19 are collectively in our judgment safety-significant and also  
20 replace, reduce personnel exposure. And I think we talked  
21 about that. Updating -- maintain some more current,  
22 consistent, and uniform standard for the industry. And I  
23 think -- you know, I've been in this business for forty  
24 years and I've heard the NRC for forty year. And it seems  
25 to me that the theme up to now, excluding this one, is that

1 we want standardization, we want uniformity, we want  
2 consistency. And this one flies in the face of that.  
3 You're gonna have greater variations between utilities on  
4 this, and greater variations for the Staff to evaluate, if  
5 it's selectively applied. Updating minimized separate  
6 submittals and evaluations on a case-by-case basis between  
7 utilities and NRC, and I think that talked about the costs  
8 associated with that.

9 I think one of the benefits of NRC doing their  
10 analysis and endorsing a later code is, it's a big effort  
11 but you do it once, it's done, and it applies across the  
12 board. Either it's acceptable or it's not. It's acceptable  
13 with these additions. That's it. When you do it on a  
14 case-by-case basis, it's much more costly.

15 Without updating, future changes become voluntary  
16 and licensees' programs are going to vary greatly. And we  
17 think the regulatory oversight is gonna be much more  
18 difficult, and lack of standardization consensus --

19 DR. BARTON: Does that comment still pertain when  
20 you figure down the road you're gonna have maybe ten  
21 operating companies operate in a hundred plants instead of  
22 90 or 70 companies operating in a hundred plants?

23 MR. PERRY: I think that supports our position in  
24 terms of administrative costs, because I think that what  
25 you'll find is that they're going to say, let's standardize.

1 If I've got ten plants, I want to have one ISI program and  
2 try to fit it. Maybe just -- mine are unique differences  
3 peculiar to that plant. So that's gonna reduce the cost per  
4 ISI program update or IST program per plant. That'll help.  
5 That'll help the NRC. But you're still gonna have  
6 variations if you say, we want to make this non-mandatory,  
7 and they're gonna voluntarily pick these between those ten  
8 or twelve utilities. And the Staff's gonna still have to  
9 evaluate those on a case-by-case basis.

10 As I understand the proposal, as it came out, said  
11 if the Staff endorses a later edition and you elect to pick  
12 it up, then you can do it without getting Staff approval.  
13 That's fine. But if I want to cherry-pick, since the  
14 Staff's gonna be the experts and decide whether or not you  
15 did it right, whether you've misapplied it or whatever. So  
16 that's a big burden on Staff that could be avoided if you  
17 continue the 120-month update.

18 Updating also focuses on evaluation of the entire  
19 program and identifies deficiencies and forms the basis for  
20 making corrections and enhancements. I can't emphasize this  
21 too strongly. I think you've got two kinds of utilities out  
22 there. You have one that's proactive and interacts with the  
23 code and is involved in it day-to-day and knows what it's  
24 all about -- what's happening, what's changing, and why.  
25 And I'm not worried about those.

1           The ones I am worried about, frankly, and I think  
2 the NRC should be and probably is too, are those that don't  
3 participate, that choose not to participate. They come to  
4 the meetings every ten years just before the update and try  
5 to play catch-up. They're not that familiar with it. And  
6 whether they do the same degree of scrutinizing and  
7 analyzing and determining how effective the ten-year  
8 inspections and tests are and what changes we need to make  
9 is where I have the real concern.

10           And as you go through organization changes and  
11 changes at transfer of responsibility, I think there's a  
12 degradation that could take place over the years that I  
13 would be fearful of, and NRC Staff is faced with reductions  
14 in budget as well. And so, they've backed off in terms of  
15 the overview at the utilities with respect to ISI teams  
16 going in there and doing in-service inspections. They don't  
17 do that like they used to, to the extent that they did. So  
18 they're more reliant on utilities. So I think there's other  
19 considerations here beyond just, you know, the update. What  
20 takes place during that update?

21           In summary, I think keeping the 120-month update  
22 maintains a stable system which works and is proven as an  
23 integrated approach to safety improvement and burden  
24 reduction. I would maintain that I welcome the Staff's  
25 position about going to the later code. I think that's

1 good. But the analysis that I wanted to, that I showed you  
2 with respect to all of these changes I think applies whether  
3 I'm looking at the changes from '89 to '99, or whether it's  
4 '99 to '109, or whatever. We're gonna have a similar thing.  
5 If it makes sense that collectively over a ten-year period  
6 these, these should be done, then I don't know why we would  
7 even need to go to doing away with the update period.

8 I heard the Staff, well, if we use the 1998 as the  
9 update, we make, we don't know what's gonna happen in the  
10 next thirty years. We might decide we want to change the  
11 baseline in 2010. So why change the rules if you think you  
12 might do that?

13 Updating of IST and ISI programs for a plant, we  
14 believe, is necessary. Whether it's mandatory or  
15 non-mandatory, we think it just makes sense. And I think  
16 the comment was made very well, the better job we can  
17 articulate in ASME on what the benefits are, the utilities  
18 will beat down the door wanting to make those changes. And  
19 I think we're getting a little smarter and doing a little  
20 better job on that.

21 The cost of the 120-month update we think is  
22 relatively small, and that the implementation benefits over  
23 a ten-year period, in our view, outweigh the administrative  
24 costs of the update. The proposed rulemaking, we think,  
25 creates greater inconsistencies between Federal and state

1 agencies that we think adversely impact on the users and  
2 insurance companies that try to enforce this as well.

3 Maintaining the 120-month update, we think,  
4 facilitates the regulatory oversight, better serves the  
5 common objectives of public safety. In conclusion, we're  
6 saying, maintaining the update process is the right thing to  
7 do. It works and we think it ought to be continued. Thank  
8 you very much.

9 DR. POWERS: you indicated a substantial number of  
10 years of experience in this area.

11 MR. PERRY: In the nuclear field, not necessarily  
12 in the ISI and IST --

13 DR. POWERS: Let me -- I'll still ask my question.

14 MR. PERRY: Sure.

15 DR. POWERS: And that really relates to technical  
16 innovation in this field. Your perception of whether we're  
17 going to see rapid technical innovation in this field as far  
18 as the technologies that are available for doing  
19 inspections, or is it going to be a relatively static field?  
20 I'm thinking over the next 20 years.

21 MR. PERRY: I would say, Dr. Powers, that in my  
22 view, the one that the NRC is in 100 percent agreement and  
23 we've been working hard with them on it has to do with the  
24 risk-based in-service inspection and tests. And there we're  
25 talking about the use of the probabilistic risk assessment

1 tool as a way to really focus more sharply on what is really  
2 risk-significant. And to put more emphasis on that with  
3 respect to better types of inspections or methods of testing  
4 and techniques and so forth, and even reconsideration in  
5 terms of frequencies. And conversely, diverting more  
6 resources toward that and less on those that are less  
7 safety-significant. I think that's the right way to go. So  
8 there's one example.

9           And I think that many of the changes that we've  
10 looked at dealing with condition monitoring and that sort of  
11 thing really have a good impact. So in terms of the future,  
12 I don't know, but I can tell you that what's happened in the  
13 last ten years, if it's any indication over the next ten  
14 years, if we continue the 120-month update; I think if we  
15 don't, I think then that the body that's out there now isn't  
16 going to do the same job.

17           Also, from ASME's point of view, we really are  
18 looking at this as an international code. And Jerry  
19 Eisenberg and I, for example, spent some time this year in  
20 Japan and in China. And I can tell you that there's two  
21 examples where whatever the NRC says, that's the way their  
22 government mandates. So there's lots of plants being built  
23 in Asia and elsewhere that are based on code requirements,  
24 are based on what the NRC mandates, that really helps  
25 protect the health and safety of the public beyond just the

1 boundaries of this country that we ought not to stop and  
2 forget about.

3           Secondly, you know, even though we don't have a  
4 resurgence in nuclear today, we don't have any new plants,  
5 there's advanced reactors being built overseas and I think  
6 one of these days -- hopefully in my lifetime -- we may see  
7 a resurgence of nuclear in this country and I think it  
8 behooves us to have the best available codes and standards  
9 that can be applied from the get-go on those new plants.

10           DR. BONACA: I have a question to do with, clearly  
11 an important criteria to decide which way to go, it's the  
12 rate of significant changes that you expect to see in the  
13 standards.

14           MR. PERRY: Yes.

15           DR. BONACA: And the question I have is, do you  
16 expect to see any significant changes coming from, you know,  
17 license extensions, plants aging beyond 40 years and going  
18 to 60 years, and -- or are you foreseeing pretty much the  
19 current ISI/IST problems to be --

20           MR. PERRY: I would say that the Section XI and  
21 O&M Committees are cognizant of the question of plant life  
22 extension and the importance of that, and so they take that  
23 into account. So incrementally, as they go through, this is  
24 part of the consideration. And I think if you were to ask,  
25 are there things that we don't have in the code now that we

1 know of that really should be tied to plant life extension,  
2 we would say nothing beyond what we know now, but we're  
3 still getting more data based on input.

4 MR. HEDDEN: I had, I had a couple of things, one  
5 of which does respond to Dr. Powers, as to new things that  
6 are coming. And one of them applies to what you're asking  
7 too. Two things that I can see that are coming along that  
8 may affect, have a large affect on the code. One is  
9 real-time monitoring of the plant with instrumentation to  
10 see what's, if we have deterioration, if we have cracking  
11 occurring. That's something that acoustic emission may  
12 finally be able to do. They've been promising they were  
13 going to do it for the last thirty years. The other one is  
14 the environmental effects of fatigue, which some of you  
15 people are involved in.

16 DR. POWERS: Those technical innovations I think  
17 are, look promising, and I have no idea what that's going to  
18 do to it. But I know that the Department of Energy, for  
19 instance, is funding a study to do this, some of this  
20 acoustic emission and detecting not -- changing from having  
21 maintenance on a prescribed schedule to when you need it.  
22 And I can see the same thing happening here, that instead of  
23 doing inspections of piping based on some formula of time  
24 and some formula of, fraction of the piping that you look  
25 at, to do it in a needed basis, in a needed area. It would

1 certainly be something that would be in the bounds of  
2 thinking for the next twenty year -- not ten, but twenty  
3 years. I could imagine that happening. Maybe not on  
4 existing plants, but maybe in new plants.

5 And those kinds of things -- any time people start  
6 forecasting end-of signs, I know that they, that that's  
7 usually indicating that there's gonna be some great leap.  
8 What had happened at the turn of the century when people  
9 were predicting the end of science, relativity and quantum  
10 mechanics came along and survived. And it seems to happen  
11 fairly regularly. Biology was proposed recombinant DNA  
12 research. So I think maybe we do have the same situation  
13 here, because of these very advanced thoughts on going away  
14 from a prescribed interval to as-needed.

15 DR. SEALE: I think there are other points too.  
16 I'm in a much more mundane area. I would wager that no one  
17 in this room really expected the explosion in the capability  
18 to do steam generator tube inspections that's taken place in  
19 the last ten years. And there may be all kinds of changes  
20 in other things having to do with other hot-button issues  
21 like reactor internals, things like that that we, that are  
22 just percolating now underneath the surface. And they may  
23 very well emerge as --

24 DR. POWERS: Yeah, what's advanced today becomes  
25 the code standard technology tomorrow.

1 DR. SEALE: Um hmm.

2 DR. POWERS: And what you see is this, innovation  
3 breeds innovation.

4 DR. SEALE: that's right.

5 DR. POWERS: That, once something starts on the  
6 pathway down to improvement, you get a lot before the  
7 momentum runs out.

8 DR. SEALE: Yeah.

9 DR. POWERS: And certainly your example of the  
10 steam generator is a case in point that I still think has  
11 not played out.

12 DR. SEALE: Yeah.

13 DR. POWERS: Because I certainly have seen DOE  
14 proposals on, on some marvelous technology for steam  
15 generators tube inspection about the time all the effective  
16 steam generators tubes are gonna be plugged or replaced.

17 CHAIRMAN SHACK: Are there any more questions?

18 [No Response.]

19 CHAIRMAN SHACK: If not, I think we have two more  
20 presenters. Mr. Lewis from Entergy. Thank you very much.

21 MR. EISENBERG: Thank you.

22 CHAIRMAN SHACK: This compilation, which I realize  
23 must have been an enormous piece of work is actually very  
24 helpful.

25 MR. PERRY: You can thank Owen for that.

1 DR. POWERS: That's definitely a keeper.

2 CHAIRMAN SHACK: Mr. Lewis.

3 MR. LEWIS: Good morning. My name is Steve Lewis.  
4 I am with Entergy and I appreciate the opportunity to come  
5 and address such a distinguished panel as this. I am on  
6 your agenda to provide a utilities perspective on the issue  
7 of elimination of the 120-month update. And actually, I  
8 hope to provide something more than that. In addition to be  
9 an employee of a utility, I have been in the nuclear  
10 business for 22 years, and that entire 22 years has been  
11 dedicated toward the implementation of ASME rules in both  
12 construction and operational phases.

13 Additionally, I'm a voting member of ASME Section  
14 XI, and have been for about 13 years. And I am also the  
15 technical Chairman of the BWRVIP assessment committee, so I  
16 have an array of industry initiatives. And I have to admit,  
17 when Entergy initiated this action several years ago to  
18 eliminate the 120-month update, I personally was adamantly  
19 opposed, and that was due to my personal attachment to  
20 Section XI and all the good things that Section XI does. It  
21 wasn't until I had time to look at this closer and to become  
22 more exposed to industry, industry initiatives that I have  
23 come to understand the significance of this issue and the  
24 right thing to do.

25 The early publication of Section XI established

1 initial goal. In fact, it as a philosophy section provided  
2 in the early publications of Section XI. And the philosophy  
3 of Section XI in the early '70s was to provide an assessment  
4 of the general overall condition of safety-related pressure  
5 boundaries by sampling, with emphasis on high service factor  
6 areas.

7           The early editions of Section XI established a  
8 ten-year interval. And that ten-year interval was  
9 established at the time in trying to complete these  
10 examinations and to control even distribution of these  
11 examinations over a given time. In the early editions of  
12 Section XI, it was specifically stated that once the edition  
13 and addenda of the code was assigned to the operating  
14 facility, that that was the stated edition and addenda for  
15 utility life. It was not a requirement of the code to  
16 update to every ten years.

17           Section XI, not unlike any other industry  
18 standard, required time to evolve to reach its optimum  
19 effectiveness on its initial goals. As such, it has gone  
20 from 22 pages in the early '70s to almost 800 pages in the  
21 1998 edition. It has gone through significant scope changes  
22 to expand itself to all safety-related pressure boundaries.  
23 It has added repair/replacement rules to where it used to  
24 depend totally on the construction codes. It has worked  
25 real hard to eliminate dependency on the construction codes

1 in the area of flaw evaluations and acceptance of  
2 conditions.

3            Luckily, in this timeframe the NRC had the  
4 foresight to require ten-year updates because if it had been  
5 followed the way Section XI started, we would have stuck  
6 with thsoe 22 pages, or 40 pages, or something that size.  
7 However, we have gone through this timeframe for almost 30  
8 years now, and it's time to determine, is it time to change?  
9 Do we need to do business a little bit differently. And  
10 that's what I think the issue is here now.

11            CHAIRMAN SHACK: But we -- well, maybe you should  
12 go through -- let me make my pitch now. We went through all  
13 the good things that might happen that would require  
14 updates, but isn't this also a self-limiting process? I  
15 mean, you know, people don't go to Section XI because there  
16 are wild and wonderful meetings held in luxurious resort  
17 areas. I mean, you know, they're work. These are not  
18 frivolous suggestions, so that if there are changes made,  
19 there are changes because a consensus of a wide body of  
20 people believe that they're significant changes. So --

21            MR. LEWIS: Right, and I'm gonna address that in a  
22 few minutes.

23            Section XI today, which is at the '98 edition with  
24 the new addenda coming out still provides an assessment of  
25 the general overall condition by a sampling process with an

1 emphasis on high service areas. It still uses a ten-year  
2 interval to establish a timeframe for conducting the exams  
3 and for even distribution of the exams. However, it now  
4 refers to 50.55a for determining the effective edition and  
5 addenda. Section XI itself has not yet established a  
6 position, at least within his code body on how often it  
7 should be updated. It still relies on Federal law to  
8 specify the update period.

9           Probably one of the most fundamental questions  
10 that has to be addressed by both the licensees and the NRC  
11 staff in addressing this issue is the effect on safety.  
12 That is probably the utmost concern on what happens if we  
13 eliminate the mandatory 120-month update.

14           As with Entergy, we elected to go to the '92 code  
15 for all five of our units, instead of the '89 code. In that  
16 process, we were asked by the Staff to do an evaluation  
17 between the '89 code and the '92 code and identify all  
18 changes. Excluding IWE/IWL and Appendix VIII, between the  
19 '89 code and '92 code there were 184 changes -- 77 were  
20 editorial, 8 were errata, 22 were reduced requirements, 52  
21 changes were no change in requirements, and 25 were  
22 increased requirements with no measurable or identified  
23 needed change to safety.

24           DR. POWERS: We've seen a breakdown that went the  
25 next seven years, so I take it between '92 and '99, a whole

1 bunch of safety things came in.

2 MR. LEWIS: I think ASME identified a total of ten  
3 safety changes total, for the whole ten-year period, in  
4 their presentation.

5 DR. SEALE: Are you suggesting that none of those  
6 were in this '89 to '92 period?

7 MR. LEWIS: Well, there may be a difference in  
8 definition on what's a safety change. If you look at ASME's  
9 definition, it doesn't meet the typical definition that's  
10 used by the regulators and the licensee for identifying  
11 improvement to safety.

12 Any change in requirement can somehow be construed  
13 as an improvement in safety. But that's not necessarily the  
14 appropriate approach, as we all know. First identified,  
15 need has to be identified to, that there are changes needed  
16 before we impose an increased requirement.

17 DR. SEALE: And using that definition, none of  
18 these, in that period of time, satisfies it.

19 MR. LEWIS: That's correct. A lot of the  
20 increased requirements or increased requirements for the  
21 administrative process, the documentation requirements,  
22 methods of administering eye exams, those type of things.  
23 They are increased in requirements. They may even be some  
24 improvements. But are they a measurable change in safety,  
25 and was there a needed change in safety identified? The

1 question has to be asked before you evaluate the changes to  
2 safety.

3 CHAIRMAN SHACK: You would agree, Appendix VIII  
4 though, in some sense, is important to safety?

5 MR. LEWIS: As stipulated by regulation,  
6 absolutely.

7 [Laughter.]

8 CHAIRMAN SHACK: That's --

9 MR. LEWIS: What I'm getting ready to talk about  
10 now is in now way a reflection on Section XI's performance.  
11 Section XI has done an absolutely wonderful job. I work  
12 very closely with Section XI and they have the right goal in  
13 mind. They provide a fundamental base program for ensuring  
14 structural integrity of safety-related piping systems and  
15 their supports. However, Section XI is not the go-to place  
16 for all safety issues.

17 Just looking since 1979 -- and I only looked at  
18 generic letters; I did not look at notices, bulletins, other  
19 regulatory formats -- I identified real quickly 25 generic  
20 letters addressing safety issues that either met directly  
21 with the Section XI scope or very close to it. And I found  
22 that most of them still have not been addressed by Section  
23 XI. I identified just a couple to, that I thought  
24 everybody'd be familiar with.

25 Generic Letter 81-03, IGSCC in BWR piping -- as

1 old as that is, that still has not been -- Section XI has  
2 taken no actions to change its rules to address IGSCC in BWR  
3 primary piping.

4 CHAIRMAN SHACK: Well, you could argue that  
5 Appendix VIII is largely a reaction to the fact that you  
6 couldn't find IGSCC by the old methods.

7 MR. LEWIS: Not really. There's nothing in  
8 Appendix VIII that specifically addresses itself toward  
9 IGSCC. There has been an agreement between the NRC and the  
10 industry that we will allow the three-party agreement that  
11 was between EPRI, the regulators and the licensees to be  
12 built upon the PDI process. So you can go read Appendix  
13 VIII and there's nothing there that would take you to the  
14 issues associated with the IGSCC. One issue.

15 Secondly, in addition to the detection problem,  
16 there's also increased scope, increased inspection  
17 populations and inspection frequencies. Those have never  
18 been addressed either. So there's more than just a  
19 personnel side. There is what I look at and how often I  
20 look at it. Section XI still says I do 25 percent of my  
21 Class-I population once every 10 years, which we supplement  
22 that with regulatory guidance.

23 Other issues, Generic Letter 81-11, feedwater  
24 nozzle cracking. Generic Letter 83-15, Reg. Guide 1.150.  
25 And probably the majority of that reg. guide has been picked

1 up by Appendix VIII. 89-08, erosion and corrosion-induced  
2 pipe wall thinning. 92-01, RPV integrity; 94-03, IGSCC core  
3 shrouds.

4           The message I want to leave here is that Section  
5 11 is not the only place we go to for addressing safety  
6 issues. The format and process that section has built in is  
7 a very protective process, as described by the ASME  
8 representatives, is made up of a large industry body that  
9 requires a consensus process, there is a very torturous path  
10 that a proposed action goes through before it becomes ASME  
11 rule. Unfortunately, that does not lend itself conducive  
12 to addressing emerging safety issues. So it takes the  
13 ASME-based program combined with industry initiatives and  
14 regulatory licensee interaction to address emerging issues.  
15 And with those two efforts, we end up with a safe piping  
16 system.

17           CHAIRMAN SHACK: These tend to be reactive efforts  
18 that the, you know, I would look at the base program as kind  
19 of a defense in depth, where in fact, you know, you really  
20 don't have an identified issue, but you're doing inspections  
21 without really, as a defense in depth measure to assure  
22 yourself that in fact that high-quality piping system  
23 remains high-quality. Here you've identified specific  
24 problems and you're addressing those. The industry programs  
25 identify specific programs. It's this notion that there is

1 a defense in-depth element here, that you're trying to look  
2 for problems that might be arising.

3 MR. LEWIS: Absolutely. Absolutely. In fact, if  
4 you look at most utilities' ISI programs, you will find the  
5 base Section XI requirements, then you will typically find a  
6 -- fuzzy word, we call it augmented requirements. And those  
7 augmented requirements come from all these extra programs  
8 that we do to combine a total effort to address these  
9 issues. And they are reactive programs, but they do become  
10 a normal way of business for the licensee. They do evolve  
11 and build themselves into the licensee program for the  
12 remainder of the plant life. So they end up becoming part  
13 of the base program itself.

14 BWR VIP is probably a very good example of what's  
15 happening there. When that program reaches technical  
16 completion, you will probably see -- you will have to see  
17 substantial submittals requesting the use of that in lieu of  
18 Section XI for those portion of the rack controls that are  
19 under Section XI jurisdiction. Compliance with the Section  
20 XI rules, as we know in rack controls, may not result in the  
21 safety level that we're looking for right now as being  
22 identified within the BWR VIP. So, there's the base program  
23 and then there's all those things that we have to do to  
24 maintain that top level that we're all looking for.

25 Fortunately, for several years I was given the

1 opportunity to be the Secretary to the Subgroup  
2 Repair/Replacement modifications. And in that process, as  
3 was indicated, we were all tasked with coming up with a way  
4 to prioritize our workload. The Section XI agenda is an  
5 enormous agenda. Utilities, consultants, manufacturers are  
6 always coming forward with new ideas, new technology that  
7 we're pursuing code endorsement of.

8 For four years now within the Subgroup RM, we  
9 started tracking all the agenda in the computer database and  
10 we established a method of assigning priority to those  
11 actions. And the actions that were determined to be safety  
12 significant or actions to address safety issues were given  
13 the highest priority. At the last time I checked, a few  
14 months ago when I prepared this, there was 174 both open and  
15 closed items on the Subgroup RM's agenda, and none had been  
16 identified as a priority addressing safety issues.

17 I spoke with the Chairman of the Subgroup on  
18 Water-Cooled Systems, and to his recollection he had a  
19 similar story. For about the past four years, there have  
20 not been any issues addressing safety-significant issues.  
21 What this has pointed to is that Section XI is reaching its  
22 maturity on building its base program. Its base program for  
23 maintaining in general overall integrity of the plant is  
24 about reached.

25 The majority of the actions that we're seeing

1 within Section XI now are burden-reduction items where we're  
2 going back and looking at the old rules that were  
3 established in the early '70s and early '80s, and we're  
4 fine-tuning those to address what we're finding in the  
5 facilities these days, and they typically are  
6 burden-reduction type items. Optimum safety depends on the  
7 Section XI base program with industry initiatives and  
8 regulatory actions for emerging issues.

9 I guess the point that needs to be made and I  
10 think has been said several times is, the elimination of the  
11 120-month update does not exclude the ability to recognize  
12 the continued improvement Section XI has to offer in  
13 addressing the need to improve safety. The Staff still  
14 maintains the ability to mandate those changes that are  
15 deemed necessary to maintain or enhance safety where safety  
16 enhancement is needed. Examples of that is through 50.55a,  
17 we've seen expedited examination of requirements for RPV  
18 welds. We've seen the expedited implementation of IWI/IWL.  
19 We've seen expedited implementation of Appendix VIII. I  
20 don't anticipate that would go away.

21 Section XI does good work, and will continue doing  
22 good work. Section XI through its members will address  
23 safety issues as appropriate. And when those safety issues  
24 are identified by the Staff, they would be mandated  
25 appropriately.

1           What does it mean to the industry? Well,  
2 effective use of resources. The entire industry boasts --  
3 the licensees, consultant supports to the licensees, and the  
4 regulator are being driven to operate more efficiently. One  
5 of the new initiatives we have now is better use and better  
6 understanding of industry initiatives. I think Section  
7 99-063 has been written and is even being expanded upon now  
8 to talk about how the licensee and industry can work with  
9 the regulators on industry initiatives to address these  
10 emerging issues. And that's what's going forward is  
11 industry initiatives.

12           The resources that are spent on updates can cost  
13 equal to or exceed the cost of supporting these voluntary  
14 initiatives. I'm not advocating and I don't have the  
15 authority to speak on behalf of Entergy to even imply that  
16 we would follow our limited resources to regulatory  
17 requirements spinning away from these voluntary issues. But  
18 when O&M funding comes up on an annual basis, if we have the  
19 funding that is required to comply with the regulation  
20 versus funding that is necessary to support a voluntary  
21 program, we can all imagine what pot's gonna get hit first.

22           We have talked about, in several presentations  
23 today, the cost aspect of the updates. While we try to look  
24 at this cost as being incurred over a large period of time,  
25 in reality, it hits one physical year budget. And whether

1 that's \$250,000, a half-million or a million and a half,  
2 that comes out of one physical year. And that means that  
3 much maintenance is not going to be done that year to go do  
4 that update.

5 DR. POWERS: What you're saying -- I think -- is  
6 that if we follow what you were suggesting, that money would  
7 never again be available for updating to the code on a  
8 voluntary basis? That'd never happen, is what you're  
9 saying?

10 MR. LEWIS: it would happen if there was  
11 sufficient cost return to update on a voluntary basis.

12 DR. POWERS: But you're saying there that  
13 essentially that's never gonna happen.

14 MR. LEWIS: I wouldn't say that. For instance --

15 DR. POWERS: I think you said that you had to have  
16 a two-year return, if I remember your words.

17 MR. LEWIS: No. No, no. No. If we look at a  
18 ten-year return. We have to forecast a net present value,  
19 but that dollar value has to be amortized over ten years.  
20 What is the \$250,000 today worth ten years from now, if I  
21 have to amortize my return over ten years.

22 DR. POWERS: Well, I don't know that you have to.  
23 Isn't that up to the, to the management, directly, of the  
24 utility.

25 MR. LEWIS: But that's the way all utilities

1 operate.

2 DR. POWERS: They work on a ten-year cycle? Not  
3 to my knowledge. I haven't seen one yet.

4 MR. LEWIS: No -- I'm sorry. I understand the  
5 question now. They would evaluate the return based on when  
6 the forecasted return would be seen, which -- that is  
7 project by project. But in the area of the code, since the  
8 decreased burden would have to be spread over ten years  
9 because it's a ten-year inspection cycle, we would have to  
10 look at the return over ten years. In other words, if going  
11 to the newer code gave the licensees reduced inspections,  
12 they wouldn't see that total reduction until ten years. So  
13 they would have to look at the one-year cost for developing  
14 the new program, then they wouldn't see the total return for  
15 ten years.

16 DR. POWERS: But I thought you were telling me  
17 that -- this money that right now is spent for updating to  
18 the new code now becomes a voluntary thing, and that's the  
19 budget that always gets hit in favor of other things that'll  
20 come along, like improved PRA capabilities or something like  
21 that.

22 MR. LEWIS: It's the budget that would have to be  
23 justified based on returns, like any other voluntary  
24 project.

25 DR. POWERS: Right.

1 MR. LEWIS: When regulations stipulated '89 code,  
2 Entergy elected to go to the '92, and that was quite an  
3 excruciating process. We did that because it resulted in a  
4 better product and had a better return to it. So I think  
5 licensees will elect to go to the newer codes when there is  
6 reason to go to the newer codes. And most of that reason is  
7 technology. There is new technology being provided in the  
8 newer codes.

9 DR. BONACA: I have a question. Your plants  
10 probably have what I would call a life-cycle management  
11 program, where you're looking at life-cycle issues,  
12 inspections, and for example the BWR VIP funds and MRP, and  
13 I imagine Section XI updates right now is part of the  
14 problem, so that you do not incur the costs for the same  
15 year, for all these problems in one year for all the plants,  
16 but you spread it out in different ways.

17 So the way I see it, I mean that, the cost of the  
18 update would be eliminated from a year, but in reality, I  
19 mean, isn't it part of the commitment that you have and you  
20 spread it out to a number of years, and if a year you don't  
21 do the Section XI update, you're doing something else which  
22 you're putting there in support of the maintenance problem.

23 I understand it's coming, your expense is coming  
24 in a year, but it's one expense as part of the life-cycle  
25 management activities and inspections that you spread out

1 over a number of years and across the plants.

2 MR. LEWIS: I think it's always used in forecast  
3 management and looking at forecast expenditures, but the way  
4 the budgeting process works is that money is still being  
5 carried for a fiscal year. So even though it was looked at,  
6 that at the next ten years we're going to have to spend  
7 these dollars, there's an O&M budget approved plant to  
8 plant, and that would be a hit against that O&M budget.

9 DR. BONACA: I understand that. Yes.

10 CHAIRMAN SHACK: What's the meaning of your  
11 statement on page 5, that the '89 edition is optimum since  
12 you just sort of suggested the '92 is better and is worth  
13 the effort?

14 MR. LEWIS: The '89 edition appears to be optimum  
15 with regards to when Section XI reached its peak and when  
16 establishing requirements since the '89, most of the actions  
17 have been going through burden reduction; they've been  
18 coming down as far as reducing requirements. If you wanted  
19 to, to plot a peak on establishing more and more and more  
20 requirements, '89 -- it's '86, '89, really. Somewhere in  
21 there.

22 CHAIRMAN SHACK: Well, I'd hardly call that an  
23 optimum, but that's, I guess --

24 DR. POWERS: And it's a strange thing. I mean,  
25 there's nothing wrong with reducing requirements if it's

1 giving us better focus on safety.

2 DR. SEALE: Well, maybe the irksome index would be  
3 a better way to --

4 [Laughter.]

5 CHAIRMAN SHACK: Exactly.

6 [Laughter.]

7 CHAIRMAN SHACK: in fact, that might be the last  
8 code I'd want to freeze in place.

9 DR. POWERS: That sounds like it.

10 [Laughter.]

11 MR. LEWIS: But the point that I think is made is,  
12 is from a safety perspective, '89 reached that optimum point  
13 and there may be things that we're doing in '89 that are  
14 unnecessary.

15 DR. POWERS: I can't, I cannot agree at all with  
16 the idea that, that an unnecessary requirement improves  
17 safety.

18 MR. LEWIS: Now, the ability to go to the '92 code  
19 or the '95 code should be a choice unless portions of those  
20 codes are identified as necessary to address a needed safety  
21 issue. So when I say optimum, I'm saying that the '89 code  
22 reaches Section XI's initial goal, which is to provide a  
23 general overall condition to the safety-related piping  
24 system through monitoring and selecting samples. From  
25 there, that goal was still maintained. Prior to that, that

1 goal may not have been reached. We -- the '89, we've added  
2 IWE, we've added IWL, we've added Appendix VIII. So there  
3 were a lot of things that were occurring in the late '80s, I  
4 think, that got Section XI to their optimum point on  
5 reaching their initial goal. '89, their goal was reached.  
6 '89, from when what we were starting to fine-tune that.  
7 We're starting to go back and levelize some of those  
8 requirements, reduce some of the requirements that have been  
9 determined not to be appropriate. That's why the term  
10 "optimum" is there. Optimum, from a financial standpoint,  
11 that's not the intent there.

12 In discussions prior to this meeting and also  
13 during this presentation, there has been several concerns  
14 expressed regarding the effect of this on the future of  
15 Section XI. I'd advocate that it would have no negative  
16 effect on Section XI. Section XI agendas are full and  
17 participation is strong. And I don't think participation is  
18 there because attendees are coming to protect their interest  
19 on what may be regulated on them ten years from now. I  
20 think participation is there because most of the code  
21 actions that we see today are code actions that introduce  
22 the new technology.

23 We're providing mechanisms for underwater welding,  
24 we're providing new mechanisms for repairing steam  
25 generator tubes, we're providing new methods of doing flaw

1 evaluations. And these are desired technologies that the  
2 industry wants. We're seeing process improvements in the  
3 code. We're seeing a lot of burden reduction within the  
4 code itself by reducing some of the requirements that were  
5 established in the early '70s and '80s.

6 And we're still seeing some scope expansion. The  
7 question is, is Section XI gonna have to change with it? I  
8 don't know; that's the question we're gonna have to asked  
9 Section XI. We have been predominantly using this process  
10 with some administrative changes for almost 30 years now.  
11 Could this rule change, encourage some changes to Section  
12 XI? Possibly, but that's the decision Section XI would have  
13 to make.

14 And I think, before I do conclusions, if you'd  
15 bear with me just a second, there were some statements, or  
16 some items presented I'd like to comment on just a little  
17 bit. There's been a lot of discussion on the use of code  
18 cases. They've become a way of life, would become a norm  
19 rather than a non-norm process if we eliminate the 120-month  
20 update.

21 Typically, when an owner goes to get a code case,  
22 it's because the code case provides a better way of doing  
23 business than he's doing now. And they, and when, and they  
24 make these decisions when they go to use code cases now.  
25 They look at the cost of getting the code case approved

1 versus the benefits of adopting a code case. Well that  
2 wouldn't change then. I heard a dollar value of \$500,000 to  
3 get a code case approved. For example, the risk-based code  
4 cases -- three of our Entergy sites had determined if risk,  
5 I mean, cost-beneficial to use the risk-based code cases.  
6 Two of our Entergy sites have determined it not to be cost  
7 beneficial to do the risk-based code cases. Whether we  
8 maintain the 120-month update or not, that process won't  
9 change.

10 The concern about the code becoming a confusing  
11 document by allowing us to, to, to enter a niche, later  
12 editions and addenda in whole or in part was expressed.  
13 Section XI already permits that. Section XI specifically  
14 states right now that later editions and addenda can be used  
15 in whole or in part. 50.55a currently permits that with  
16 Staff approval. Most utility programs are at base edition  
17 with bits and pieces of later addenda mixed into it, and  
18 code cases incorporated. We've lived with that for the past  
19 30 years. That's not changing and it won't change.

20 In fact, it could get better because I think the  
21 programs will stabilize. Right now, we're forced with  
22 having a program that looks this way; ten years later, it  
23 completely changes. That means the utility personnel we've  
24 got to get accustomed to the new program and the new  
25 requirements. Regulatory inspectors have to get accustomed

1 to the new codes and new requirements. Now you're original  
2 inspectors, they have to know --

3 DR. POWERS: I guess I'm a little confused. I  
4 thought, thought your contention earlier was that it's not a  
5 big change, that all big changes have occurred and now it's  
6 just typographical changes and editorial changes. And  
7 reduction of requirements.

8 MR. LEWIS: They are. Those were the changes that  
9 were --

10 CHAIRMAN SHACK: '89 to '92.

11 DR. POWERS: Yeah, if I went to '89, '92, I  
12 wouldn't -- I mean, I'd learn how to spell some things  
13 differently and I'd learn a few things I'd done in the past  
14 that I just wouldn't do now, but otherwise there wouldn't be  
15 much change. It's not a C change.

16 CHAIRMAN SHACK: It's not like going to  
17 risk-informed inspection, which is a very --

18 MR. LEWIS: Oh, yeah. Right. The format of the  
19 reporting requirements -- all these changes, although  
20 they're editorial or they're administrative in nature, or  
21 there are no changes in requirements but they, they change  
22 report forms or report time frames, they still require  
23 licensees to go change all the procedures, retrain the  
24 personnel, and -- as you're very familiar, once a document,  
25 a Section XI is implemented, it affects numerous, numerous

1 plant procedures. So it is a massive effort to go back and  
2 do that.

3 DR. SEALE: Could I ask you a question.

4 MR. LEWIS: sure.

5 DR. SEALE: Earlier you raised an interesting  
6 issue. And that was with respect to the determination of  
7 whether or not a particular site within your company would  
8 opt to go for risk-based or risk-informed changes, or  
9 whether they would not.

10 MR. LEWIS: Yes, sir.

11 DR. SEALE: Have you examined to see whether or  
12 not that is in some way related to the plant type? Or does  
13 that reflect a difference in culture at the different  
14 plants?

15 MR. LEWIS: For us, it turned out to be plant type  
16 and plant vintage. The two BWRs turned out to be non-cost  
17 beneficial because we had a large population of no break  
18 zone welds, a large population of welds covered by 88-01,  
19 which you're not allowed currently to apply the risk-based  
20 program to. So the cost of implementing the program, which  
21 was an up-front cost, looked at what the return was over ten  
22 years again, because it's a ten-year process --

23 DR. SEALE: Yeah.

24 MR. LEWIS: -- the net present value wasn't there.

25 DR. SEALE: It was related to plant type?

1 MR. LEWIS: Yes, sir.

2 DR. SEALE: Okay, it was.

3 MR. LEWIS: The three PWRs found it very  
4 cost-beneficial to go forward with it. We've already talked  
5 a little bit about how the cost is assumed in a year versus  
6 spread over ten years. I won't talk about that anymore.

7 One of the benefits that's been discussed that's  
8 achieved through the updates is it gives the licensees a  
9 chance to recalibrate themselves against the code and  
10 identify these areas of weaknesses that they've lived with  
11 for the past ten years.

12 I find it just a little bit discomfoting that we  
13 would, we would depending on updating process to achieve  
14 compliance with rules and laws that are already there. The  
15 code was already there; it was already mandated by law. A  
16 licensee's program has fallen weak and out of touch with  
17 those rules, the updating process to bring it back into  
18 compliance is not really the vehicle, the tool to go use  
19 that with.

20 DR. POWERS: Well, it may not be, but the fact of  
21 life is that that's what happens. I mean, we see it with  
22 Appendix R, which is part of the regulations. That's part  
23 of the laws of the land. And so we go out and do a  
24 functional fire inspection, and it costs the industry a huge  
25 amount because they have to get their program up to snuff

1 prior to the inspection. I mean, that's just the way these  
2 things are.

3 MR. LEWIS: Right.

4 DR. POWERS: It usually takes something to move  
5 you, or we spend a lot of time inspecting --

6 MR. LEWIS: And I agree. You're right. Programs  
7 like Section XI had the ability to become stagnant. Agreed.  
8 But using the updating process to bring it back on queue, it  
9 may not be the right process. There are many things that  
10 can --

11 DR. POWERS: There would be other ways we could do  
12 it, yes.

13 MR. LEWIS: Agreed. And that's the point I want  
14 to make. Something as simple as maybe, once a year a  
15 licensee has to reassess their program and send in an  
16 affirmation to the staff that the program's been reassessed.  
17 That would accomplish the same thing. But there are other  
18 vehicles to gather or eliminate stagnancy in a program like  
19 that, other than updating to a brand new code.

20 DR. POWERS: I think that's a, that is a very  
21 important point.

22 MR. LEWIS: In the event we elect -- and this is a  
23 personal opinion of myself. In the event that we elect to  
24 do away with the 120-month update and we choose the '95  
25 edition as the base code, I would anticipate substantial

1 submittals from licensees under the 50.53a(a)(3)(i) to use  
2 either the '89 or the '92, with the demonstration that it  
3 provides an equal level of safety as the '95, and that the  
4 cost for updating it is not commensurate with any safety  
5 improvements they've seen, or supplemented with some  
6 portions of the '95 to address areas where safety  
7 improvement was needed. That's just a thought. I would go  
8 back within Entergy and explore that real closely, if this  
9 were to go forward the way it's written now.

10 I guess I'd like to point out that ASME's  
11 presentation probably did a little bit better job than mine  
12 in recognizing that, that a lot of the ASME activity now is  
13 in the area of burden reduction. And the ability of the  
14 licensee to take advantage of that burden reduction should  
15 be a choice of the licensee and not a mandated process  
16 through 50.55a. With that, I'll go back to my conclusions  
17 now.

18 Section XI does a very good job of providing a  
19 fundamental program for ensuring the general overall  
20 conditions of safety-related pressure boundaries. No  
21 question; no doubt. If you compare recent code changes with  
22 industry initiatives and regulatory actions, Section XI has  
23 reached its optimum format for addressing safety issues as a  
24 big a whole document, as a basic program.

25 Elimination of the 120-month update will not have

1 an adverse impact on safety. Safety issues will still be  
2 addressed as in the past -- with aggressive industry and  
3 regulatory actions commensurate with the safety-significance  
4 and industry initiatives.

5 Routine updating of other industry standards --  
6 IEEEs and ASTMs, and there are many others -- has not been  
7 determined necessary to maintain safety.

8 There was a question of spirit of the law a little  
9 while ago on how this would satisfy spirit of the law. If  
10 that was determined to be an issue, then the bigger issue  
11 would be, how do we meet spirit of the law by not requiring  
12 mandatory updates of all the other industry standards that  
13 are also developed in a consensus process with an industry  
14 mix to always be. We think it should be.

15 Of course, the NRC always has provisions to  
16 mandate changes that are offered by Section XI that are  
17 deemed necessary to address safety-issues.

18 DR. POWERS: I guess the part of that that bothers  
19 me on this is part of a mindset. I believe that when we can  
20 find ways to eliminate requirements so we have the resources  
21 to focus on the things that should be required -- but that's  
22 a net safety benefit. I can believe that the Staff would  
23 indeed go through an update of the code and find new  
24 requirements and do a 50.109 assessment on it and find out,  
25 sure enough, that this was cost-effective to impose, and

1 they would impose it. And we'd all go along with that.

2 But I'm not sure that the Staff would go through  
3 and say, hey, there's a whole bunch of savings to be gotten  
4 by eliminating a requirement or modifying a requirement, and  
5 go through the exercise. They might. They might honestly  
6 do it. But I don't have that guarantee that I had. Nor do  
7 I have the guarantee that everyone of your utilities would  
8 go through it because it might be, they don't have the  
9 manpower or they don't have the interest -- they're too busy  
10 with other things -- to go through and find these things  
11 that allow us to focus on safety by eliminating unnecessary  
12 requirements.

13 CHAIRMAN SHACK: Especially if you can do this  
14 once in a code versus, you know, utility by utility, it  
15 makes an enormous difference.

16 DR. POWERS: You see my point. It is that I'm --  
17 if by your characterization, and I think in fairness the  
18 previous speakers made the same point, that an awful lot of  
19 the changes are a learning experience, where you're finding  
20 that the requirements that you placed in the past out of the  
21 spirit of conservatism or something or you just didn't know  
22 now are disappearing in favor of exacting requirements of  
23 the things that experience and science has suggested deserve  
24 more attention. We're getting more focused on safety, and  
25 I'm not sure that we have mechanisms that assure that to

1 happen.

2 MR. LEWIS: Typically what happens, whenever the  
3 code as, and I ask any of you gentlemen to elaborate on this  
4 if you would please, whenever has been identified as being  
5 possibly over-conservative, an action will be taken to  
6 generate a code case. So it becomes rapidly available for  
7 the industry to get access to. So that item would track by  
8 itself as a code case, and the organization that initiated  
9 that, which will typically be a licensee that's looking to  
10 reduce a current requirement.

11 As soon as that code case gets published by ASME,  
12 assuming that it does, then there will be communication  
13 between the licensee and the Staff trying to get immediate  
14 approval to use that code case, rather than waiting for  
15 regulatory guide endorsement. I think those evolutions will  
16 take care of themselves, just by the process of how it  
17 works. And it still requires that licensee-NRC interaction  
18 over that proposed reduced requirement. And in that, the  
19 rules of 50.55(a)(3)(i), it has to demonstrate that there's  
20 not a reduction in safety.

21 DR. POWERS: I mean, that's a good point. A good  
22 way to look at it.

23 MR. LEWIS: If I, if I think about most of the  
24 actions in the code that have, that have been taken to  
25 reduced requirements, most of those have been initiated by

1 licensees. Most of the changes that we see with new  
2 technology typically come in from vendors -- vendors who  
3 have services that are all daily trying to better serve the  
4 industry, the company welding processes, new analytical  
5 tools. And they come in with the new technology. As you  
6 know, licensees are not in the R&D world. They make  
7 electricity.

8 DR. POWERS: That's right. I mean, but licensees  
9 have access to people that are in the new technology  
10 business.

11 MR. LEWIS: Absolutely.

12 DR. POWERS: And this is not a small area, those  
13 utility-supported organizations.

14 MR. LEWIS: Absolutely. I hope in no way anything  
15 that I said here is considered condescending toward ASME,  
16 ASME members or the ASME process. It's, I've been a part of  
17 it for 13 years and I wish to consider being a fundamental  
18 part of it. And I don't see any effort with Entergy to  
19 change its support, and I think that -- I can't anticipate  
20 any utilities reducing their support of ASME, because it is  
21 the foreground of technology coming forward to service the  
22 industry. As these plants age, we're wrestling with new  
23 problems every day. /p I guess I can believe that the people  
24 that are involved now in the ASME efforts sent there by  
25 their employers, it probably won't change very much.

1 I guess the thing I worry about is the next  
2 generation. A young engineer that is not now a part of the  
3 process but would eventually become a part of the process  
4 for the normal road -- that may not be a good passage, so  
5 maybe it's not a sudden drop in work, but an atrophying of  
6 support.

7 MR. LEWIS: I understand.

8 DR. POWERS: Oh, I'm sure you can't forecast on  
9 that, but I guess that's my concern.

10 MR. LEWIS: Well, I wish I had close enough  
11 contact with all the utilities to speak on behalf of the  
12 industry, but I don't. I can tell you what's happening  
13 within Entergy. We have worked very hard in the last couple  
14 of years in centralizing all of our code activities into a  
15 central office and bringing all of our plants to the same  
16 additional addenda of Section XI so we can have common  
17 programs, common implementation.

18 And we do recognize that the ASME process is a  
19 career path. It is a job description in itself. And we do  
20 go out and look for new graduate engineers to come and work  
21 just in these code programs areas. And it is a career in  
22 itself. So at least some utilities, I think, recognize that  
23 that's got to continue.

24 DR. POWERS: That helps.

25 MR. LEWIS: Comment in the back.

1 MR. PERRY: Jim Perry, ASME. I'd like to make a  
2 comment with respect to utility participation. I think if  
3 you were to ask utility representatives who are actively  
4 involved in the code and intimately knowledgeable of what's  
5 happening, what the benefits are not only in the changes but  
6 in the interaction amongst the members that helped solving  
7 some of the problems common to utilities, their sense would  
8 be, they think it's worth it; we ought to continue it; we  
9 think there's benefits to be gained and the utilities should  
10 continue to support it.

11 Where I'm coming from is, I think if you look at  
12 it from a utility executive, chief nuclear officer, who's  
13 really pressured in terms of bottom line, and you were to  
14 send him a sheet that says for Entergy, there's 15 people  
15 participating in the code. And he'd translate that, how  
16 many meetings, how much money, how much time? He's being  
17 pressured to reduce costs. He's gonna say, do we need all  
18 of those?

19 And I could tell you from experience at a utility  
20 that when you start talking about cuts, the first place you  
21 talk about cutting is getting rid of consultants; the second  
22 place you talk about cutting is travel. And so, if the  
23 rules change from mandatory updates to voluntary, I think  
24 the mindset on many chief executive officers in terms of  
25 short-term is, I'm not sure we need to do this. I'm not

1 convinced of the benefits. Delete it. See if we can do  
2 without it. So I think it will have an impact.

3 What you said is true with respect to the next  
4 generation of engineers. I could tell you that -- the  
5 utility where I am. Once I retired, they didn't replace me.  
6 They didn't put another one on there. They don't have  
7 participation from the utility in this area.

8 CHAIRMAN SHACK: Curt, do you have --

9 MR. COZENS: Yeah, I have a -- can you hear me on  
10 the microphone. I'm Curt Cozens with the Nuclear Energy  
11 Institute. I'm responsible for this issue and managing it  
12 on behalf of the industry, to come up with a resolution that  
13 we believe is well-founded and sound regulatory practices.

14 Steve's a rough act to follow. He brings a lot of  
15 practical experience and an understanding of the real world  
16 of how the code is indeed worked. And I'm not gonna repeat  
17 what Steve has said, but I do definitely support what Steve  
18 has said.

19 I'd like to now turn to the regulatory issues at  
20 hand. I'm not going to talk about technical; I'm gonna talk  
21 more about the regulatory, why are we here? We're dealing  
22 with an anomaly. Out of the thousands of standards and  
23 codes that are available that are refernced in NRC  
24 documents, whether they be reg. guides or rules, there's  
25 three or four that are mandated by regulation. ASME code

1 happens to be one of those. It is the only code, to my  
2 understanding, that has a mandated update.

3 Steve highlighted quite well that in 1970 -- maybe  
4 this made very good sense -- we were on our learning curve  
5 of what it took to operate these plants. But since 1970,  
6 we've gained a lot of years of operating experience, a lot  
7 of practical knowledge. Technology in general has advanced.  
8 And the code has grown accordingly. And with the best  
9 effort, it has brought great value to industry. I believe  
10 that the code has brought great value, and I believe it will  
11 continue to bring value. But as Steve has said, it is one  
12 part of the entire mix of managing these plants and  
13 regulating these plants.

14 DR. POWERS: But there's the primary pressure  
15 boundary. So I mean, the fact that it's special -- yeah.  
16 It's special. And deservedly so, it's special. And we  
17 would maintain that one needs to assure that the pressure  
18 boundary is able to perform its intended function.

19 DR. SEALE: You're monkeying with defense in-depth  
20 when you play with that.

21 MR. COZENS: Where we are looking at it is coming  
22 back to the main focus and purpose, the mission, literally,  
23 of the NRC Staff is to protect public health and safety. I  
24 don't think anybody around the table will disagree with  
25 that. And the question that's on the table is, why the

1 proposed change to the rule of eliminating the 120-month  
2 update? Do we believe that we will be challenging the  
3 ability to protect the public health and safety?

4 A little sanity check, looking at what are we  
5 really talking about in terms of practical implementation.  
6 I just did a recent survey of industry -- and I won't say  
7 that I got a hundred percent return. I probably got, oh,  
8 about thirty percent return. And I asked them, where are  
9 you right now on your update to the 50.55a, specifically  
10 Section XI, IWE -- excuse me -- ISI and IST? And it was  
11 interesting to note that four or five of these plants, of  
12 these bodies that did respond to me have an update that's  
13 going to occur before November 22nd, 2000. Now that's a  
14 very significant date. That's the date that, one, a plant  
15 must implement the current referenced code that's listed in  
16 50.55a. That would be, in this case, the '95-'96 addenda  
17 for ISI and IST.

18 These plants, by regulatory responsibility, can  
19 update to the previous edition, the 1989. Now that's four  
20 or five plants. What about the other plants that are  
21 scheduled to update in the next ten years? So we've got,  
22 picked up here four or five here that definitely, by  
23 regulatory compliance could indeed update to the '89.

24 You're gonna have a large population that in  
25 anywhere from one to ten years will come upon their time to

1 update these things. Here's the question: are these plants  
2 unsafe now? I think the Staff has answered that question.  
3 And I quote from their SECY 99-017, which implemented this  
4 rule. And this is a quote: "The Staff believes that the  
5 use of the 1989 edition of the ASME code by all licensee  
6 will provide an adequate baseline." That is a statement.

7 I believe when the Staff wrote that believed it  
8 was true, otherwise I'd question why they would put it in  
9 here. I believe they probably believe it's true today,  
10 because they're going to be permitting a large number of  
11 plants to operate to the '89 edition, for basically the next  
12 ten years, progressively lesser and lesser of course, the  
13 way the current regulation is written, but the fact is that  
14 as the ten-year interval cycle over, these plants will  
15 update to whatever the requirement is in the regulation. So  
16 I have to conclude that Staff believes that the '89 edition  
17 provides an adequate level of public health and safety.

18 I was not knowing what I was going to hear today.  
19 I have not seen the Staff's write-up on the proposed rule.  
20 I was indeed pleased to see the recommendation that they're  
21 passing in to eliminate the 120-month update, and I'll  
22 presume that will indeed occur unless something drastically  
23 causes them to believe that that's the wrong thing to do.

24 I believe that the decision has been made on sound  
25 regulatory practices of what is the mission of the NRC. And

1 if they deem necessary to assure that people update to later  
2 editions of the code to maintain public health and safety,  
3 not only does the Staff have provisions to make it possible  
4 to mandate the licensees live to new requirements, it's a  
5 requirement that the Staff would do that. No, it's part of  
6 your basic mission. So it's not like we're removing  
7 anything from the standards by doing this.

8 The real question is, have we demonstrated that we  
9 are adequate, for right now, and that we have a  
10 justification for imposing new requirements on licensees?  
11 And that's been the whole debate that's gone on with this  
12 particular issue. I believe the Staff has come up with the  
13 right conclusion and we indeed support that.

14 However, I am disturbed by one aspect of it. The  
15 Staff is proposing as part of its recommendation as  
16 presented today the baselining to the '95 edition, '96  
17 addenda. And I ask myself why? What is the  
18 safety-significance that now invalidates the quote that I  
19 read to you that the '89 edition is indeed an adequate basis  
20 for baselining, to assure that an a level of safety is  
21 adequate to protect public health and safety. I was unable  
22 to, in my own mind, extract out from the presentation and  
23 Staff data that while some things have changed, the ASME  
24 code is a tremendous place to locate new technology, and  
25 that they should indeed continue to evaluate the new

1 technology, and it's a great place to have a common ability  
2 to manage this new technology.

3 But that is not the same thing as replacing the  
4 regulatory decision, whether or not it's essential to  
5 mandate it on licensees to assure that we have an adequate  
6 level of public health and safety.

7 DR. KRESS: What is your measure of that --  
8 adequate level of public health and safety?

9 MR. COZENS: At this point, I will rely upon the  
10 technical expertise of. They've done the job properly. But  
11 I would also maintain that the ASME code, when they wrote  
12 that, believed that it was adequate for it. And I haven't  
13 seen anything that would say that they have concluded that  
14 it was incorrect to do it. There may be enhancements out  
15 there.

16 I hope that there always will be technical  
17 enhancement, going over that. We are developing the science  
18 of engineering, inspection, and all the functions that  
19 operating these plants.

20 DR. POWERS: I'm pretty sure that if I look hard  
21 enough, I could probably find a document in which the Staff  
22 said by compliance with the 1981 version of the code, that  
23 it would be adequately safe.

24 MR. COZENS: Sure.

25 DR. POWERS: I'm pretty sure it must exist. And

1 I'll bet I can find another one that says the 1984 version.  
2 And yet, you, by your own admission, say that from those  
3 times to the 1989 version, there were substantial changes  
4 that affected safety.

5 I mean, why are the statements of the Staff that a  
6 particular version at one time is adequate safety -- do you  
7 want to be stagnant there?

8 MR. COZENS: I don't believe we will be stagnant.  
9 I believe that if there is really a safety issue that is  
10 identified that comes out through the ASME code, that if  
11 licensees are not voluntarily implementing, the Staff will  
12 need to impose it upon us. There are provisions in the  
13 regulations to mandate that.

14 Now the approach that the industry and the Staff  
15 are taking nowadays about waiting for Staff to mandate  
16 things on us has been radically changed. We are taking many  
17 more industry initiatives and proposing solutions that, one,  
18 are acceptable to Staff, but are also acceptable to  
19 industry. And I would maintain that that will indeed  
20 continue.

21 That's part of the mix that Steve talked about,  
22 that presently the ASME code does not typically address  
23 emerging safety issues. They may at some point capture the  
24 solution for them at a later date, but they are usually not  
25 at the forefront of addressing safety issues.

1 DR. POWERS: Nor would we expect them to be.

2 MR. COZENS: That's right.

3 DR. POWERS: Because it's a consensus -- I mean,  
4 it's a very conservative process.

5 MR. COZENS: It's a consensus, slow process that,  
6 it does indeed take time. It's not to say that there's a  
7 tremendous expertise that isn't consulted along the way,  
8 that participates with the ASME code. But we would maintain  
9 that, you know, the burden of demonstrating whether or not a  
10 new requirement should be imposed on licensees should not be  
11 taken lightly, and it should be to address a needed safety  
12 issue.

13 In the same breath, we would contend that there's  
14 many things that are in the ASME code, even by the ASME  
15 code's own admissions, by the document that Steve had  
16 submitted to the NRC, that they proved there were many more  
17 editorial, other activities that the licensees were required  
18 to implement as part of their update, because it was part of  
19 the overall ASME code. And to automatically assume that  
20 these should be imposed mandatorily on a licensee doesn't  
21 meet the burden of good regulations, but they are necessary  
22 for public health and safety.

23 But if there are some, they ought to be imposed  
24 upon industry and more importantly, we probably ought to be  
25 adopting them ourselves. The vast majority of the things

1 we're seeing now are a better understanding of a requirement  
2 that might have been in the ASME code and the  
3 appropriateness of that requirement. And sometimes they are  
4 indeed adjusted, sharpened a little bit more to make more  
5 rational sense as to what the appropriate criteria is.

6 And as those things occur -- and there is a  
7 benefit to doing those because that's why the initial code  
8 activity was started. I would expect that licensees, seeing  
9 the benefit of them, will incorporate them into their  
10 process.

11 And coming back to the '95, you know, again, we  
12 believe that elimination of the 120-month update is the  
13 appropriate move, the appropriate decision for the Staff to  
14 recommend to the Commission. But we find it a little  
15 arbitrary to impose the '95 edition and the '96 addenda.

16 DR. POWERS: Is that any more or less arbitrary if  
17 they'd picked the 1989 or '88 version?

18 MR. COZENS: No, both --

19 DR. POWERS: They're both gonna be arbitrary.

20 MR. COZENS: Both -- I would contend that both  
21 would provide an adequate level of public health and safety.

22 DR. POWERS: All right. Following your rationale  
23 on that, yes. And it's gonna be arbitrary no matter which  
24 one you pick.

25 MR. COZENS: So our position is the letter that we

1 wrote to NRR about this, is this will require one more  
2 ten-year update of licensees. Oh, but I think three or four  
3 licensees are presently to the '89. If we are providing an  
4 adequate level of public health and safety through the '89,  
5 and we do want to standardize to some level on a given code  
6 edition as adequate for public health and safety, why not  
7 choose the '89 edition, which the Staff had indeed concluded  
8 does satisfy that need? So it's a matter of practicality,  
9 not a matter of safety. Both would provide an adequate  
10 level of public health and safety.

11 So, we remain concerned with that part of the  
12 recommendation, although we think that the Staff indeed has  
13 made the proper general recommendation to eliminate the  
14 120-month update requirement.

15 I -- you know, I ask the Staff if I could borrow  
16 their slide. This came out of the Staff presentation. But  
17 if the strategic goals of the NRC -- maintaining safety is  
18 first; increasing public confidence, second; reducing  
19 unnecessary regulatory burden -- I presume that means both  
20 on Staff and licensees; and making NRC activities and  
21 decisions more efficient, effective, efficient and  
22 realistic.

23 DR. POWERS: And wouldn't they use that just to  
24 say, here's the, here is the bases on which I have chosen  
25 the '95 edition. I don't want to put words in the Staff's

1 mouth, but I'm going to --

2 [Laughter.]

3 DR. POWERS: -- and say, gee, if I'm gonna  
4 increase public confidence, I want to use the most modern  
5 standard I've got. If I'm gonna reduce unnecessary  
6 regulatory burden, I know that between '89 and '95, a lot of  
7 things were changed to reduce requirements that were  
8 unnecessary. And to make NRC activities and decision more  
9 effective, efficient and realistic, is, this is a more  
10 up-to-date version. My Staff is much more knowledgeable  
11 about it; things are passed out of their memory. They'll be  
12 able to operate in a more effective and efficient manner by  
13 going with '95 as opposed to '89.

14 MR. COZENS: One might draw that conclusion, but  
15 in the same vein, I believe it is possible to draw the same  
16 conclusion that I am indeed maintaining safety by using the  
17 '89 edition.

18 DR. POWERS: That's what we're --

19 MR. COZENS: Staff is going to permit '95 or '96  
20 plants for some extended period of time permission to use  
21 it, so therefore they've concluded that it indeed does  
22 maintain adequate public health and safety.

23 Public confidence -- that's a little more  
24 difficult. One might conclude that newer is better. Well,  
25 some of the IWE/IWL criteria that when it was published in

1 the '92 edition, I believe, it was -- you might say it  
2 increased public health and confidence because it was new  
3 and better, yet when it went to actually be used, I think  
4 there were eight generic relief requests that were proposed  
5 to the Staff because there was difficulty in using that  
6 newer requirement. It wasn't all that we had hoped it might  
7 be, and as with increased knowledge and learning, we came  
8 back to that basis.

9           So I mean, the sword cuts two ways on public  
10 confidence. I think that the NRC needs to assure that  
11 technically whatever we're doing is being proposed as the  
12 right thing, and we want to do the best we can on public  
13 confidence. Steve?

14           MR. LEWIS: I think you just brought up a good  
15 point, and I think ASME representatives can also comment on  
16 this. Typically when a brand new requirement comes out in  
17 the code, an extensive requirement like Appendix VIII or  
18 IWE/IWL, it takes a time period for that to adjust to be a  
19 workable requirement.

20           IWE/IWL's been published now since '86; Appendix  
21 VIII's been published since, what, '89? You know, we're  
22 seeing major rewrites to both of those to make them usable  
23 and workable. So for a, for the whole industry to come up  
24 to a '95 code that hasn't had time to be worked a little  
25 bit, it could frustrate a lot of submittals in ferreting out

1 those, some of those brand new issues. '89 -- we've got --

2 CHAIRMAN SHACK: On the other hand, it's fixed a  
3 lot of things that were wrong with that crappy '89 edition.

4 MR. LEWIS: Well, but I would be willing to bet  
5 that the majority of those fixes were also in code cases an  
6 those utilities have already adopted those code cases.  
7 Probably 95 percent of everything that the '95 fixed were  
8 previously fixed for the published code cases.

9 DR. POWERS: So it's really no problem for them at  
10 all to go from the, from '89 to the '95 edition because  
11 they've already done it.

12 MR. LEWIS: For the reduction --

13 DR. POWERS: I mean, I can't have it both ways.

14 MR. LEWIS: No.

15 DR. POWERS: I can't have it -- yes, this is a  
16 horrible burden, but no, they've already done it.

17 MR. LEWIS: For the reduction in requirements and  
18 those things, but not the increases in requirements and not  
19 those things that they did pursue the change --

20 DR. POWERS: I think that we've already agreed  
21 that there were relatively few of those. I think you and  
22 the, uh, presenters from the ASME agreed that the increase  
23 in requirements was relatively small.

24 MR. LEWIS: Well --

25 CHAIRMAN SHACK: Dana, do you need to pursue this?

1 We're running pretty late here.

2 DR. POWERS: No.

3 CHAIRMAN SHACK: I think it's probably time to  
4 wrap up.

5 MR. COZENS: We need to let Jim speak. He's --

6 MR. PERRY: I just wanted to make one comment on  
7 this business of increasing public safety. I think that the  
8 point that I'd like to make is piggybacking our IWE/IWL -- I  
9 think even the Staff mentioned. Until it was mandated by  
10 the NRC, it wasn't looked at quite as rigorously. There  
11 were things that were impractical. And the latest edition  
12 now fixed those problems. Okay. And it's not yet endorsed.

13 Secondly, with respect to IWE -- with respect to  
14 Appendix VIII, very significant. The performance  
15 demonstration that's been going on at EPRI in working with  
16 ASME has found problems with it that need to be resolved to  
17 make it practical. And so there's another good example that  
18 the latest edition of the code resolves many of those  
19 difficulties and problems and makes it more practical. So  
20 if you don't use the latest ones -- I don't think the  
21 increase in public confidence here if you aren't picking up  
22 the benefits of what you learn by running the pilots.

23 MR. COZENS: There are sometimes benefits and  
24 sometimes drawbacks. But we believe -- and this has been  
25 validated through documentation that I've had with the

1 industry -- that licensees are not necessarily wanting to  
2 automatically adopt all the burdens associated with the new  
3 edition because so many of them have nothing to do with  
4 public health and safety.

5 We're looking at the third strategic goal of  
6 reducing unnecessary regulatory burden. And the focus here  
7 was not elimination of the 120-month update, but which  
8 baseline edition is appropriate. This seems -- the adoption  
9 of the '95 edition versus the '98 will both provide an  
10 adequate level of public health and safety. It seems to fly  
11 in the face of reducing unnecessary regulatory burdens.

12 For those plants that are just coming up within  
13 the next twelve months to update their programs, they will  
14 have to probably update, once or twice at least. For  
15 everybody else, at least once will they have to update it.  
16 Is that necessary to assure public health and safety? If  
17 the overall scope and purpose of this rulemaking was to  
18 eliminate unnecessary regulatory burden, I'm not quite  
19 certain we've achieved that, at least for the next ten  
20 years. And I believe that this is an admirable goal. It  
21 is part of the strategic goals of the NRC that the adoption  
22 of the '95 -- I'm not certain has measured up to that  
23 criteria.

24 We believe that the adoption of the 120-month  
25 update will indeed make the -- excuse me, the adoption of

1 the elimination of the 120-month update will make NRC  
2 activities and decisions more efficient, effective and  
3 realistic. This leaves in the hands the assurances for the  
4 Staff that public health and safety is maintained. But it  
5 gives the licensee the option of deciding when and where  
6 things are beneficial for the operation of their plant. But  
7 it still leaves in the hands of the Staff if it is necessary  
8 for public health and safety, the ability to mandate those  
9 things that it deems appropriate.

10 And if we look over -- Steve had a slide in his  
11 presentation that identified three significant actions  
12 recently that the Staff had mandated on industry. One of  
13 the three -- I'm gonna talk about two of them at least,  
14 because I'm not positive of the third one. Appendix VIII --  
15 it was not, as I understand, adopted via the ten-year  
16 update. It was a new section.

17 As I understand, there's, I believe it's the 1986  
18 OGC memo to Staff that says when new sections of the code  
19 are imposed -- these are sections that did not exist before,  
20 such as Appendix VIII -- they need to go through the backfit  
21 consideration. What are the three criteria for backfit?  
22 Compliance with existing regulations; public health and  
23 safety is essential; or the cost benefit. I believe that  
24 the Staff concluded that it was a compliance question of  
25 backfit and, when they adopted Appendix VIII. And if I'm

1 wrong, you can correct me on that.

2 And that was the basis for saying that Appendix  
3 VIII would be mandated on licensees, whereas the schedule of  
4 mandating it on licensees is the, initially I think it was  
5 six months and now I think it's spread over a three-year  
6 period. That was a backfit evaluation that was again deemed  
7 necessary, I believe on -- was it compliance?

8 Am I incorrect in my understanding?

9 NORRIS: Wally Norris, Staff. The compliance  
10 argument had nothing to do with implementing Appendix VIII.  
11 Appendix VIII passed the backfit on its own merit. The  
12 compliance argument had to do with whether it would be six  
13 months to a three-year implementation, or whether it would  
14 be in the normal 120-month cycle.

15 MR. COZENS: But the backfit 50.109 rule was part  
16 of the consideration of whether it would be used at all, was  
17 that correct?

18 Mr. NORRIS: No.

19 MR. COZENS: Okay. I -- was it not also, but in  
20 IWE and IWL, the new sections? Was that used, the backfit?

21 MR. NORRIS: Yes.

22 MR. COZENS: Okay. The point is that the backfit  
23 rule is a provision that when the Staff has deemed that  
24 there is a sufficient public health and safety issue that it  
25 can be imposed upon licensees, or if it's a compliance issue

1 I think might have been the basis on that.

2 But the point is, the means to impose things that  
3 are necessary to assure public health and safety are present  
4 in the current regulations. The Staff has guidance on how  
5 to do that. And we really are dealing with the things that  
6 are not essential to public health and safety. And that's  
7 why we support the Staff's conclusions and recommendations  
8 that the 120-month update is appropriate. We would propose  
9 using the 1989 edition. And I guess that concludes my -- oh  
10 no, I would like to make one more statement.

11 There is one area that we have violent agreement  
12 with the ASME code, and I think a lot of support on Staff  
13 too. And I just want to drive home again the, our support  
14 for this. Regardless of the outcome of this rulemaking, the  
15 need to expedite the adoption of new editions of the ASME  
16 code is essential. I know the Staff is working on it. I  
17 have not personally seen the path on how they will achieve  
18 that.

19 I know they've done some concurrence, changes now  
20 that concurrences are done. But I'm not certain that alone  
21 is enough to assure that the expedited adoptions, whether  
22 mandated or voluntary, will happen in a timely fashion, so I  
23 want to encourage the continued work in that area and say  
24 that we think that's a very important feature of what the  
25 Staff is presently. With that, that concludes my remarks.

ANN RILEY & ASSOCIATES, LTD.  
Court Reporters  
1025 Connecticut Avenue, NW, Suite 1014  
Washington, D.C. 20036  
(202) 842-0034

1 CHAIRMAN SHACK: Thank you very much.

2 Uh, we have a presentation tomorrow at the full  
3 Committee, and I guess we'll have the Staff, ASME, and NEI  
4 back. Obviously their presentations will have to be  
5 considerably condensed to fit the -- there's a slot from  
6 8:45 to 10:15. I'm not sure I have any particular guidance  
7 or suggestions as to exactly what can be eliminated, but  
8 they definitely will have to be condensed.

9 DR. KRESS: Well, I'd certainly say the Staff  
10 ought to present the options and then present their  
11 recommendation and why they chose that, and the advantages  
12 and disadvantages. That's the main concern.

13 MR. WESSMANN: If -- yeah, if I may make a couple  
14 of comments and offer a suggestion on that, because I know I  
15 think we're all getting hungry. As far as some specifics  
16 for tomorrow, we owe you an answer on the risk-informed  
17 ISI/IST and its relationship and we'll bring that to you.

18 I would like to suggest that perhaps we focus a  
19 little bit more on the pros and cons of those four strategic  
20 goals. We did not treat that quite so thoroughly. But at  
21 the price of having to defer some of the detailed discussion  
22 on those public comments, you know -- we've got more than  
23 half the ACRS right here; I think we've covered that well.  
24 And that information is certainly available on the  
25 viewgraphs for your other members. But I think if we adjust

1 our presentation slightly in that direction, that would be  
2 constructive.

3 To wrap up, and just bring us back around the full  
4 circle very briefly is, I think what we've all seen here  
5 today a little bit is a microcosm of the public meeting we  
6 that we had in April. There clearly are some challenging  
7 views and there are some differing views, and we've put them  
8 in front of us and we've had a very healthy dialog in the  
9 last couple hours on that.

10 I think we need to remind ourselves that,  
11 regardless of the baseline, the idea of a baseline in the,  
12 in the replacement of the 120-month update is obviously the  
13 area that the Staff is proposing. And of course we have  
14 proposed on the '95. I think it's important to remember to  
15 remember that we continue to participate in the code process  
16 and continue to have that vehicle to where utilities, as the  
17 years go forward, can voluntarily incorporate later versions  
18 of the code, so that value will always remain there.

19 The other fundamental value of is the issue of  
20 safety. If the code provisions bring about something that  
21 passes the genuine safety test, the Staff's going to do the  
22 work and it's going to be imposed on the proper basis and  
23 proper schedule, you know, commensurate with what the timing  
24 is.

25 The timeliness is something we all recognize. We

1 didn't do well in the last ten years. Right now all I can  
2 do is promise, but certainly expect to do far better as we  
3 go forward. On balance, not an overwhelming story in one  
4 direction or another -- and I think we've seen that a  
5 little. But on balance, the recommendation of Option 1.b is  
6 the direction that we're encouraging you all to consider.

7 I think that covers it for the Staff.

8 CHAIRMAN SHACK: I think we'd better adjourn since  
9 at least some of our members have another meeting to go to.

10 [Whereupon, at 11:53 a.m., the meeting was  
11 concluded.]

12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

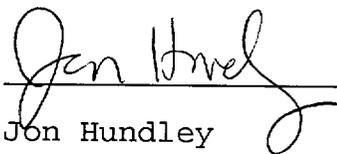
REPORTER'S CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

NAME OF PROCEEDING: MEETING: METALS AND METALLURGY

PLACE OF PROCEEDING: Rockville, MD

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

  
\_\_\_\_\_

Jon Hundley

Official Reporter

Ann Riley & Associates, Ltd.



ASME International

Robert E. Nickell  
President, 1999-2000  
212-591-8130  
FAX: 212-591-7739  
nickellr@asme.org

Three Park Avenue  
New York, NY 10016-5990  
U.S.A.

June 16, 1999

The Secretary of the Commission  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Attn: Rulemakings and Adjudications Staff

Re: Federal Register Notice (Volume 64, Number 80 April 27, 1999) Solicitation of Public Comments Regarding Proposed Supplement To The Proposed Rule Published On December 3, 1997 (62 FR 63892) That Would Eliminate The 120 Month Requirement For Licensees To Update Their Inservice Inspection And Inservice Testing Programs

To Whom It May Concern:

The American Society of Mechanical Engineers (ASME), also known as ASME International, is a not-for-profit engineering society focused on technical, educational, and research issues. There are 125,000 ASME members worldwide; there are no corporate members. ASME conducts one of the world's largest technical publishing operations, holds some 30 technical conferences and 200 professional development courses each year, and sets industrial and manufacturing codes and standards used throughout the world; there are ASME accredited manufacturers in 58 countries.

The enclosure provides the position of the American Society of Mechanical Engineers, which is in response to the supplement to the proposed rule.

ASME opposes the NRC supplement to the proposed rule for the reasons summarized below and as expanded upon in the enclosure:

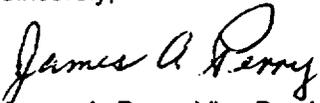
- ◆ The benefits gained in implementing the 120 month update outweigh the cost of making the update.
- ◆ The Codes are living documents that are moving from prescribed repetitive inspection and tests to a more risk-informed and performance-based approach that both the NRC and ASME are moving toward as a high priority.
- ◆ The ASME standards development process and system provide a multiplier effect that captures all Code changes and collective committee experience in direct support of the 120-month update.
- ◆ Elimination of the 120-month update is considered contrary to the spirit of the intended implementation of Public Law 104-113 and OMB A-119.

The 120-month update has served as a mechanism for licensees to keep their ISI and IST programs consistent with current improvements in technology reflected in codes and standards, including improvements affecting health and safety and increased efficiencies, and ongoing assessment of the process by NRC. It provides for systematic implementation of safety enhancements with a minimum of bureaucratic involvement. Updating focuses on an evaluation of the entire program to later code requirements, identifies errors and deficiencies and forms the basis for making corrections and enhancements to ISI & IST Programs. It reflects the latest edition and addenda to the ASME Codes endorsed by the NRC. It will maintain a more current,

consistent and uniform standard for the entire industry that will minimize separate submittals and evaluations on a case-by-case basis between utilities and NRC staff.

The effect of savings from many Code revisions over several Code editions must be taken into account including, for example, the cumulative significant beneficial effect of many small and subtle changes that improved safety and reduced personnel exposure to radiation. Updating to the latest Code requirements will result in a net reduction in work required, personnel exposure and continue to increase economic benefits over the remaining life of the plant.

Sincerely,



James A. Perry, Vice President  
Nuclear Codes and Standards



Gerald M. Eisenberg, Director  
Nuclear Codes and Standards

Enclosure

Cc with enc

D.A. Powers, Chairman, USNRC-ACRS  
Dr. W. D. Travers, Executive Director of Operations-USNRC  
Richard E. Feigel, ASME Sr. VP-C&S  
Domenic A. Canonico, Chairman ASME B&PV Committee  
Members, ASME Board on Nuclear Codes and Standards  
Members, ASME Council on Codes and Standards  
June Ling, ASME AED C&S

**ASME RESPONSE TO SUPPLEMENT TO  
PROPOSED RULE PUBLISHED DECEMBER 3, 1997: 10CFR50.55a**  
June 16, 1999

**Background**

The Nuclear Regulatory Commission is publishing a supplement to the proposed rule published on December 3, 1997 (62 FR 63892) that would eliminate the requirement for licensees to update their inservice inspection (ISI) and inservice testing (IST) programs beyond a baseline edition and addenda of the ASME Boiler and Pressure Vessel Code (BPV Code).

The proposed rule would establish the **1989 Edition** of ASME BPV Code, Section XI, as the baseline Code for **IST requirements** (except for design and access provisions and preservice examination requirements) for pumps and valves that are classified as ASME Code Class 1, 2, or 3 components in currently operating nuclear power plants. As required by 10 CFR 50.55a(b)(viii), references in ASME BPV Code Section XI to OM standards, Parts 4, 6, and 10 will mean the OMa-1988 Addenda to the OM-1987 Edition. The proposed rule would also establish the **1989 Edition** of ASME BPV Code, Section XI as the baseline Code for **ISI requirements** for components (including supports) classified as ASME Code Class 1, 2, or 3.

The NRC proposes to **eliminate the requirement to update ISI and IST programs every 120 months** for licensees applying the baseline or later editions and addenda of the ASME Code incorporated by reference in the regulations. As proposed, licensees may update their ISI and IST programs to subsequent Code editions or addenda that have been incorporated by reference in the regulations **in their entirety** without prior NRC approval when implemented in accordance with the regulations. A licensee intending to implement only a portion of a subsequent Code edition or addenda incorporated by reference in the regulations would be required to obtain prior NRC approval by demonstrating that the specific portion of the edition or addenda presents an acceptable level of quality and safety, and that all related requirements are satisfied.

The NRC proposes that the baseline Code for ISI requirements for metal and concrete containment (Classes MC and CC) components and their integral attachments be the 1992 Edition with the 1992 Addenda of Subsections IWE and IWL of Section XI of the ASME BPV Code. Finally, the proposed rule would require that ASME Code Class 1, 2, or 3 components conform to the requirements in Appendix VIII of Section XI of the ASME BPV Code, 1995 Edition with the 1996 Addenda.

The NRC believes that the overall level of safety achieved by adherence to a baseline edition or addenda of the ASME Code incorporated by reference in the regulations would be sufficient and adequate, and that unnecessary burden might be placed upon licensees by the required updating of their ISI and IST programs. The NRC also believes that the establishment of a baseline edition and addenda of the ASME Code for ISI and IST requirements would ensure adequate protection of public health and safety without periodic updating of ISI and IST programs at nuclear power plants.

**ASME Response**

ASME opposes the NRC supplement to the proposed rule described above for the following reasons:

1. **The benefits gained in implementing the 120 month update outweigh the costs of making the update**
  - ◆ The Federal register notice cites a cost of approximately \$200,000 for the 120 month update for each licensee, or \$20,000 per year. This is not a significant cost when you consider the potential number of relief requests if the update were eliminated.

By baselining the code to the 1989 Edition, licensees will be forced to submit numerous relief requests that will be required to implement portions of later editions of the Code. This will result in use of greater licensee and NRC resources than if the most recent Edition of the Code were imposed in the regulations.

- ◆ Representatives of some utilities have requested elimination of the 120 month update based on its expense. From an administrative view, the update would clearly call for an increase in the budget for a particular department once every 10 years. This would appear attractive to eliminate. However, the effect of savings from many Code revisions over several Code editions must be taken into account. Updating to the latest Code requirements will result in a net reduction in work required, personnel exposure and economic benefits that will continue over the remaining life of the plant. For an example, a code action to reduce inservice inspection (ISI) of Class B-J piping welds could save several hundred thousand dollars per plant.
- ◆ Since the 1989 Edition of the Boiler and Pressure Vessel Code (the most recent edition referenced in the regulation), there have been numerous revisions and Code Cases that have been characterized as economically beneficial to the utilities. The contributions to safety are also significant. A primary justification for the revisions and Code Cases is to achieve ALARA objectives. Examples follow:
  - Cases N-458-1 and N-485-1 permit surface examination of painted surfaces. This reduces personnel exposure by eliminating the need for paint removal before a surface examination, and repainting after.
  - Case N-463-1 provides criteria for analytical evaluation and acceptance of flaws that would otherwise result in component repair or replacement, avoiding exposure of personnel engaged in repair/replacement activities.
  - Case N-481 provides criteria for analytical evaluation and acceptance of flaws, that would otherwise require nondestructive examination. Thus, exposure of personnel engaged in repair/replacement activities is avoided.
  - Case N-480, which introduces examination and analytical evaluation methods for pipe wall thinning due to single-phase erosion and corrosion, was initiated to address safety concerns. It has recently been superseded by Case N-597.
  - Case N-557, which provides criteria for in-place dry annealing of a PWR reactor vessel, also addresses safety concerns.
  - Case N-560 permits reduction in examination of Class 1 Category B-J piping welds from 25% to 10%, provided a specified risk-importance ranking selection process is followed. The selection process has been shown to improve safety, because it focuses examinations on critical areas in place of the current shotgun approach. The reduction also reduces NDE personnel exposure
  - Cases N-509, N-524, and N-547 reduce examinations with reduction in plant personnel exposure.
- ◆ Updating will maintain a more current, consistent and uniform standard for the entire industry that will minimize separate submittals and evaluations on a case by case basis between utilities and NRC staff.
- ◆ Updating to the more recent ASME codes would provide for more cost-effective inspections and tests at lower occupational exposure.
- ◆ It took over 9 years for the NRC to produce an update to 10CFR50.55a to address later editions of ASME Section III, Section XI, NQA-1 and to introduce a baseline for the OM Code for mandatory requirements in the regulation. With voluntary updates, it would appear that there would be a reduction in emphasis on evaluation and less timely endorsement of Code changes by NRC staff.

- ◆ Since major updates of the ISI & IST programs underwent major improvements at the time of the update, a disparity over time will occur if these updates are not required in the future. Updating focuses on an evaluation of the entire program to later code requirements, identifies errors and deficiencies and forms the basis for making corrections and enhancements to ISI & IST Programs.
- ◆ The update provides for standardization and consistency in implementation of requirements. If future changes to the ASME Code become voluntary, the impact on changes to the range of code editions and addenda applied by licensees is expected to be great. This will have a negative impact due to inconsistent implementation, and lack of uniformity and consistency in verifying conformity.

**2. The Codes are living documents that are moving from prescribed repetitive inspection and tests to a more risk-informed and performance-based approach that both the NRC and ASME are moving toward as a high priority.**

One of the arguments in support of the proposed NRC action is that the Code is "Mature". In a sense this is true, in terms of years since inception; however, Section XI is in the midst of a change in philosophy and scope, moving from prescribed repetitive inspections to risk-informed programs. Lessons learned from the pilot applications are being used to support Code Case actions. Section XI inspection requirements were originally based on fossil service experience, and recent revisions to the Code implement the lessons learned in over 25 years of nuclear power plant operating experience. Many of these have been implemented since the 1989 edition, and others are in development. The NRC has not provided a basis to support the contention that the 1989 Code is "mature" for current application.

The Code is a **living document** and it would be improper to ignore that fact by effectively locking the Regulations into one edition and addenda.

**3. The ASME standards development process and system provide a multiplier effect that captures all Code changes and collective committee experience in direct support of the 120 month update**

- ◆ Operational experience has, and will continue to be incorporated in ASME Code revisions to assure appropriate implementation of safety provisions and ALARA considerations.
- ◆ A broad-based group of experts collectively produce Code changes using the consensus process.
- ◆ Research resources and new technology are available as input to the committee.
- ◆ User feedback to the committee on operating experience, application and lessons learned results in needed refinement and adjustment to the Code. There has been a cumulative, significant, beneficial effect of small and subtle revisions that improved safety and reduced personnel exposure to radiation. These were related not only to the reductions in the number and extent of examinations, but also to new methods for performing repairs and flaw analysis.
- ◆ The committee process provides continuous addenda & edition updates. Thus, with timely endorsement, the 120 month update ensures that licensees reevaluate and update ISI/IST programs to reflect experience and Code improvements from Code application. With more timely NRC endorsement of later code editions and addenda in the future, licensees should be encouraged to update their ISI and IST programs on a more frequent basis; e.g. at the time of each new edition. This would reduce the number of changes being made at a given time and would reduce the administrative cost burden of making the update. With elimination of the 120 month update, the owners groups, NEI and EPRI would continue to approach the NRC staff directly for relief on behalf of their utility members. A net increase on the number and detail of licensee submittals associated with ISI & IST would be expected. The NRC staff would deal with the utilities one-on-one more often on issues that to this point have been resolved by code committee action. While called a 'voluntary update, each

request would be scrutinized and each applicant would need to provide justification for adoption of portions of code. This would have the affect of skewing individual ISI and IST programs in a manner that fosters increased inconsistency in implementing Code requirements as time passes with reduced oversight by NRC. There is a risk that picking and choosing of selected revisions may result in omission of correlative revisions or requirements, introducing ambiguities.

- ◆ The staff decisions on these one-at-a-time issues would not receive the same scrutiny as that given to changes in the Regulation. This will have the effect of diminishing the role of the consensus standards development process.
- ◆ The NRC position under IX Backfit Analysis of this Supplemental Proposed Rule supports the endorsement of the later ASME Code by the statement that "the NRC has reviewed those comments and has concluded that neither NUBARG nor NEI raises legal concerns that would alter the previous legal conclusion that the Backfit Rule does not require a backfit analysis of routine updates to incorporate new ASME Code ISI and IST requirements."
- ◆ Elimination of 120 month update could have major detrimental impact on the committee infrastructure. By baselining the 1989 Edition of the BPV Code, there will be little incentive for US utilities to provide resources to support further Code revisions. It is questionable whether US utilities, manufacturers, laboratories, insurance companies, consultants, designer-constructors and others would maintain significant committee participation, except to pursue specific needs. Innovation would be discouraged. This contrasts with the experience of the last 30 years when Code Committees, through an established infrastructure, produced changes to the Code which relied upon broad based research and operating experience.
- ◆ The update provides for a continuous improvement process. Initially the Code was written in a conservative manner until more experience and advancements in technology were realized. Changes that were made to eliminate or reduce certain examinations served to reduce occupational exposure in certain areas. With regard to the OM Code, the current edition (1998) provides a baseline for significant improvements in testing efficiency through the use of risk insights and operational experience. This provides for a more effective use of resources and provides for more cost-effective inspection. This becomes significant with initiatives in risk-informed regulation that should reference the appropriate current Code requirements.
- ◆ The process used over the past 30 years involving updating the ISI & IST Programs every 120 months is well known and is working very well. If the process were changed to delete the update requirement, it would involve many unknowns that cannot be predicted at this time. This uncertainty is unacceptable.

**4. Elimination of the 120-month update is considered contrary to the spirit of the intended implementation of Public Law 104-113 and OMB A119**

- ◆ Public Law 104-113, the National Technology Transfer and Advancement Act of 1995 OMB and Circular A-119, "Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities" addresses the use of voluntary consensus technical standards by Federal Agencies. Supplementary Information, item X. "National Technology Transfer and Advancement Act of 1995", indicates the need for the NRC to evaluate the relationship of the public law to the proposal to eliminate the 120 month update and, as a result, determine whether a report (or periodic reports) must be provided to the Office of Management and Budget if the 120-month update requirement is eliminated. We believe that elimination of the 120-month update is contrary to the spirit of the intended implementation of PL 104-113 and OMB A-119. Although the NRC would consider endorsement of later editions of the BPV Code and licensee implementation on a voluntary basis, the current proven process would be replaced by one that introduces many unknowns and uncertainties. The resultant required evaluation and reports referenced in item: X. National Technology Transfer and Advancement Act of 1995

would cause an increased burden on NRC staff that would be avoided by retaining the 120-month update.

- ◆ By baselining to the 1989 Code Edition, imposing the 1992 Edition (with 1992 Addenda) for Subsections IWE & IWL, and imposing the 1995 Edition (with 1996 Addenda) of Section XI for Appendix VIII, the NRC is applying only selected parts of different code Editions on licensees. This will create confusion regarding proper overall implementation of the Code, and could have an adverse impact on maintaining proper configuration control.
- ◆ Since states routinely update references in their regulations to require the latest editions of ASME codes and standards, the proposed rulemaking would create greater inconsistencies between Federal and state requirements. Such inconsistencies between Federal and state jurisdictions would have a negative impact on Code users.

### Conclusion

The 120-month update has served as a mechanism for licensees to keep their ISI and IST programs consistent with current improvements in technology reflected in codes and standards, including improvements affecting health and safety and increased efficiencies, and ongoing assessment of the process by NRC. It provides for systematic implementation of safety enhancements with a minimum of bureaucratic involvement. Operational experience has, and will continue to be incorporated in ASME Code revisions to assure appropriate implementation of safety provisions and ALARA considerations. The 120-month update reflects the latest edition and addenda to the ASME Codes endorsed by the NRC. The NRC need only review and approve new editions and addenda and to incorporate them by reference into 10CFR50.55a to have the provisions incorporated by licensees. Improvements in the Code that reduce burden are also implemented at the same time. It will maintain a more current, consistent and uniform standard for the entire industry that will minimize separate submittals and evaluations on a case-by-case basis between utilities and NRC staff. It would facilitate the transition from the deterministic approach to a more risk-informed and performance-based approach that both the NRC and ASME are moving toward as a high priority. Without it, the entire burden of operational continuous improvement and upgrade of programs rests with the licensees, with diminished oversight by the NRC, and only those very large and infrequent enhancements that pass the backfit rule would be mandated in the regulation.

The Nuclear Utility industry is experiencing, and will continue to experience, significant restructuring as deregulation is implemented. Chief Nuclear Officers and management teams will change. Industry events, primarily through aging and technology improvements will drive changes to the code. The code is a reflection of these forces and will be upgraded. As stakeholders in this proposal, the ASME, NRC and Utilities have unique and interdependent roles in the regulatory framework that maintains the pressure boundary integrity and operational readiness of mechanical equipment. This is key to maintaining nuclear safety. The impact of the proposed rulemaking could be to upset the balance of that regulatory framework.



ASME International

Robert E. Nickell  
President, 1999-2000  
212-591-8130  
FAX: 212-591-7739  
nickellr@asme.org

Three Park Avenue  
New York, NY 10016-5990  
U.S.A.

June 16, 1999

Chairman Shirley Jackson  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Re: Federal Register: April 27, 1999 Vol. 64, No. 80  
Industry Codes and Standards: Amended Requirements

Dear Chairman Jackson:

The American Society of Mechanical Engineers (ASME) wishes to bring to your attention its position on the above referenced proposed rulemaking on the elimination of the 120-month requirement for licensees to update their inservice inspection (ISI) and inservice testing (IST) programs

ASME believes that the benefits gained in implementing the 120-month update significantly outweigh the associated costs. Updating focuses on an evaluation of the entire program to later ASME Code requirements and forms the basis for making necessary changes and enhancements to ISI and IST programs.

It is also our position that the proposed change to eliminate this update requirement and to establish the 1989 Edition of the ASME Boiler and Pressure Vessel (BPV) Code, Section XI, as the baseline (i.e. latest mandatory) edition/addenda is contrary to the spirit of Public Law 104-113 "National Technology Transfer and Advancement Act of 1995." This Act requires federal agencies to make greater utilization of technical consensus standards within the constraints of fulfilling their statutory obligations. While we recognize that the NRC proposed change would include endorsement of later editions/addenda for voluntary implementation by licensees, we are concerned over the long-term implications of selective voluntary updates. The continuous maintenance of ASME Boiler and Pressure Vessel Code Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components and ASME OM-Code for Operation and Maintenance of Nuclear Power Plants enable the incorporation of technological advances that provide cost benefit to the industry while maintaining safety. The proposed rulemaking amendment would weaken the benefits derived from the technical consensus process. ASME's continuous maintenance and improvement of these codes and standards have been based on the assumption of a required 120-month update

ASME's detailed comments have been submitted in accordance with the Federal Register notice; a copy is attached. In view of the significance of this proposed rulemaking amendment, ASME decided it was important to communicate our position to the Commission. It is our position that maintaining the 120-month update will provide for greater cost benefits to the industry, facilitate NRC's regulatory oversight, and better serve the common objective of public safety.

ASME would be pleased to continue discussion on this proposed amendment as and when deemed appropriate. We thank you for your consideration.

Sincerely,

Robert E. Nickell

Cc: David L. Belden, ASME Executive Director  
June Ling, ASME Assoc. Exec. Director, C&S

Donald R. Frikken, ASME Sr. Vice President, C&S

**ASME Presentation to ACRS  
Materials & Metallurgy Subcommittee  
On  
Proposal to Eliminate 10 CFR 50.55a  
120-Month Update Requirements**

**December 1, 1999  
Rockville, Maryland**

**By**

**James A. Perry, PE  
Past VP Nuclear Codes & Standards**



# Content

- **Cost of Updating**
- **ASME Codes are Living Documents**
- **ASME Process & System Provide Multiplier Effect in Direct Support of 120-month Update**
- **Deleting Update Requirement Contrary to Spirit of Public Law 104-113 & OMB A 119**
- **Benefits Outweigh Cost**
- **Summary & Conclusion**



## **Cost of Updating**

- **Average cost of update \$200,000 or \$20,000 per year**
- **One-time costs add significantly to total, for example containment inspection (IWE/IWL) & Appendix VIII mandated by NRC**
- **Additional cost incurred as review fees for exemptions & relief requests, which are required to use Code Cases or rules from later editions of the code**



# ASME Codes Are Living Documents

- **Changes result from new or improved inspection/test/materials/design methodologies**
- **Changes reflect lessons learned from over 30 years of nuclear experience, respond to user feedback**
- **Codes moving from prescribed repetitive inspections & tests to more risk-informed and performance-based approaches**
- **Numerous changes have occurred since the 1989 Edition that improve safety, improve industry standards, reduce burden, and respond to inquiries and user feedback**



# ASME BPV Code Section XI Changes 1989 through 1999 Addenda

<b>Change Categories</b>	<b><u>SG NDE</u></b>	<b><u>SG WCS</u></b>	<b><u>SG R/R</u></b>	<b><u>SG LMCS</u></b>	<b><u>Total</u></b>
<b>IS</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>10</b>
<b>IIS</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>4</b>	<b>124</b>
<b>RRE</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>RR</b>	<b>0</b>	<b>14</b>	<b>15</b>	<b>0</b>	<b>29</b>
<b>M</b>	<b><u>43</u></b>	<b><u>22</u></b>	<b><u>12</u></b>	<b><u>14</u></b>	<b><u>91</u></b>
<b>Total</b>	<b>89</b>	<b>77</b>	<b>68</b>	<b>21</b>	<b>255</b>

**IS- improved safety; IIS- improved industry standard;  
RRE- reduced radiation exposure; RR-reduced requirements  
M- maintenance**



# ASME OM Code Changes 1990 Edition to Present

Change <u>Categories</u>	<u>General</u>	<u>Pumps</u>	<u>Valves</u>	<u>Snubbers</u>	<u>Total</u>
<b>IS</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>
<b>IIS</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>8</b>	<b>14</b>
<b>RRE</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>4</b>
<b>RR</b>	<b>2</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>8</b>
<b>IR</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>4</b>
<b>M</b>	<b><u>9</u></b>	<b><u>1</u></b>	<b><u>3</u></b>	<b><u>5</u></b>	<b><u>18</u></b>
<b>Total</b>	<b>13</b>	<b>6</b>	<b>17</b>	<b>15</b>	<b>51</b>

**IS- improved safety; IIS- improved industry standard;  
RRE- reduced radiation exposure; RR-reduced requirements  
IR- increase requirements; M- maintenance**



# **ASME Process & System Provide Multiplier Effect In Direct Support of 120-month Update**

- **Changes reflect operational experience to assure implementation of safety & ALARA considerations**
- **Broad-based balanced group of experts produce Code changes using consensus process (30% utilities, 30% consultants, 40% include enforcement/regulatory, manufacturers, & inspection from insurance companies)**
- **User feedback on operating experience result in changes to the Codes**
- **Individual & subtle changes that improve safety and reduce personnel exposure have cumulative, significant, beneficial effect**
- **Many changes relate to reductions in examinations & tests, and new methods for repair & flaw analysis**



# **Deleting Update Requirement Contrary to Spirit of Public Law 104-113 & OMB A119**

- **The current proven process would be replaced by one that introduces many unknowns and uncertainties**
- **Evaluation & reports to OMB would cause increased burden on NRC staff**
- **By NRC applying only selected parts of different code Editions on licensees, confusion is created regarding proper overall implementation and maintenance of proper configuration management.**
- **Proposed rulemaking creates greater inconsistencies between federal and state requirements that would have a negative impact on Code users**



# Benefits Outweigh Cost

- **Update cost is not significantly different from cost of relief requests utilized without update**
- **Revisions & Code Cases since 1989 Edition are collectively safety significant & reduce personnel exposure to radiation.**
- **Updating maintains a more current, consistent & uniform standard for industry**
- **Updating minimizes separate submittals & evaluations on case by case basis between utilities & NRC staff**
- **Without updating, future changes become voluntary, licensees programs will vary greatly; regulatory oversight will be more difficult**
- **Updating focuses on evaluation of entire program, identifies deficiencies & forms the basis for making corrections & enhancements to ISI/IST Programs**



# Summary and Conclusion

- **Keeping the 120 month update maintains the stable system which works to provide an integrated approach to safety improvement and burden reduction**
- **Updates to ISI & IST programs for a plant are necessary, whether mandatory or non-mandatory**
- **Cost of 120 month update is small and implementation benefits outweigh cost of update**
- **Proposed rulemaking creates greater inconsistencies between federal & state requirements that adversely impact code users**
- **Maintaining the 120-month update facilitates regulatory oversight and better serves the common objective of public safety**

**OUR CONCLUSION: Maintain update process-It works well**



# ELIMINATION OF THE 120 MONTH UPDATE

ACRS MEETING

December 1, 1999

Steve Lewis

# 120 MONTH UPDATE

- INITIAL SECTION XI GOALS
  - Initial publication in 1971
  - Provide an assessment of the general overall condition by sampling with emphasis on high service factor areas
  - 10 year interval established a time frame for even distribution of examinations
  - The initial edition was also the recurring edition

# 120 MONTH UPDATE

- EVOLUTION OF SECTION XI
  - Required time to reach its optimum effectiveness for reaching initial goals
  - Scope increase
  - Repair/Replacement
  - Eliminate dependency on Construction Codes
  - NRC foresight required updates every 10 years

# 120 MONTH UPDATE

- SECTION XI TODAY
  - 1998 Edition
  - Provides an assessment of the general overall condition by sampling with emphasis on high service factor areas
  - 10 year interval establishes a time frame for even distribution of examinations
  - Refers the Owner to 50.55a for determining the effective edition/addenda

# 120 MONTH UPDATE

- EFFECT ON SAFETY
  - 1989 Edition of Section XI appears optimum
  - Changes between 1989 and 1992
    - 184 changes
      - 77 - editorial
      - 8 - errata
      - 22 - reduced requirements
      - 52 - no change in requirements
      - 25 - increased requirements, without safety significance

# 120 MONTH UPDATE

- EFFECT ON SAFETY (continued)
  - Section XI is adequate for base program, but does not address unanticipated safety issues
    - 25 Generic Letters addressing safety issues and most not addressed by Section XI
      - GL 81-03 (NUREG 0313) IGSCC in BWR Piping
      - GL 81-11 (NUREG 0619) FW Nozzle Cracking
      - GL 83-15 (Reg. Guide 1.150) UT of RPV Welds
      - GL 89-08 Erosion/Corrosion-Induced Pipe Wall Thinning
      - GL-92-01 RPV Integrity
      - GL-94-03 IGSCC of Core Shrouds

# 120 MONTH UPDATE

- EFFECT ON SAFETY (continued)
  - SGRRM prioritization for last 4 years identifies 174 open and closed actions with none assigned a priority of safety significance
  - SGWCS has a similar history for the last 4 years
  - Optimum safety depends on Section XI's base program, with industry initiatives, and Regulatory actions for emerging issues

# 120 MONTH UPDATE

- EFFECT ON SAFETY (continued)
  - NRC ability to mandate necessary changes
    - Expedited examination of RPV welds
    - Expedited implementation of IWE/IWL
    - Expedited implementation of Appendix VIII

# 120 MONTH UPDATE

- EFFECTIVE USE OF RESOURCES
  - Entire industry being driven to operate more efficiently
  - Use of industry initiatives (SECY 99-063)
  - Update cost can equal or exceed costs for voluntary programs like BWRVIP and MRP

# 120 MONTH UPDATE

- FUTURE OF SECTION XI
  - Agendas are full and participation is strong
    - new technology
    - process improvements
    - burden reduction
    - reduced dependence on Construction Codes
    - scope expansion
  - Potential for process changes

# 120 MONTH UPDATE

- CONCLUSIONS

- Section XI provides fundamental program for ensuring the general overall condition of safety related pressure boundaries
- Comparing recent Code changes with industry initiatives and regulatory actions, Section XI has reached its optimum format and content as a basic program
- Elimination of the 120 month update will not have an adverse impact on plant safety

# 120 MONTH UPDATE

- CONCLUSIONS (continued)
  - Safety issues will still be addressed as in the past, with aggressive industry and regulatory actions commensurate with the safety significance (industry initiatives)
  - Routine updating of other industry standards (IEEE, ASTM, etc.,) has not been determined necessary to maintain safety
  - The NRC has provisions to mandate Section XI changes deemed safety significant

**Important Section XI SG NDE Code Changes and Code Cases  
1989 Addenda through 1999 Addenda**

(Note 1)

Revision 2, 11/1/99

<u>Description of Code Change or Code Case:</u>	<u>Purpose/Benefit:</u>	<u>Classification:</u> (See Note 2)
1. Requirements for demonstrating ultrasonic(UT) examination performance were added to the Code in the 1989 Addenda as Appendix VIII, "Performance Demonstration for ultrasonic Examination Systems". Incorporated Code Case N-409-2.	Section XI determined that Code prescribed UT methodology may not perform predictably in the presence of some service induced damage mechanisms. Appendix VIII established a "show me" approach to applied UT by providing criteria for qualifying the procedure, equipment, and personnel called collectively the "UT System". The benefits realized with Appendix VIII include safety improvements with improved flaw detection and sizing for reactor pressure vessel under clad regions, for piping systems and it provided improved confidence in NDE contributions to failure probability calculations. Minimizes personnel exposure by using appropriate detection and flaw sizing approaches the first time. Saves costs by better utilizing NDE resources.	IS, IIS, and RRE
2. Provided a consensus approach for surface preparation of new pipe welds to make them more accessible for NDE.	These requirements provide direction for weld reinforcement surface contours for new welds to optimize UT search unit contact. Change recognizes that all welds are surface prepared and if performed properly can significantly improve access for UT examination. The requirements were later adopted in Section III for pre-service inspection.	IIS and RRE
3. Replaces the surface examination requirement for reactor closure head nuts (Item B6.10) with a VT-1 visual examination.	Alternative requirements to eliminate a costly examination that had absolutely no value added benefit. Approximately 18 years of surface inspection did not report any relevant findings. A 90% cost reduction.	IIS
4. Limited UT scan for flaws oriented transverse to welds in carbon and low alloy steel piping, excluded were welds with transverse flaws reported during the pre-service examination.	Change accepts UT of long. seam at intersection of circ. seam as only need & that transverse flaw initiation was not plausible during service in carbon and low alloy steel piping. Experience justified the change. Cost savings.	IIS and RRE
5. Made mandatory, practical examinations for qualification and certification of Level III NDE Personnel. Incorporated Code Case N-489.	The change ensures that Level III individuals have and maintain appropriate skills to practice NDE examinations.	IIS
6. Provided more specific requirements regarding which bolts should be examined when evidence of leakage is identified.	Optimized corrective action when leakage at bolted connections is identified, minimized aging affects from handling, removal and reinstallation of bolting.	IIS
7. Revision replaced system functional test and system in-service test with the system leakage test for Class 1,2,and 3 systems and components.	Clarifies and simplifies pressure levels at various locations throughout the system during the pressure test. Cost savings.	IIS and RRE
8. Changed NDE Examiner vision acuity/examination test requirements from Jaeger to Snellen and provides near-distance qualification requirements. Incorporated Code Case 490-1.	Established requirements equivalent and common to eye care service providers.	IIS
9. Combined the hydrostatic testing of the Class 2 portion of BWR Main Steam System with the hydro test of the Class 1 portion when it cannot be isolated. Incorporates Code Case N-479.	Resolves a Code implementation problem. Cost savings.	IIS

<u>Description of Code Change or Code Case:</u>	<u>Benefit:</u>	<u>Classification:</u> (See Note 2)
10. Exempts open ended vent and drain lines and open ended safety and relief valve discharge lines from a flow path test.	Eliminates requirement to perform an impractical flow test that had no value added benefit. Cost savings	IIS
11. Adds requirements for application of Appendix VIII flaw sizing to vessels less than 2 inches thickness and on components other than those identified in Appendix VIII scope.	Recognizes need for use of procedures/techniques specific to sizing of flaws, allows use of procedures already qualified and minimizes need for additional qualifications.	IS, and IIS
12. Clarifies that calibration materials need not be the same grade as the material to be examined with appropriate demonstration(s).	Makes it more practical to obtain material for vintage components. Cost savings.	IIS
13. Clarifies Appendix VIII and permits a 10% tolerance on the thickness of flawed test specimens used during qualifications.	Reduces numbers of specimens required in the test sets. Cost savings.	IIS
14. Adopts increased provisions for qualification of ultrasonic examination personnel, changes include specific requirements for UT training and adds requirements for qualification of the NDE Instructor. (Appendix VII)	The change provides supplemental qualification requirements unique to personnel that perform UT examinations in Nuclear power Plants. The changes respond to an identified need to improve UT examiner skills.	IS and IIS
15. Incorporated the provisions of the new ASTM E 1324-1990 "Guide for Measuring Some Electronic Characteristics of Ultrasonic Instruments"	Adapts a consensus standard for characterizing electronic instruments, modifies tolerances on the basis of recent data, and allows complete system characterization as opposed to individual components.	IIS
16. Clarified definition of limited certification and permits reduction of corresponding training hours, examination content and experience. Incorporates Code Case N-503.	Change recognized and resolved excessive qualification requirements for individuals used to perform limited tasks during the implementation of NDE procedures. Change results in significant improvements in NDE resource utilization during outages. Cost savings.	IIS and RRE
17. Incorporated Intent Inquiry XI-1-89-66 regarding lowest test pressure during a system pressure test.	Change clarifies that the 106 percent over-pressurization limit takes priority over achieving minimum pressure throughout the system. Cost savings.	IS and IIS
18. Additional requirements for performing a containment pressure test following repair or replacement.	New requirements address leakage tests, pressure test schedules, test procedures, examinations, and corrective measures.	IIS
19. Provide guidance for performing UT thickness measurements required by Section XI.	Section XI did not provide requirements for measuring thickness using UT equipment.	IIS
20. Provided new requirements for color resolution for remote visual examination.	Accounts for needs for color resolution for detection of certain material damage mechanisms such as corrosion.	IIS
21. Change incorporated Code Case N-498, Alternative Rules for 10-Year Hydrostatic Pressure Testing for Class 1 & 2 Systems. The action provides for system leakage test in lieu of a hydrostatic test.	A significant cost savings and man-rem exposure reduction because it allowed the ten-year pressure tests to be conducted at nominal operating pressure. Change recognized extreme difficulty of hydrostatic testing with no value added benefit over a system leakage test.	RRE and IIS
22. Incorporated Intent Inquiry XI-1-92-04, clarifying that pneumatic test may be performed in lieu of a system leakage test or a system hydrostatic test for Class 2 or 3 steam systems, after a repair, replacement or alteration.	Code improvement resolved an impractical requirement.	IIS
23. Incorporated Intent Inquiry XI-1-92-51, clarification for gaseous systems, requirement to remove a bolt and perform a VT-3 examination does not apply.	Resolved impractical Code requirement. Cost savings.	IIS & M
24. Appendix VIII UT Performance demonstration, scheduled or	New Supplements 10 and 11 were completed after Appendix was initially	IIS

<u>Description of Code Change or Code Case:</u>	<u>Benefit:</u>	<u>Classification:</u> (See Note 2)
planned scope increase to add dissimilar metal welds, weld overlays and Supplement 12 reduced requirements for an individual that qualifies for more than one technique. Flaw depth sizing was changed to use a root mean square basis instead of linear regression, a more fair and meaningful assessment.	published, they were agenda items from the beginning. Supplement 12 and introducing root mean square for sizing qualification criteria optimized and tuned the performance demonstration process to account for implementation issues including cost reduction.	
25. Appendix I, reinstates requirements previously specified in 1986 Edition to enable use of flat calibration blocks.	Significant cost savings for calibration block fabrication, resolves material availability issues.	M
26. Incorporates Code Case N-457 to permit the qualification notch of a stud to be one diameter from the end of the stud.	Resolved an implementation issue and established uniformity regarding qualification of UT techniques for studs.	IIS
27. Adds Supplement 13 to Appendix VIII to provide coordinated implementation of Supplements 4,5,6,& 7.	Optimized Appendix VIII multiple qualifications, further tuned process for cost effectiveness.	IIS
28. Incorporated Code Case N-485-1 which permits use of eddy current methodology for surface examinations.	A significant cost savings alternative to eliminate the need to remove paint or other surface protective coatings for Code required surface examinations.	IIS & RRE
29. Incorporated Code case N-458 to allow use of the yoke method for magnetic particle examination of coated surfaces on ferritic materials, without removing the surface protective coating.	Provided the technical justification and a significant cost savings for implementing surface examination requirements where protective coatings exist. Eliminated need for removing the protective coating.	IIS & RRE
30. Incorporated intent inquiry XI-1-92-70, to clarify that personnel qualified to any edition/addenda are qualified to all earlier editions/addendum.	This an other clarifications reduced administrative burden of the re-certification process and frees up resources. Cost savings.	IIS
31. Eliminates IWA-5213 holding time requirements for system leakage tests.	Optimized leak testing requirements and reduced ISI impact on critical path. Cost savings.	IIS
32. Incorporates interpretation XI-1-92-52 for leak testing of buried components.	Change simplifies and clarifies the requirements for pressure testing buried components with or without isolation valves.	IIS
33. Incorporated Code Case N-461 in Appendix III to set a piping calibration block thickness tolerance of plus or minus 25%.	Significant cost savings that reduced the number of blocks required because several pipe schedule thickness' overlapped or are close so as to not impact the UT examination.	IIS
34. Several changes to Appendix VIII to coordinate qualifications, minimize test specimens, and reduce overall number of qualifications that a UT examiner must perform.	Implementation of Appendix VIII showed a need to determine when 'enough was enough' for the number of qualifications that an individual had to perform. Benefits were cost savings and reduced burdens on the individual.	IIS & RR
35. Appendix VIII, Incorporated Code Case N-542 to eliminate the length sizing demonstration requirements for nozzle corner radius examinations.	Made UT qualification consistent with Article 3000 flaw acceptance standards which are based on flaw depth only, no length criteria is specified. Cost savings.	IIS
36. IWA-2315, and Appendix IV, adds requirements or performance demonstration of eddy current examination systems and personnel. Incorporated code cases N-307-1 & N-553.	Incorporates provisions for cost effective use of eddy current techniques including provision for demonstrating that the techniques are effective. Cost savings.	IIS and RRE
37. Incorporates Code Case N-538 updating Appendix VIII Supplements 2, 10, 11, & 12.	Expands use of RMS flaw sizing acceptance criteria improves description of capabilities and reduces failures due to occasional errors. Cost savings.	IIS
38. IWA-2314, incorporated Code Case N-574 which extended Levels I & II re-certification cycle from 3 to 5 years.	Reduced administrative burden of the re-certification process and frees up resources. Cost savings.	IIS

<b>Description of Code Change or Code Case:</b>	<b>Benefit:</b>	<b>Classification:</b> (See Note 2)
39. Revisions to IWA-2310 & 2314 to incorporate ASNT's ACP Standard CP-189 (central certification).	ACCP Standard is consistent with the central certification requirements of ISO-9712. This change promotes globalization of NDE certifications and central certification would eliminate the need to recertify at individual companies/sites. Cost savings.	IIS
40. IWA 2240, incorporates Case N-587, alternative NDE requirements for repair /replacement activities.	Allows use of 90's vintage NDE methodology vs outdated construction Code requirements provides the advantage of using the NDE method/technique to accept repairs that was used to identify the flaw.	IS & IIS
41. Incorporated Case N-534, to permit leakage testing at normal operating pressure for Class 2 & 3 pneumatic tests, in lieu of hydrostatic pressures of 1.1 or 1.25 times design.	Significant cost savings that simplified leakage testing procedures.	IIS
42. IWA-2300 to incorporate Case N-546 to allow alternate qualification methods for VT-2 examination personnel.	Provides requirements in which credit is taken for plant walkdown experience. The alternative qualification also eliminates the need to re-qualify/re-certify every 5 years. Cost savings.	IIS
43. Revisions to IWA-2300 to allow alternative qualifications for VT-3 examination personnel.	Provides reduced requirements in which credit is taken for installation and maintenance experience. Re-qualification/re-certification was extended to 5 years. Cost savings.	IIS
44. New Appendix VI, Qualification of Personnel for Visual Examination.	Visual qualification requirements are not typically outlined in the Qualification and Certification standards referenced in the Code (i.e. SNT-TC-1A and CP-189). New Appendix VI provides training and examination requirements for employers to include in their written practice.	IIS
45. Appendix-IV, incorporated Cases N-401-1 & N-402-1 to update Code on latest applied eddy current examination technology.	Code update incorporating latest multi-frequency techniques for eddy current examination.	IIS
46. Code Case N-618 permits elimination of nozzle inner radius examinations for pressurizer and steam generator nozzles.	Discontinues examinations after 30 years of operating experience shows no potential for initiation of degradation in those locations. Cost savings.	RR
47. Code case N-613 reduces reactor vessel nozzle-to-vessel weld inservice examination volumes.	Eliminates examination volumes not subject to service induced degradation. Cost savings.	IIS & RRE
48. Code Case N-592 enables use of ASNT Central Certification (ACCP) as alternative to IWA-2300.	Endorses central certification, an option to simplify site to site qualifications. Reduces administrative burden. Cost savings.	IIS
49. Code Case N-587 NDE alternatives for repair/replacement activities.	Allows for use of updated NDE methodology vs antiquated Construction Code NDE.	IS & IIS
50. Code Case N-583 reduces annual training for UT examiners from 10 to 8 hours.	Makes timing more consistent with shift schedules timing.	IIS
51. Code Case N-574, extends re-certification time to from 3 to 5 years.	Reduces administrative burden and frees up resources. Cost savings.	IIS
52. Code Case N-553 permits use of eddy current examination as an alternative to surface examinations required for pipe welds.	Cost savings and reduction in radiation exposure.	IIS & RRE
53. Code Case N-552 allows use of computer modeling to reduce numbers of required mockups and performance demonstrations for nozzle examinations.	Saves millions of dollars in costs of mockups for demonstrating UT techniques on dozens of different nozzle configurations. Provides validation of all applied UT techniques.	IIS
54. Code Case N-546 alternative qualification for VT-2 personnel.	Permits qualification of plant personnel that are well qualified by experience and job function to perform those examinations. Cost savings.	IIS

<b>Description of Code Change or Code Case:</b>	<b>Benefit:</b>	<b>Classification:</b> (See Note 2)
55. Code Cases N-545, N-542, N-541, N-538, N-537, associated with Appendix VIII implementation.	Changes made Appendix VIII implementation possible.	IIS
56. Code Case N-543 provides alternative intervals for periodic verification of digitally generated time-baselines in mechanized equipment.	Cost effective changes accounting for digital equipment stability. Cost savings.	IIS
57. Code Case N-534 permits use of normal operating pressure for Class 2 & 3 pneumatic tests, in lieu of hydrostatic pressures.	Simplifies leak testing, significant reduction on outage impact. Cost savings.	IIS
58. Code Case N-533 provides alternatives to removal of insulation from Class 1 pressure retaining bolted connections while the system is at operating pressure and temperature.	Permits hot examination to be performed without removal of insulation. Examinations are performed with insulation removed after depressurizing the system. Cost savings.	IIS & RRE
59. Code Case N-524 limits extent of inservice examinations of longitudinal weld seams in piping.	Significant cost savings based on experience and no potential damage mechanisms for the piping addressed.	RRE
60. Code Case N-503 allows reduced qualification requirements for personnel used in limited scope activities related to NDE performance.	Reduces administrative burdens and minimizes costs to use personnel in limited NDE assignments. Reduces radiation exposure to fully certified NDE personnel.	IIS & RRE
61. Code Case N-498 including 4 revisions to update and optimize pressure testing.	Allows system leakage testing in lieu of hydrostatic testing, significant cost savings with reduction of ISI outage impact and simplification of procedures.	IS & IIS
62. Code Case N-495 allows the functional provisions of IWV as an alternative to system hydrostatic testing for relief valves reinstalled in the system.	Significant cost savings with reduction in resources and impact on outage schedule.	IIS
63. Code case N-481 alternative visual examinations in lieu of volumetric examination of cast austenitic pump casings.	Provided alternative to non-meaningful examination based on no credible inspection method and no experience or potential for failure. Cost savings.	IIS & RRE
64. Code case N-479-1 allows for pressure testing main steam valves to Class 1 requirements when it cannot be isolated.	Code optimization. Cost savings.	IIS
65. Code Case N-471 enables use of acoustic emission to monitor flaw growth in lieu of IWB 2420 Successive Examinations.	Significant cost savings that eliminates need for removal of reactor fuel and internals for 3 consecutive periods (3 years) to monitor a flaw evaluated as acceptable for continued service.	IIS & RRE
66. Code Case N-416 allows alternatives to hydrostatic testing including deferrals and NDE in lieu of pressure testing.	Significant cost savings and reduction in operational exercises during outages.	IIS
67. Code Case N-335 updated Appendix III to include UT methodology for austenitic pipe welds.	Codified requirements for UT of austenitic piping in response to service induced stress corrosion cracking. Improved quality of pipe weld examinations.	IS, IIS & RRE
68. Code Case N-522 allows the use of Appendix J testing of Class 2 penetration piping rather than Section XI System Leakage Tests.	Allows plants to take credit for their Appendix J testing, which is required to be performed on all piping that is Class 2 for the purposes of containment penetration, in lieu of performing Section XI leakage tests. Eliminates a significant number of redundant pressure tests. Significant cost savings.	IIS
71. Code Case 307 alternative examination volume for Class 1 bolting. Also permits the option of a surface or volumetric examination when the studs are removed.	Can reduce time spent on an examination by factor of 10 or more. Significant cost savings.	IIS
72. Code Case N-622 Appendix VIII rewrite.	Updates Appendix VIII to resolve remaining Code implementation issues and resolve issues with a proposed NRC Regulation.	IS & IIS

<u>Description of Code Change or Code Case:</u>	<u>Benefit:</u>	<u>Classification:</u> (See Note 2)
73. Code Case N-566-1 Provides evaluation process as a corrective measure in lieu of bolting removal.	Improved technique/methodology, reduces radiation exposure, Significant cost savings.	IIS & RRE

Notes:

1) Items listed in this table are the more important Section XI SG NDE changes and Code Cases approved in the ten years from the 1989 Edition through the 1999 Addenda. Overall, during this time frame, individual actions which resulted in a published Code change, for which the Subgroup on NDE was responsible, numbered 89 (which includes the important actions separately listed in the table). In addition, Code Cases and Case revisions, for which the Subgroup on NDE was responsible, numbered 94 (which includes the important Cases separately listed in the table). These Code changes and Code Cases are broken down by primary classification as follows (using the classification in Note 2 below):

**Code Changes:**

Improved Safety (IS): 5  
Improved Industry Standards (IIS): 40  
Reduced Radiation Exposure (RRE): 1  
Reduced Requirements (RR): 0  
Maintenance of the Code (M): 43  
Total Code Changes: 89

**Code Cases/Case Revisions:**

Improved Safety (IS): 3  
Improved Industry Standards (IIS): 59  
Reduced Radiation Exposure (RRE): 1  
Reduced Requirements (RR): 1  
Maintenance of the Code (M): 30  
Total Code Cases and Case revisions: 94

In addition, due to the importance of reducing radiation exposure to personnel, 8 out of the 89 total Code changes and 8 out of the 94 Code Cases/Case Revisions resulted in a reduction of radiation exposure, even though the primary classification was not noted as Reduced Radiation Exposure in the overall totals noted above.

2) Code changes and Code Cases are classified using the following classification system and abbreviations:

- **IS** - Improved Safety. Those action items that have an obvious affect on plant safety, such as improving the assurance of pressure boundary integrity or reducing core damage frequency as determined from a risk approach.
- **IIS** - Improved Industry Standard. Improvements including, for example, new or better methods and processes, clarified or improved understanding of requirements due to Code changes, and changes to address industry experience. "Improved industry standard" does not just represent improved performance, although that is also included. Although the classifications of "reduced radiation exposure", "reduced requirements" and "improved safety" may seem to be sub-categories of "improved industry standard", "reduced radiation exposure", "reduced requirements" and "improved safety" have been separately classified to better define a change or Case. Although some "improved industry standards" do result in increased requirements, where this is the case, the ASME consensus process has determined that the improvements in the industry standard more than justify the increased requirements.
- **RRE** - Reduced Radiation Exposure. Those action items that result in a reduction in radiation exposure from performing the requirements of the 1989 Edition of Section XI.
- **RR** - Reduced Requirements. Those action items that primarily result in an elimination of unnecessary requirements in the 1989 Edition or result in a reduction in costs or human resources. Reduced requirements are not a reduction in the level of safety, but rather are a redefinition of what the appropriate level of safety should be.
- **M** - Maintenance of the Code. General changes associated with maintaining the Code, minor changes, editorial changes and errata.

More than one classification may be used to better define a change or Case. However, the first classification listed in each row is considered the primary classification.

**Important Section XI SGWCS Code Changes and Code Cases  
1989 Addenda through 1999 Addenda  
(Note 1)**

<u>Description of Code Change or Code Case:</u>	<u>Purpose/Benefit:</u>	<u>Classification:</u> (See Note 2)
1. A revision to the exemption criteria for Class 2 and 3 piping systems. This revision incorporated Code Case N-408-2 in the 1989 Addenda.	Expanded the exemptions for Class 2 and 3 piping systems to make all vessels exempt from examination when in exempt piping. It also identified that vessels with multiple openings exemptions are based on cumulative cross-section area of openings.	RR
2. A revision to incorporate a sampling plan for inspection of component supports. This revision incorporated the provisions of Code Case N-491 in the 1990 Addenda.	This significantly decreases the number of piping supports to be examined, but increases the number of other component supports to be examined.	RR
3. A revision to Table IWE 2500-1, Category E-C to add inspection requirements in the 1991 Addenda.	The revision adds requirements for ultrasonic thickness measurements of containment liner surface areas subject to accelerated degradation.	IIS
4. A revision to IWL concerning corrosion and tension testing of wire strands in the 1991 Addenda.	The revision requires tendon wire and strands to be examined to determine the most severe location of corrosion. If corrosion has occurred, tension tests are to be performed on a sample of wires and strands with the most corrosion.	IS
5. A revision to concrete examination requirements in the 1993 Addenda.	The revision makes IWL more consistent with Regulatory Guide 1.35. It adds examination and acceptance standards for concrete surfaces and tendon anchorage areas. It also adds acceptance criteria for tendon elongation.	IIS
6. A revision to exempt welds or portions of welds in penetrations from examination. This revision incorporated the provisions of Code Cases N-198-1, N-332, and N-334 in the 1994 Addenda.	The revision eliminated examination that could not be performed. By making the code change, Owner's would no longer have to seek NRC approval of relief from the Code for these welds.	RR
7. A revision to examination criteria for integrally welded attachments. This revision incorporated the provisions of Code Case N-509 in the 1995 Addenda.	The change modifies when examinations are to be performed and the method used. Attachments now only require examination when there is evidence of support damage. Class 1 now requires surface examinations instead of volumetric and Class 3 examinations were changed from VT-3 to VT-1.	RR
8. This revision incorporated the provisions of Code Case N-521 in the 1995 Addenda.	The change permits deferral of PWR nozzle welds to the end of the interval. It does not apply to the first interval.	IIS
9. This revision incorporated the provisions of Code Case N-547 in the 1995 Addenda.	This revision eliminates the requirement for VT-1 examination of CRD housing bolts.	RR
10. This revision incorporated the provisions of Code Case N-524 in the 1995 Addenda.	This revision eliminates the examination on longitudinal welds in piping except for the portion covered by the circumferential weld volumetric examination.	RR
11. This revision incorporated the provisions of Code Case N-435-1 in the 1995 Addenda.	This revision allows surface examination in lieu of volumetric examination for vessel 1/5" thick or less.	RR
12. This revision incorporated the provisions of Code Case N-323-1 in the 1997 Addenda.	This revision allows a one-sided surface examination in lieu of a two-sided examination or volumetric examination when only one side is accessible.	RR
13. Code Case N-618, "Alternative Requirements for Nozzle Inner Radius Inspections for Class 1 Pressurizer and Steam Generator	The case allows the nozzle inner radius examinations to be discontinued	RR

<u>Description of Code Change or Code Case:</u>	<u>Benefit:</u>	<u>Classification:</u> (See Note 2)
-------------------------------------------------	-----------------	----------------------------------------

Nozzles”		
14. Code Case N-609, “Alternative Requirements to Stress-Based Selection Criteria for Category B-J Welds”	The case allows the use of location and material type as well as stress to be used for selection of welds to be examined as an alternative to the stress-based criteria.	RR
15. Code Case N-560, “Alternative Examination Requirements for Class 1, Category B-J Piping Welds”	The case allows the use of a probabilistic assessment to select welds to be examined. It is significant because it reduces the sample size from 25% to 10% of the B-J welds.	RR
16. Code Case N-577, “Risk Informed Requirements for Class 1, 2, and 3 Piping, Method A”	The case allows the use of risk analysis to determine which welds to inspect and how often they should be inspected.	RR
17. Code Case N-578, “Risk Informed Requirements for Class 1, 2, and 3 Piping, Method B”	The case allows the use of a panel of experts to use risk parameters to determine which welds to inspect and how often they should be inspected.	RR
18. Code Case N-575, “Alternative Examination Requirements for Full Penetration Nozzle-to-Penetration Welds in Reactor Vessels with Set-on Type Nozzles”	The case provides an alternate (smaller) volume to be examined for set-on nozzles.	RR
19. Code Case N-486, “Inservice Inspection, Repair, and Replacement Requirements for Class MC and Metallic Liners of Class CC Components”	This was an implementing case to provide IWE criteria while the Code revision containing the criteria was being reviewed by NRC for endorsement.	IIS
20. Code Case N-478, “Inservice Inspection for Class CC Concrete Components of Light-Water Cooled Power Plants”	This was an implementing case to provide IWL criteria while the Code revision containing the criteria was being reviewed by NRC for endorsement.	IIS

Notes:

1) Items listed in this table are the more important Section XI Subgroup Water Cooled Systems changes and Code Cases approved in the ten years from the 1989 Edition through the 1999 Addenda. Overall, during this time frame, individual actions which resulted in a published Code change, for which the Subgroup on Water Cooled Systems was responsible, numbered 77 (which includes the important actions separately listed in the table). In addition, Code Cases and Case revisions, for which the Subgroup on Water Cooled Systems was responsible, numbered 41 (which includes the important Cases separately listed in the table). These Code changes and Code Cases are broken down by primary classification as follows (using the classification in Note 2 below):

**Code Changes:**

Improved Safety (IS): 1  
Improved Industry Standards (IIS): 40  
Reduced Radiation Exposure (RRE): 0  
Reduced Requirements (RR): 14  
Maintenance of the Code (M): 22  
Total Code Changes: 77

**Code Cases/Case Revisions:**

Improved Safety (IS): 0  
Improved Industry Standards (IIS): 22  
Reduced Radiation Exposure (RRE): 0  
Reduced Requirements (RR): 17  
Maintenance of the Code (M): 2  
Total Code Cases and Case revisions: 41

In addition, due to the importance of reducing radiation exposure to personnel, 13 out of the 77 total Code changes and 9 out of the 41 Code Cases/Case Revisions resulted in a reduction of radiation exposure, even though the primary classification was not noted as Reduced Radiation Exposure in the overall totals noted above.

2) Code changes and Code Cases are classified using the following classification system and abbreviations:

- **IS** - Improved Safety. Those action items that have an obvious affect on plant safety, such as improving the assurance of pressure boundary integrity or reducing core damage frequency as determined from a risk approach.
- **IIS** - Improved Industry Standard. Improvements including, for example, new or better methods and processes, clarified or improved understanding of requirements due to Code changes, and changes to address industry experience. "Improved industry standard" does not just represent improved performance, although that is also included. Although the classifications of "reduced radiation exposure", "reduced requirements" and "improved safety" may seem to be sub-categories of "improved industry standard", "reduced radiation exposure", "reduced requirements" and "improved safety" have been separately classified to better define a change or Case. Although some "improved industry standards" do result in increased requirements, where this is the case, the ASME consensus process has determined that the improvements in the industry standard more than justify the increased requirements.
- **RRE** - Reduced Radiation Exposure. Those action items that result in a reduction in radiation exposure from performing the requirements of the 1989 Edition of Section XI.
- **RR** - Reduced Requirements. Those action items that primarily result in an elimination of unnecessary requirements in the 1989 Edition or result in a reduction in costs or human resources. Reduced requirements are not a reduction in the level of safety, but rather are a redefinition of what the appropriate level of safety should be.
- **M** - Maintenance of the Code. General changes associated with maintaining the Code, minor changes, editorial changes and errata.

More than one classification may be used to better define a change or Case. However, the first classification listed in each row is considered the primary classification.

**Important Section XI "Repair/Replacement Activity" Code Changes and Code Cases  
1989 Addenda through 1999 Addenda  
(Note 1)**

<u>Description of Code Change or Code Case:</u>	<u>Purpose/Benefit:</u>	<u>Classification:</u> (See Note 2)
1. Requirements for repair of heat exchanger tubing by sleeving were added in the 1989 Addenda.	Adds an industry consensus standard on heat exchanger tube sleeving to repair degraded tubes.	IIS
2. The half bead SMAW welding requirements were replaced with temper bead SMAW welding requirements in the 1990 Addenda.	Incorporate improved welding requirements when the required postweld heat treatment can not be performed. The added temper bead welding requirements resulted in removal of less of the initial butter pass, and less in-process examination, therefore reducing repair time and radiation exposure	IIS and RRE
3. IWL-4000 for repair of concrete containments and IWL-7000 for replacement of post-tensioning systems in concrete containments were added in the 1991 Addenda.	Adds industry consensus standards on repair and replacement activities on concrete containments.	IIS
4. The 1991 Addenda combined IWA-4000 (Repairs) and IWA-7000 (Replacements) and the 1995 Addenda eliminated the distinction between Repairs and Replacements and restructured the Repair/Replacement Activities.	These changes substantially improved the usability of Section XI for Repair/Replacement Activities.	IIS
5. Requirements for repair welding using the automatic or machine gas tungsten-arc welding (GTAW) temper bead technique were added in the 1991 Addenda. This change incorporates Code Case N-432.	This change provides an industry consensus standard for use of automatic or machine gas tungsten arc welding (GTAW) as an alternative to shielded metal arc welding (SMAW) for performing temper bead welding. It is usually the preferred technique for performing temper bead repairs.	IIS
6. The exemption for replacements NPS 1 and less was replaced with an alternative set of requirements in the 1992 Addenda. Class 1 items larger than the plant makeup capability, heat exchanger tubing, and sleeves and welded plugs used for heat exchanger tubing must meet all Code requirements. The 1991 Addenda added heat exchanger tubing, sleeves and plugs as not exempt.	Section XI determined it was not appropriate to exempt replacement of items, the failure of which would be defined as a LOCA. Industry use of the exemption and Section XI interpretations may not have been assuring these small items would function as designed. Use of the alternative, or use of full Code requirements, was intended to assure these small items will function as designed after replacement.	IS
7. Requirements for rerating components and systems were added in the 1995 Addenda.	Adds industry consensus standards for rerating of items, in the absence of a consistent industry approach.	IIS
8. For repair/replacement activities involving design or configuration changes, IWA-4000 was revised in the 1995 Addenda and the 1996 Addenda to clarify that the Owner is required to revise or update Owner's Requirements, Design Specifications and Design Reports. The revisions or updates are required to be traceable to and from the original record or report to provide a record of the current status of the item.	Some Owners and Repair Organizations were not maintaining the design of items to the Construction Code requirements, nor maintaining these noted documents to provide a current status of the design of an item, as intended by Section XI. These changes clarify the requirements to assure consistent implementation by the industry.	IIS
9. Expanded provisions on reconciliation were added in the 1995 Addenda and the 1996 Addenda. Case N-554, "Alternative Requirements for Reconciliation of Replacement Items, Section	Section XI has required, since the addition of Replacement rules, a reconciliation of use of Later Editions or Addenda of the Construction Code when components, parts, and materials are replaced. This change provides	IIS and RR

<u>Description of Code Change or Code Case:</u>	<u>Benefit:</u>	<u>Classification:</u> (See Note 2)
XI, Division 1" contains similar provisions.	an industry consensus standard with details as to how this reconciliation is to be performed and for some items, such as components, results in a reduction what much of the industry had perceived as required.	
10. The alternative requirements for small items was revised in the 1995 Addenda to include repair of small items. Case N-544, "Repair/Replacement of Small Items, Section XI, Division 1" contains similar provisions.	Prior to the 1995 Addenda, Section XI provided an exemption, or alternative less restrictive requirements, for NPS 1 and smaller replacement items and installation thereof. Repairs were not similarly exempted. Therefore, a repair to an item was subject to more restrictive requirements than replacing the item. This change allows application of the alternative requirements for replacement to weld repairs of small items, thereby reducing requirements and costs.	RR
11. IWA-4451 was added in the 1995 Addenda. This change addressed requirements for obtaining and installing Helical Coil Threaded Inserts. This action incorporated Code Case N-496	This change allows Owner's to perform repairs to defective threaded connections without replacing the item or performing extensive remachining. The rules provide for an equivalent level of safety, while at the same time allowing for more economical repairs. In addition, based on the fact that the repairs can be completed in a more expeditious manner, dose will be lower.	IIS and RRE
12. Qualification and performance requirements to permit underwater welding for repair and replacement activities on P-No. 8 and P-No. 4X materials were added in the 1996 Addenda. Provisions for underwater welding of P-No. 1 materials were added in the 1997 Addenda. These changes incorporate Code Case N-516 and Case N-516-1.	Adds industry consensus standards for performing underwater welding. These provisions are useful for underwater work in spent fuel pools and service water systems.	IIS and RRE
13. Alternative provisions for replacement of snubbers and pressure relief valves were added in the 1996 Addenda. This change incorporates Case N-508-1.	This change provides alternative rules to those stated in IWA-4000 when snubbers and pressure relief valves are removed only for testing and are then rotated with snubbers and relief valves currently installed within the Section XI boundary. The alternative provisions reduce the documentation requirements and costs for these numerous and routine replacements.	RR
14. IWA-4000 provisions were revised in the 1997 Addenda to include the addition of new systems to an existing nuclear plant.	Prior to this change, Owners were required to address addition of new systems with the NRC, usually using newer Codes. This change allows use of Section XI to install a new system using the Construction Code already used in the plant for similar systems, saving considerable cost and utilizing existing warehouse stock.	IIS and RR
15. Alternative requirements allowing Owners to transfer welding procedure qualifications was incorporated in the 1997 Addenda. This incorporates Case N-573.	The change allows Owners to use welding procedure qualifications performed and documented by other Owners, resulting in cost savings.	RR
16. An alternative to use mechanical clamping devices for temporary repairs of Class 2 and 3 piping was included in the 1997 Addenda. This change incorporates Case N-523-1.	This change provides an alternative industry consensus standard for temporary clamping devices to provide structural integrity of degraded piping without performing standard repair or replacement. The use of the clamping device can preclude the need for forced plant shutdowns.	IIS, RRE and RR
17. Provisions for a system leakage test as an alternative to the previously required hydrostatic pressure tests following repair/replacement activities were added in the 1999	This change allows a system leakage test at operating pressure to be used in lieu of a hydrostatic test following repair and replacement activities. It results in reduced costs and critical path time. For systems	RR and RRE

<u>Description of Code Change or Code Case:</u>	<u>Benefit:</u>	<u>Classification:</u> (See Note 2)
Addenda. This change incorporates Code Case N-416-1.	in radiological controlled areas of the plant, this can result in significant reductions in radiological exposures to plant personnel.	
18. Case N-606, "Similar and Dissimilar Material Welding Using Ambient Temperature Machine GTAW Temper Bead Technique, Section XI, Division 1"	This Case provides specific repair of BWR control rod drive stub tubes in the reactor pressure vessel using ambient temperature GTAW temper bead technique without the Code required elevated preheat and post weld temperature soak. This repair precludes the draining of the RPV, saving critical path outage time, money and radiation exposure.	RR and RRE
19. Case N-576, "Repair of Class 1 and 2 SB-163, UNS N06600 Steam Generator Tubing, Section XI, Division 1" This Case provides new rules for repair of SB-163, UNS N06600 steam generator tubing by using a laser beam weld (LBW) deposit on the inside surface of the tubing.	Approves an industry consensus standard to repair degraded tubes, saving the cost and radiation exposure to replace a steam generator, or extending the time frame when replacement is required.	IIS and RRE
20. Case N-569, "Alternative Rules for Repair by Electrochemical Deposition of Class 1 and 2 Steam Generator Tubing, Section XI, Division 1" This Case provides new rules for electrochemical deposition of a nickel-base alloy on the inside surface of degraded areas of Class 1 and 2 steam generator tubing.	Approves an industry consensus standard to repair degraded tubes, saving the cost and radiation exposure to replace a steam generator, or extending the time frame when replacement is required.	IIS and RRE
21. Case N-562, "Alternative Requirements for Wall Thickness Restoration for Class 3 Moderate Energy Carbon Steel Piping, Section XI, Division 1"	This Case provides an industry consensus standard for adding localized weld overlay on the outside of piping for the purpose of restoring degraded pipe wall thickness, precluding or deferring piping replacement.	IIS and RR
22. Case N-561, "Alternative Requirements for Wall Thickness Restoration of Class 2 High Energy and High Energy Class 3 Carbon Steel Piping, Section XI, Division 1"	This Case provides an industry consensus standard for adding localized weld overlay on the outside of piping for the purpose of restoring degraded pipe wall thickness, precluding or deferring piping replacement.	IIS and RR
23. Case N-557, "In-Place Dry Annealing of a PWR Nuclear Reactor Vessel, Section XI, Division 1"	This Case provides an industry consensus standard for performing in-place annealing of a PWR reactor pressure vessel to improve beltline material toughness subsequent to radiation induced embrittlement.	IIS
24. Case N-528, "Purchase, Exchange, or Transfer of Material Between Nuclear Plant Sites, Section XI, Division 1"	This Case permits use of Code materials supplied by other Owners. Current Section XI reference to the Construction Code prohibits plants constructed to Section III from using Code materials furnished by Owners not possessing a Section III Certificate (N-type or QSC). This can result in considerable cost savings and critical path time reductions when another Owner has the needed materials in stock.	RR
25. Case N-517, "Quality Assurance Program Requirements for Owners, Section XI, Division 1"	Current Section XI reference to the Construction Code prohibits Owners from performing some of the activities that Section III limits to Certificate Holders only, such as qualifying Code material manufacturers and suppliers. This Case provides specific activities an Owner can perform and allows an Owner to use these provisions without possessing a Certificate of Authorization. This results in cost savings and additional sources for	RR

<u>Description of Code Change or Code Case:</u>	<u>Benefit:</u>	<u>Classification:</u> (See Note 2)
26. Case N-504, "Alternative Rules for Repair of Class 1, 2, and 3 Austenitic Stainless Steel Piping, Section XI, Division 1"	obtaining materials. This Case provides an industry consensus standard for acceptance of flaws in austenitic piping by depositing full circumferential weld overlay to increase pipe wall thickness rather than by reducing the size of the flaw to meet the acceptance criteria, thereby precluding or deferring piping replacement.	IIS and RR
27. IWA-4223 was revised in the 1999 Addenda to allow Owners to obtain components to an earlier Construction Code using reconciliation instead of having to meet all requirements of the original Construction Code. This action incorporated Code Case N-567.	The 1995 Addenda permitted the use of earlier Editions and Addenda for obtaining components provided all technical requirements of the original Construction Code were met. By allowing the use of earlier Editions and Addenda with reconciliation versus meeting all requirements, the Code provides flexibility to use existing items in the Owner's or manufacturer's warehouses. This results in lower cost with no reduction in safety.	RR

Notes:

1) Items listed in this table are the more important Section XI Repair/Replacement Activity changes and Code Cases approved in the ten years from the 1989 Edition through the 1999 Addenda. Overall, during this time frame, individual actions which resulted in a published Code change, for which the Subgroup on Repairs, Replacements and Modifications was responsible, numbered 68 (which includes the important actions separately listed in the table). In addition, Code Cases and Case revisions, for which the Subgroup on Repairs, Replacements, and Modifications was responsible, numbered 28 (which includes the important Cases separately listed in the table). These Code changes and Code Cases are broken down by primary classification as follows (using the classification in Note 2 below):

**Code Changes:**

Improved Safety (IS): 1  
Improved Industry Standards (IIS): 40  
Reduced Radiation Exposure (RRE): 0  
Reduced Requirements (RR): 15  
Maintenance of the Code (M): 12  
Total Code Changes: 68

**Code Cases/Case Revisions:**

Improved Safety (IS): 0  
Improved Industry Standards (IIS): 17  
Reduced Radiation Exposure (RRE): 0  
Reduced Requirements (RR): 10  
Maintenance of the Code (M): 1  
Total of 21 new Code Cases and 7 Case revisions: 28

Of the 68 Code changes, 9 of them were incorporations of Code Cases counted in the total of 28.

In addition, due to the importance of reducing radiation exposure to personnel, 1 out of the 68 total Code changes and 8 out of the 28 Code Cases/Case Revisions resulted in a reduction of radiation exposure, even though the primary classification was not noted as Reduced Radiation Exposure in the overall totals noted above.

2) Code changes and Code Cases are classified using the following classification system and abbreviations:

- **IS** - Improved Safety. Those action items that have an obvious affect on plant safety, such as improving the assurance of pressure boundary integrity or reducing core damage frequency as determined from a risk approach.
- **IIS** - Improved Industry Standard. Improvements including, for example, new or better methods and processes, clarified or improved understanding of requirements due to Code changes, and changes to address industry experience. "Improved industry standard" does not just represent improved performance, although that is also included. Although the classifications of "reduced radiation exposure", "reduced requirements" and "improved safety" may seem to be sub-categories of "improved industry standard", "reduced radiation exposure", "reduced requirements" and "improved safety" have been

separately classified to better define a change or Case. Although some "improved industry standards" do result in increased requirements, where this is the case, the ASME consensus process has determined that the improvements in the industry standard more than justify the increased requirements.

- **RRE** - Reduced Radiation Exposure. Those action items that result in a reduction in radiation exposure from performing the requirements of the 1989 Edition of Section XI.
- **RR** - Reduced Requirements. Those action items that primarily result in an elimination of unnecessary requirements in the 1989 Edition or result in a reduction in costs or human resources. Reduced requirements are not a reduction in the level of safety, but rather are a redefinition of what the appropriate level of safety should be.
- **M** - Maintenance of the Code. General changes associated with maintaining the Code, minor changes, editorial changes and errata.

More than one classification may be used to better define a change or Case. However, the first classification listed in each row is considered the primary classification.

**Important Section XI "SG Liquid Metal Cooled Systems (Division 3)" Code Changes and Code Cases  
1989 Addenda through 1999 Addenda (Note 1)**

<u>Description of Code Change or Code Case:</u>	<u>Purpose/Benefit:</u>	<u>Classification:</u> (See Note 2)
<p>1. New Subsection IME was incorporated into Division 3 (1994 Addenda) which provides rules and requirements for inservice inspection, repair, and replacement of Class MC pressure retaining components and their integral attachments and metallic shell liners and penetrations for Class CC containments.</p>	<p>Adds containment ISI rules for liquid metal cooled operating plants. For example, the United States, Department of Energy (DOE) Fast Flux Test Facility was designed and built to Section III and satisfactorily completed a NRC and ACRS licensing review. It performs ISI as well as containment integrity testing to 10CFR50, Appendix J and needs Subsection IME to document and control future ISI. The reactor is currently on hot standby pending DOE direction for restart. Additionally, Division 3 guidelines are utilized by other international operating reactors, e.g., Japanese MONJU.</p>	IS
<p>2. New rules were provided in Division 3 via 1990 Addenda for detection of water/steam leakage through the sodium interface for Class 1, 2, and 3 components in liquid metal systems.</p>	<p>Incorporates liquid metal cooled reactor operating criteria into the code for leak detection.</p>	IS
<p>3. A revision was made to Division 3 IMA-2300, Appendix VII to adopt the increased provisions for qualification of ultrasonic examination personnel that were added to Section XI, Division 1, in the 1988 Addenda. The change includes specific requirements for UT training and adds requirements for qualification of an NDE Instructor.</p>	<p>Incorporates industry standards for qualification of ultrasonic examination personnel.</p>	IIS
<p>4. A revision was made to IMA-4110, IMA-4111, IMA-4120, IMA-4121, IMA-4122 in Division 3 which expands and clarifies the exemptions from the scope of the repair and replacement rules. The revision also clarifies that the Owner may determine by evaluation that a replacement activity will not affect pump or valve performance parameters. This revision also deletes the exemption from the provisions of IMA-4000 for NPS 1 and smaller items in systems that contain liquid metal or liquid metal cover gas. The revision adds alternative, less restrictive provisions for items in small diameter systems other than systems that contain liquid metal or liquid metal cover gas, to provide assurance that the item will function as designed. The reduced provisions are no longer applicable to Class 1 items larger than the makeup capability limit for the plant, nor for heat exchanger tubing or sleeves or welded tube plugs for heat exchanger tubing. This change is consistent with changes to Division 1 in the 1992 Addenda.</p>	<p>Incorporates changes made in Division 1 but identifies additional criteria for liquid metal cooled plants, e.g., deletes the exemption for NPS 1 and smaller items in systems that contain liquid metal or liquid metal cover gas.</p>	IS

5. New IMA-9000 Glossary was incorporated into Division 3 via 1995 Addenda.	Adds new glossary required to incorporate definitions utilized throughout Division 3. It contains definitions which are unique to liquid metal cooled operating plants.	IIS
-----------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----

Notes:

1) Items listed in this table are the more important Section XI SG Liquid Metal Cooled Systems (Division 3) changes and Code Cases approved in the ten years from the 1989 Edition through the 1999 Addenda. Overall, during this time frame, individual actions which resulted in a published Code change, for which the Subgroup on Liquid Metal Cooled Systems (Division 3) was responsible, numbered 21 (which includes the important actions separately listed in the table). In addition, Code Cases and Case revisions, for which the Subgroup on Liquid Metal Cooled Systems (Division 3) was responsible, numbered 0 (which includes the important Cases separately listed in the table). These Code changes and Code Cases are broken down by primary classification as follows (using the classification in Note 2 below):

**Code Changes:**

Improved Safety (IS): 3  
 Improved Industry Standards (IIS): 4  
 Reduced Radiation Exposure (RRE): 0  
 Reduced Requirements (RR): 0  
 Maintenance of the Code (M): 14  
 Total Code Changes: 21

**Code Cases/Case Revisions:**

Improved Safety (IS): 0  
 Improved Industry Standards (IIS): 0  
 Reduced Radiation Exposure (RRE): 0  
 Reduced Requirements (RR): 0  
 Maintenance of the Code (M): 0  
 Total Code Cases and Case revisions: 0

In addition, due to the importance of reducing radiation exposure to personnel, 0 out of the 21 total Code changes and 0 out of the 0 Code Cases/Case Revisions resulted in a reduction of radiation exposure, even though the primary classification was not noted as Reduced Radiation Exposure in the overall totals noted above.

2) Code changes and Code Cases are classified using the following classification system and abbreviations:

- **IS** - Improved Safety. Those action items that have an obvious affect on plant safety, such as improving the assurance of pressure boundary integrity or reducing core damage frequency as determined from a risk approach.

**IIS** - Improved Industry Standard. Improvements including, for example, new or better methods and processes, clarified or improved understanding of requirements due to Code changes, and changes to address industry experience. "Improved industry standard" does not just represent improved performance, although that is also included. Although the classifications of "reduced radiation exposure", "reduced requirements" and "improved safety" may seem to be sub-categories of "improved industry standard", "reduced radiation exposure", "reduced requirements" and "improved safety" have been separately classified to better define a change or Case. Although some "improved industry standards" do result in increased requirements, where this is the case, the ASME consensus process has determined that the improvements in the industry standard more than justify the increased requirements.

**RRE** - Reduced Radiation Exposure. Those action items that result in a reduction in radiation exposure from performing the requirements of the 1989 Edition of Section XI.

**RR** - Reduced Requirements. Those action items that primarily result in an elimination of unnecessary requirements in the 1989 Edition or result in a reduction in costs or human resources. Reduced requirements are not a reduction in the level of safety, but rather are a redefinition of what the appropriate level of safety should be.

**M** - Maintenance of the Code. General changes associated with maintaining the Code, minor changes, editorial changes and errata.

More than one classification may be used to better define a change or Case. However, the first classification listed in each row is considered the primary classification.

<b>Important ASME OM Code Revisions: 1990 – Present</b>
<b>Improved Safety (IS)</b>
<ol style="list-style-type: none"> <li>1. <i>ISTB 1.3, ISTB 3, ISTB 4, ISTB 5, ISTB 6, and ISTB 7; Comprehensive Pump Test</i></li> <li>2. <i>ISTC 4.5, and Appendix II [Condition Monitoring]; ISTC 4.5, ISTC 6.2, and Appendix E [Inservice Exercising for Check Valves]</i></li> <li>3. <i>ISTD 1.4 and 8 and Appendix F; Service Life Monitoring of Dynamic Restraints</i></li> </ol>
<b>Reduced Radiation Exposure (RRE)</b>
<ol style="list-style-type: none"> <li>1. <i>ISTC 1.3, 2, &amp; 4.5.4; Non-Intrusive Techniques</i></li> <li>2. <i>ISTC 4.5.4(c), 4.5.6, &amp; 6.2; Disassembly Examination by Sampling Program</i></li> <li>3. <i>ISTC 4.5.6, 4.5.7 &amp; 6.2(f); Series Check Valves</i></li> <li>4. <i>ISTC 1.2, Exclusions</i></li> </ol>
<b>Improved Industry Standards (IIS)</b>
<ol style="list-style-type: none"> <li>1. <i>ASME OM Code Reformat</i></li> <li>2. <i>ISTA, Appl - Correct PTC-25/API-527 references</i></li> <li>3. <i>ISTB 1.3, &amp; 6 Analyses &amp; evaluation of pumps</i></li> <li>4. <i>ISTB 6.1, &amp; 6.2 Trending and Acceptance Criteria</i></li> <li>5. <i>ISTB 4.7 Data Collection</i></li> <li>6. <i>ISTB 5.2.1 ISTB 5.2.3 Pump Testing Methods</i></li> <li>7. <i>OM-4 Snubbers</i></li> <li>8. <i>ISTD 1, 3.2, 4.3, 4.4, 5.2, 5.3.4, 6, 7, 8, &amp; Appendices C, E, F, G</i></li> <li>9. <i>ISTD 1.4, 1.12, 6 &amp; Appendix G-Unacceptable Snubbers</i></li> <li>10. <i>ISTD 1.4, 5.2, 7, Appendix D &amp; E Preservice Test Parameters</i></li> <li>11. <i>ISTD 3.4 and Appendix H Test Parameters and Methods</i></li> <li>12. <i>ISTD 1.4, ISTD 7.7(b), ISTD 7.7.1, ISTD 7.8, Appendix E Inservice Operational Readiness Testing</i></li> <li>13. <i>ISTD 1.4, ISTD 7.2.5, ISTD 8.4 Snubber Subcomponents</i></li> <li>14. <i>ISTD 6.52-1, 7, 7.4, 7.5.1, 7.6.2, 8.2 Refueling Outage Visual Examination of Snubbers</i></li> </ol>



**120-MONTH UPDATE REQUIREMENT FOR  
INSERVICE INSPECTION AND INSERVICE TESTING PROGRAMS**

**Thomas G. Scarbrough**

**Mechanical & Civil Engineering Branch  
Division of Engineering  
Office of Nuclear Reactor Regulation**

**December 1, 1999**

## **OVERVIEW**

**April 7, 1999: NRC staff met with ACRS full-committee to discuss ISI/IST update.**

**April 27, 1999: Proposed rule published to replace requirement for licensees to update ISI and IST programs every 120-months with provision for voluntary updating. ISI/IST baseline proposed as 1989 Edition of ASME Code.**

**May 27, 1999: Public workshop to discuss 120-month ISI/IST update requirement with NRC staff, NEI, ASME, several nuclear utilities, and private citizens.**

**June 24, 1999: Commission directed staff to complete incorporation by reference of 1995 Edition with 1996 Addenda of ASME Code into 10 CFR50.55a, and to require licensees approaching their 120-month update to apply that Code edition. Staff directed to defer consideration of ISI/IST update requirement until next rulemaking.**

**June 28, 1999: Public comment period ended on 120-month ISI/IST update requirement. Over 40 public comment letters received.**

**September 22, 1999: Final rule on 10 CFR 50.55a published to incorporate by reference 1995 Edition with 1996 Addenda of ASME Code, and establish this edition/addenda as the new ISI/IST baseline.**

**Status: Commission paper being prepared to summarize public comments and to provide options and recommendations regarding the ISI/IST update requirement.**

## **PUBLIC COMMENT SOURCES**

**ASME**

**Illinois Department of Nuclear Safety**

**NEI**

**Several nuclear utilities (including APS, CP&L, Commonwealth Edison, Consumers Power, Duquesne Light Company , Duke Power, Entergy, GPU Nuclear, New York Power Authority, North Atlantic, Northeast Nuclear Energy, Omaha Public Power District, PP&L, Pacific Gas and Electric, PECO Nuclear, South Texas, Southern California Edison, Southern Company, TVA, TU Electric, and Virginia Power)**

**Several individuals associated with the ASME Code or ISI/IST programs**

**A legal firm (Winston & Strawn)**

## **PUBLIC COMMENT AREAS**

**Potential effect on safety**

**Selection of proper baseline**

**Regulatory benefits and hardships**

**Reduction in burden**

**Potential effect on reduction in number of licensee submittals**

**Consistency in range of ASME Code editions applied by licensees**

**Potential effect on risk-informed ISI and IST initiatives**

**Potential effect on states and other organizations**

**Application of portions of ASME Codes**

**Miscellaneous comments**

## **EXAMPLES OF PUBLIC COMMENTS**

### **Potential effect on safety**

**NEI, nuclear utilities, and the legal firm did not believe that periodic revisions to ASME Code resulted in safety significant improvements in ISI and IST requirements.**

**ASME, IDNS, and several individuals pointed to recent additions to ASME Code and positive effect of small cumulative Code changes as evidence of improvements in ISI and IST methods in successive Code editions. They also noted the opportunity to identify and correct potential weaknesses in ISI and IST programs during updating process.**

**ASME, some individuals, and one utility predicted reductions in licensee participation and possible adverse effects on evolution of ASME Code. They also were concerned regarding potential unforeseen impacts on historically successful ASME Code process. NEI, one individual, and one utility believed that Code participation would continue because of common interests.**

## **Selection of baseline**

**NEI and several utilities believed that 1989 Edition of ASME Code provided appropriate level of safety with more recent Code editions and addenda available for voluntary use.**

**ASME and several individuals considered establishment of any baseline to be inappropriate, and pointed to value of evolutionary process and specific improvements made to ASME Code since 1989.**

**Two utilities recommended selection of 1998 Edition of ASME Code as baseline to incorporate recent improvements.**

**NEI, some utilities, and the legal firm asserted that NRC staff had not justified backfit of Appendix VIII of the ASME BPV Code, Section XI.**

**IDNS believed that multiple Code editions and addenda in baseline presented in proposed rule for various plant components might cause confusion.**

**NEI and one utility stated that application of baseline other than discussed in proposed rule would prevent public comments on that new baseline.**

## **Burden implications for NRC**

**NEI believed that establishment of a constant baseline for ISI and IST requirements would increase regulatory stability and lead to higher quality inspections and more efficient use of resources, including a reduced number of relief request submittals.**

**One utility believed that elimination of the ISI/IST update requirement would allow the NRC staff to review and endorse updated Code editions in a more timely manner.**

**ASME predicted that reduced emphasis on ASME Code process by NRC staff would delay endorsement of future Code editions and addenda.**

**One utility pointed to potential scheduling difficulties for NRC review of randomly submitted relief requests.**

### **Burden implications for licensees and vendors**

**NEI, several utilities, and one individual reported that savings from elimination of mandatory ISI/IST program updating with fewer relief request submittals would be much greater than predicted in proposed rule. NEI estimated that a typical plant spends from \$500,000 to \$1,500,000 every 10 years to update its ISI and IST programs.**

**ASME and some individuals considered benefits of a voluntary updating provision to be minimal in terms of cost per year and might result in additional relief requests for use of portions of recent Code editions and addenda, and ASME Code cases.**

**ASME pointed to Code cases prepared over last few years as reflecting economic benefit and reductions in radiation exposure resulting from Code improvements.**

**One individual predicted hardship to vendors that supply nondestructive examination services because of varying requirements between nuclear and non-nuclear plants.**

### **Potential effect on States and other organizations**

**IDNS commented that its rules are currently synchronized to ASME Code editions and addenda accepted by the NRC for ISI and IST requirements. However, IDNS noted that a concern could arise if the ISI/IST update requirement is replaced with voluntary provision, and the State of Illinois decided to update its rules to latest edition of the ASME Code.**

**One individual asserted that States, vendors, nuclear insurers, and standard development organizations would be impacted by the proposed action through the perception of reduced emphasis on safety, and the increase in differences in ISI and IST programs.**

**Two utilities did not believe that a significant impact on these organizations would occur.**

**One individual believed that insurance companies or inspection agencies might be adversely affected by reduction in research on improved inspection techniques.**

## **Application of portions of ASME Codes**

**NEI and one individual recommended that licensees be allowed to use portions of Code editions and addenda incorporated by reference in 10 CFR 50.55a. One commenter also recommended that licensees be allowed to justify this use through 10 CFR 50.59 process.**

**One individual suggested that requirement for NRC approval prior to use of portion of ASME Code edition or addenda could preclude incentives for ASME Code committees to prepare Code sections that identify those portions that can be implemented without conflict with the remaining Code section.**

**One suggestion was that NRC prepare generic evaluations of relief requests to allow use of portions of ASME Code editions and addenda by all licensees.**

**One individual requested that Subsection IWA-4000 and IWA-7000 of ASME BPV Code, Section XI, on repair, replacement, and modification be endorsed for use independent of other portions of ASME Code.**

### **Miscellaneous comments**

**ASME, NEI, several utilities, certain individuals, and legal firm emphasized importance of more prompt NRC staff review and endorsement of revised Code editions and addenda, and Code cases.**

**ASME believed that elimination of 120-month ISI/IST update requirement would be inconsistent with National Technology Transfer and Advancement Act of 1995, Public Law 104-113.**

## **OPTIONS**

- 1. Replace 120-month ISI/IST update requirement with baseline and allow voluntary updating to later NRC-approved Code editions and addenda unless baseline is revised based on 10 CFR 50.109. Initial baseline would consist of**
  - A. 1989 Edition of ASME BPV Code for ISI of Code Class 1, 2, and 3 components (including supports) and IST of Code Class 1, 2, and 3 pumps and valves; 1992 Edition with 1992 Addenda of Subsections IWE and IWL of ASME BPV Code for ISI of Class MC and Class CC components and their integral attachments; and 1995 Edition with 1996 Addenda of Appendix VIII of ASME BPV Code for ultrasonic qualification, with limitations and modifications specified in 10 CFR 50.55a,**
  - B. 1995 Edition with 1996 Addenda of ASME Code with limitations and modifications, or**
  - C. a later version (e.g., 1998 Edition) of ASME Code with limitations and modifications.**
- 2. Retain 120-month ISI/IST update requirement.**
- 3. Retain 120-month ISI/IST update regulatory requirement and develop guidance for plant-specific alternatives to ISI/IST update requirement.**

## **DISCUSSION OF OPTIONS**

### **Option 1: Replace 120-month ISI/IST update requirement with ISI/IST baseline and voluntary updating provision until new baseline established**

**Staff continues to review future Code editions and addenda and incorporate by reference in 10 CFR 50.55a for voluntary use and evaluate Code improvements using 10 CFR 50.109 for backfit implementation.**

**Staff would evaluate on an ongoing basis whether cumulative quantitative and qualitative improvements to ASME Code are sufficient to justify revision of baseline under 10 CFR 50.109.**

**Licensees may voluntarily implement an entire edition or addenda of ASME Code incorporated by reference into the regulations without prior NRC approval.**

**Selected Code or addenda would become licensee's Code of record.**

**Prior staff approval required for use of portions of Code editions or addenda to ensure interrelated requirements applied without reducing Code effectiveness.**

**Staff would continue to participate in ASME Code process.**

## **Advantages of Option 1:**

**Burden on licensees might be reduced, but possible increase in relief requests could minimize savings.**

**Significant safety improvements would be imposed by backfit of specific Code provisions or revision of baseline according to 10 CFR 50.109 consistent with other new regulatory requirements.**

**Provision for revision of baseline or specific backfits would continue to emphasize importance of ASME Code.**

**Where new baseline established, update review would help identify program weaknesses.**

**Option 1.A of 1989 baseline might allow more burden reduction for licensees.**

**Option 1.B of 1995 baseline continues to apply recent Code improvements that have been incorporated into regulations.**

**Option 1.C of 1998 or later baseline would apply most recent Code improvements.**

**Disadvantages of Option 1:**

**Removes NRC's historical exclusion of 10 CFR 50.109 from ISI/IST updating.**

**Additional NRC resources needed to evaluate Code editions for revising baseline.**

**Ongoing NRC staff activities for revising 10 CFR Part 50 might change ISI/IST approach.**

**Licensees might assume reduction in importance of ASME Code.**

**Licensee burden of at least one additional ISI/IST updating under Option 1.B or C.**

**Established time interval for periodic ISI/IST program review by licensees not retained.**

**Potential for inconsistencies between NRC and State requirements.**

**Multiple Code editions in baseline could be confusing under Option 1.A.**

**Specific public comments not obtained on 1998 edition as possible baseline.**

## **Option 2: Retain 120-month ISI/IST update requirement**

### **Advantages of Option 2:**

**LERs reveal that numerous ISI/IST program deficiencies found during updates.**

**ISI/IST programs diverge over time because outside influences can result in procedure changes or modifications, and from other causes.**

**Program updates help safety by incorporating experience and new techniques.**

**Retains public confidence if Code revisions include safety significant information.**

**Update allows NRC to respond efficiently through ASME Code to emerging issues without the burden of the 50.109 process.**

### **Disadvantages of Option 2:**

**Does not reflect current effort to justify new requirements imposed on licensees.**

**Option 3: Retain ISI/IST update regulatory requirement and develop guidance for plant-specific alternatives to ISI/IST update requirement**

Staff would authorize plant-specific alternatives pursuant to 10 CFR 50.55a(a)(3)(i).

Definitive guidance prepared including operating life and safety significance of Code changes.

**Advantages of Option 3:**

Use of existing regulatory process.

Potential for reduced Code participation minimized.

Potential inconsistency between NRC and State requirements reduced.

**Disadvantages of Option 3:**

Licensee burden to justify alternative.

Burden reduction could be less than Option 1.

Request for use of alternative might not involve public participation.

Staff resources needed to develop guidance for acceptance of alternatives.

# **EVALUATION OF OPTIONS USING NRC STRATEGIC GOALS**

**Maintaining Safety**

**Increasing Public Confidence**

**Reducing Unnecessary Regulatory Burden**

**Making NRC Activities and Decisions More Effective, Efficient, and Realistic**

## **RECOMMENDATIONS**

**No particular option has an overwhelming advantage over the other options in terms of the Commission's strategic goals.**

**Option 1.B reasonably combines the Commission's strategic goals and is recommended to replace 120-month ISI/IST update requirement with voluntary updating unless baseline revised using 10 CFR 50.109 criteria.**

**ISI/IST baseline selected as 1995 Edition with 1996 Addenda because**

**(1) incorporated by reference into 10 CFR 50.55a by rule issued on September 22, 1999, with requirement that licensees update their ISI/IST programs at next 120-month interval, and**

**(2) qualitative improvements to Code since 1989 identified by staff review and public comments.**