UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Title: PERIODIC BRIEFING ON PROGRESS OF RESOLUTION OF GENERIC SAFETY ISSUES

Location: ROCKVILLE, MARYLAND

Date: MARCH 29, 1990

Pages: 67 PAGES

NEAL R. GROSS AND CO., INC.

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

DISCLAIMER

This is an unofficial transcript of a meeting of the United States Nuclear Regulatory Commission held on March 29, 1990, in the Commission's office at One White Flint North, Rockville, Maryland. The meeting was open to public attendance and observation. This transcript has not been reviewed, corrected or edited, and it may contain inaccuracies.

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

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

- - - -

PERIODIC BRIEFING ON PROGRESS OF RESOLUTION OF GENERIC SAFETY ISSUES

- - - -

PUBLIC MEETING

Nuclear Regulatory Commission
One White Flint North
Rockville, Maryland

Thursday, March 29, 1990

The Commission met in open session, pursuant to notice, at 10:00 a.m., Kenneth M. Carr, Chairman, presiding.

COMMISSIONERS PRESENT:

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

STAFF SEATED AT THE COMMISSION TABLE:

SAMUEL J. CHILK, Secretary

MARTIN MALSCH, Deputy General Counsel

JAMES TAYLOR, Executive Director for Operations

ERIC BECKJORD, Director, Office of Research

WARREN MINNERS, Deputy Director, RES/DSIR

CLEMENS J. HELTEMES, Jr., Deputy Director, RES

ASHOK THADANI, Director, Division of Systems Technology, NRR

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

2 10:00 a.m.

3 CHAIRMAN CARR: Good morning, ladies and

4 gentlemen.

5 The purpose of today's meeting is for the

6 Office of Research staff to brief the Commission on

7 the status of prioritization and resolution of generic

8 safety issues.

9 The Commission was last briefed on this

10 subject on April 25th, 1989 and the Office of Nuclear

11 Reactor Regulation recently briefed the Commission on

12 the status of industry's implementation of unresolved

13 safety issues.

14 Copies of the briefing slides are available

15 at the entrance to the meeting room.

16 Do any of my fellow Commissioners have any

17 opening remarks?

18 If not, Mr. Taylor, please proceed.

19 MR. TAYLOR: Good morning, sir. This is the

20 fourth Commission briefing on this subject and we

21 continue to make progress and actually achieved a

22 major milestone since the last briefing in that all

23 USIs, unresolved safety issues, are now resolved.

24 The resolution of generic issues involves

25 two major offices. The prioritization and resolution

1 of each issue is a Research responsibility and the
2 imposition and verification out in the field involves
3 NRR.
4 Today's briefing is principally devoted to
5 the Research side of that activity, although NRR is
6 represented and can provide additional information
7 since their last appearance on USI implementation in
8 February.
9 I also note that later this year NRR will
10 brief and has a briefing plan on the overall
11 implementation status of generic safety issues.
12 I will introduce at the table with me Warren
13 Minners from the Office of Research, Jack Heltemes who
14 recently joined the Office of Research, and on my
15 right, Eric Beckjord, the Director of the Office of
16 Research and Ashok Thadani representing NRR.
17 I'll now ask Eric Beckjord to continue.
18 MR. BECKJORD: Mr. Chairman, I wanted to
19 comment on the progress of generic issue resolution.
20 The resolution of these issues continues at a high
21 rate. The expected number to be resolved this year is
22 16 and in 1989 and in 1988 the numbers were 18 and 16
23 respectively. These rates were exceeded only in one
24 year. That was 1985. Taking together 1990 expected,
25 1989 and 1988, the rate of resolution if substantially

1 higher than in any other three year period earlier in
2 the program.
3 Second point, the rate of generation of new
4 generic safety issues is now low. The net increase
5 after combining issues has been seven since 1987,
6 seven new issues. The low rate of new issue
7 generation, I think, is in part an indication of a
8 maturing technology and in a confirmation also, I
9 think, of the indicators of improved industry safety
10 performance which you find in the AEOD performance
11 indicator reports and the accident precursor analyses.
12 I think also that the process, the generic
13 issue program itself, including the work of Research
14 and of NRR and of the industry in implementing the
15 conclusions, is an important factor in the record of
16 improved safety performance. But I note that the
17 current trend does not necessarily predict the future.
18 Inadequate maintenance or aging or declining plant
19 management performance could lead to an increase in
20 the appearance of new issues or repetition of events
21 related to old issues.
22 Third point. As to the work of resolving
23 the remaining outstanding issues, I expect it to
24 continue at about the same level of the last several
25 years in terms of the resources committed and that

1 with the -- and if as expected few new issues arise,
2 the work would begin to taper off after fiscal 1991.
3 I note that several important generic safety issues,
4 which you're going to here about shortly, have been
5 incorporated in the individual plant examination, such
6 as decay heat removal and system interaction.
7 Now, I expect that the people resources made
8 available as the generic safety issue program tapers
9 off, as is now in prospect, will take on added
10 responsibilities in the IPE, including the IPE
11 external events and the containment performance
12 follow-up. I also anticipate that there will be more
13 effort these people would contribute to in the source
14 term development for advanced light water reactors and
15 advanced non-light water reactors.
16 Thank you, Mr. Chairman. I'd like now for
17 Mr. Heltemes to take over the briefing.
18 MR. HELTEMES: Thank you, Eric.
19 (Slide) Could I have slide one, please?
20 Our briefing today really consists of two
21 parts. The first part is an overall perspective on
22 the status of generic issues and then I'll briefly
23 summarize the process we use for the resolution of
24 generic issues, go through the history and the process
25 we've made since we last briefed you and over the past

1 four years. As Jim mentioned, we have resolved all of
2 the USIs and we'd like to talk to you about the three
3 USIs that resolved in the past year, then talk about
4 our future schedules to resolve the current GSIs.
5 The second part of the briefing is to talk
6 about the status of some selected GSIs and we've
7 picked three. The first is B-56 on diesel generator
8 reliability. This is a subject we talked with the
9 Commission about last year. GSI 15, on radiation
10 effects of reactor vessel supports - this particular
11 generic issue was prioritized low and then we got
12 additional information and data from the HFIR, the
13 high flux isotope reactor operation in Oak Ridge and
14 since that time it's been reprioritized high. Then
15 we'll talk about the GSI 105 which is inter-
16 systems LOCA. This is a concern, an issue that's
17 receiving high priority and high interest within the
18 staff.
19 (Slide) Next slide, please.
20 This chart gives you the six basic steps to
21 the life cycle of a generic issue. The first is
22 identification. Of course, any organization or
23 individual can identify a generic issue. Most of the
24 issues come within the staff and the Office of NRR,
25 AEOD, the regions. Other issues come from ACRS and,

1 indeed, from the public.

2 The first step after identification is
3 prioritization. This consists of several different
4 stages. One is a very prompt screening in order to
5 determine the risk significance, in order to allocate
6 resources according to the risk significance. And
7 also during the prompt screening, to see if any
8 immediate action is warranted by the Agency in the
9 form of an information notice or bulletin to bring the
10 concern to industry's attention.

11 Then we go on to do a preliminary, but more
12 detailed prioritization which results in a high,
13 medium, low drop or integration type activity. During
14 this step, we look specifically at the risk reduction
15 or benefit associated with resolution of the concerns.
16 Primarily here is a cost benefit type of analysis
17 looking at the risk to public health and safety and
18 the cost in terms of cost for the industry as well as
19 to the staff. We also look for integration in the
20 overlap or duplication between issues any place where
21 we think the resolution may be inconsistent or needs
22 to be consistent with other issues and activities. If
23 we identify such an activity where there is an
24 overlap, then what we try to do is integrate those to
25 assure the consistency of the final end product.

1 The proposed resolution in terms of the
2 prioritization label is sent for peer review among the
3 offices. We receive those comments, we resolve them
4 and then a final prioritization of high, medium, low
5 drop or integration is approved by the office
6 director.
7 If the prioritization scheme gives you a
8 medium or low drop or integrate that is sufficiently
9 low in our priority. we don't do anymore work on the
10 issue and we consider it resolved. We put it in the
11 resolved category. Issues in the high and medium go
12 on to the next step of resolution. Here we do a task
13 action plan which has the major milestones and
14 schedules. The task action plan is coordinated with
15 the other offices and then we proceed to generate an
16 end product. An end product may be a generic letter,
17 a rule, rule revision, SRP, a standard review plan
18 revision and the associated regulatory analysis and we
19 take that through the approval chain consisting of
20 ACRS, CRGR, the various offices and indeed to the
21 Commission and receive public comment if it's a rule,
22 a policy statement, an SRP revision or a regulatory
23 guide.
24 Then, after the necessary approvals are
25 received, then we transfer lead responsibility for the

1 issue to NRR where it's imposed on licensees.
2 Licensees then implement the necessary actions and the
3 final step in the life cycle is the verification
4 process by NRR and the regions to assure the proper
5 implementation.
6 (Slide) Next chart, please.
7 The process of all GSI is monitored and
8 tracked first of all through GIMCS, the generic issue
9 management control system, which tracks those through
10 resolution and then GIMCS is integrated with SIMS,
11 which is the safety issue management system which
12 tracks it all the way through verification. Also, all
13 of the generic issues are documented as to their
14 prioritization and technical concerns in NUREG-0933
15 which is updated semi-annually.
16 (Slide) Next chart, please.
17 Current prioritization methodology started
18 in 1981 with 369 issues that came from TMI and 142
19 issues that existed in staff documents that were
20 documented at that time, giving us a total of 511
21 issues in 1981. In the last nine years, we've
22 identified 261 issues. So today we have a total of
23 772 issues that entered block one, if you will, on
24 that life cycle I talked about earlier.
25 (Slide) Next chart, please.

1 This chart and succeeding charts have
2 similar type information that was discussed with the
3 Commission over the past three briefings. I'll be
4 focusing on the last column, the current status, and
5 any differences between the last time the staff
6 briefed the Commission in April of '89.
7 This particular chart breaks down those 772
8 issues that have been identified into safety issues
9 and non-safety issues. Six hundred ninety-seven of
10 them are considered safety issues, generic safety
11 issues. A safety issue is one that affects the public
12 health and safety, it has a risk. Non-safety issues
13 do not affect the public health and safety, but can
14 affect the efficiency of the licensing process. It
15 can also affect the impact of our current regulations.
16 The risks may not change under certain issues, but the
17 impact to our licensees may change. We would term
18 that a non-safety issue.
19 CHAIRMAN CARR: Where does it go then? If
20 it becomes non-safety, who picks it up?
21 MR. HELTEMES: It's contained in the program
22 and we continue to work on it as resources and time
23 permits. It's very much part of the generic issue
24 program, but it receives a lower priority since it's
25 non-safety.

1 COMMISSIONER CURTISS: Are these issues made
2 up just of medium and high priority on the
3 prioritization at this point?
4 MR. HELTEMES: No. I'll cover that in the
5 next chart. I'll go through it at that point.
6 COMMISSIONER REMICK: Could you give me a
7 typical example of a non-safety issue?
8 MR. HELTEMES: Certainly. A regulatory
9 issue, for example, we had a piping committee that
10 went through and looked at the regulatory
11 requirements. One of the regulatory requirements was
12 that you had to look at the combined effects of a LOCA
13 and a seismic event. The piping committee's feeling
14 was, technically, that it was unlikely that the piping
15 would fail during a seismic event and thus it may be
16 conservatism that could be reduced in the design
17 requirements. So, one of the non-safety issues is to
18 look at that, to see if the regulatory requirements
19 could be modified to reduce some of the conservatism.
20 The risk would not change to public health and safety,
21 but the impact of our licensees could change.
22 COMMISSIONER REMICK: So the determination
23 of whether it's safety or not is whether there's risk
24 involved?
25 MR. HELTEMES: That's a primary criteria.

1 This chart indicates that we had seven
2 additional safety issues since the last briefing and
3 30 non-safety issues. All of those non-safety issues
4 were associated with the studies of the Chernobyl
5 event. They're documented in NUREG-1251.
6 (Slide) Next chart, please.
7 Now what I'll do is I'll take the 697 safety
8 issues and break them into the resolved category and
9 to be resolved. The resolved category is one that I
10 talked about a little bit earlier. You can see that
11 we've had 23 issues resolved since the last time we
12 briefed the Commission and we've had a reduction in to
13 be resolved. Now, the next chart will break this down
14 further.
15 (Slide) Next chart, please.
16 The next chart takes the 633 safety issues
17 which are in the resolved category. As I mentioned
18 earlier, if they were prioritized low, drop or
19 integrate with other issues, then they were termed
20 resolved. You can see here that have 11 issues that
21 reached the resolved category by that means.
22 We have an additional 12 issues that were
23 resolved by completion of the resolution stage in the
24 life cycle. Now, some of these resulted in new
25 requirements and some did not. So today we have the

1 totals there of 633 generic safety issues which we
2 term resolved.
3 COMMISSIONER ROGERS: Does that 88, that
4 number 88, that resolution defined in NUREG-0737, does
5 that mean that they were resolved as defined in that
6 NUREG? Is that what the meaning of that is?
7 MR. HELTEMES: That's my understanding, yes,
8 sir, that NUREG-0737 was the basis for resolution. So
9 that number has not changed since that time period.
10 COMMISSIONER CURTISS: Looks like you found
11 that roughly half of the issues are low priority. Is
12 that a good rule of thumb since the program has been
13 underway?
14 MR. HELTEMES: Warren, could you comment on
15 that?
16 DOCTOR MINNERS: Well, I guess I don't have
17 good statistics on that. There's a large fraction of
18 low priority issues, yes.
19 MR. HELTEMES: I can come back and give you
20 a perspective, if I can do it on the next chart.
21 COMMISSIONER CURTISS: Okay.
22 MR. HELTEMES: (Slide) May we have the next
23 chart, please, chart number 8?
24 This is the other part of the generic safety
25 issues, those in the category "to be resolved." You

1 can see that we have 32 issues, looking at the last
2 column, in the resolution stage, 16 high priority
3 issues, nine medium and seven nearly resolved, and we
4 have 32 to be prioritized. The initial screening of
5 the to be prioritized indicate of the 32, three are
6 high, seven are medium, six are low, six are dropped,
7 one is nearly resolved and seven are non-safety. So
8 that gives you, Commissioner Curtiss, a little
9 perspective. It's seven out of 32 were termed non-
10 safety in the preliminary screening. That's not the
11 final prioritization.
12 CHAIRMAN CARR: Refresh my memory on what
13 drives one from the high category into the USI
14 category.
15 MR. HELTEMES: USI is a special category of
16 high. It has special tracking requirements. We have
17 to report to Congress, and also it carries the
18 connotation that the plant may require some solution.
19 Normally generic issues are safety enhancement or
20 safety improvement. But in the case of the USI, there
21 is some indication that the change in the plant may be
22 required throughout its lifetime. The plant maintains
23 an adequate margin of safety at this time, but it may
24 not be comfortable with the remaining plant life.
25 COMMISSIONER REMICK: How long have these

1 items been to be prioritized been awaiting to be
2 prioritized?
3 MR. HELTEMES: Some of them a long time.
4 What happens is when we do this initial screening,
5 what we do is try to get the ones we believe will be
6 high and medium and then we put the resources on
7 prioritizing those particular issues. Some of the low
8 priority issues have been there quite awhile. When I
9 go back, it's been five or six years, I would
10 estimate. And one of the things we'll be doing,
11 hopefully in the near future, is trying to go back and
12 see if we can do the necessary work either to
13 prioritize it as a non-safety and put it in the system
14 awaiting resources for resolution, or get it dropped
15 from the system.
16 COMMISSIONER REMICK: Didn't you indicate
17 that some of these to be prioritized, the initial
18 screening indicated they might be high?
19 MR. HELTEMES: Yes, sir. Three of them.
20 COMMISSIONER REMICK: How long have those
21 three been waiting?
22 DOCTOR MINNERS: Ron, could you look that
23 up?
24 MR. HELTEMES: I think we can probably get
25 that.

1 COMMISSIONER REMICK: Okay.

2 COMMISSIONER CURTISS: Back to the
3 Chairman's question, I'm not sure I grasped what the
4 difference was between a USI and a GSI. Could you run
5 through that again?

6 MR. HELTEMES: Yes, sir. What I was saying
7 is that a USI, unresolved safety issue, is within the
8 high category. So it's termed a high priority generic
9 safety issue. But it also carries with it if you put
10 a label of USI on it, we are obligated to report to
11 Congress on the status of those USIs and also they
12 become a USI because there's a feeling that there may
13 have to be a modification to the plant at some time in
14 this plant lifetime, that the plant safety margins are
15 adequate today, but some new requirements may be
16 required to keep that margin adequate for the
17 remaining life. Normally those receive the label of
18 an unresolved safety issue whereas the other high
19 priority issues are a safety enhancement or safety
20 improvement.

21 COMMISSIONER CURTISS: All right. Let me
22 ask one other question on that. When you -- is the
23 difference between doing a cost benefit analysis for
24 one and not the other?

25 MR. HELTEMES: No, sir. We will go through,

1 prioritize each one using the same methodology and
2 then they will proceed into the resolution stage. We
3 will give higher priority and higher attention to the
4 USIs. It's the highest priority within the high
5 priority.
6 COMMISSIONER CURTISS: GSI fixes our
7 desireable if cost beneficial but not necessary. USIs
8 are necessary. Okay.
9 MR. TAYLOR: That's one way of saying it.
10 MR. HELTEMES: Yes, sir.
11 CHAIRMAN CARR: Yes. We'll come back to
12 that a little later on.
13 DOCTOR MINNERS: In answer to your question,
14 I believe Commissioner Remick's question, of how long
15 the issues that are waiting to be prioritized that are
16 possibly high issues, there are three of them. One of
17 them was identified in June of '87 and the other two
18 were identified in April of '89.
19 MR. TAYLOR: Let's say what they are.
20 DOCTOR MINNERS: All right.
21 MR. TAYLOR: A description just to give them
22 flavor.
23 DOCTOR MINNERS: One of them is issue 142
24 which is leakage through electric isolators. Another
25 issue is smoke control and manual fire fighting

1 effectiveness and the adequacy of -- then the last one
2 is adequacy of fire barriers. These came out of a
3 Sandia report which was specifically initiated to look
4 at the risk of fires to see if we had covered
5 everything in fires.
6 COMMISSIONER REMICK: Why would something
7 identified potentially as high in '87 not be priority
8 firmly established by now?
9 DOCTOR MINNERS: I guess I can't answer that
10 question. I can find out for you if you want. A lot
11 of the process here is -- time is taken up in a peer
12 review process and there may be some people who
13 disagree with our prioritization that this issue is
14 high. That sometimes takes a long time to resolve.
15 But, as I say, this particular issue, I don't --
16 COMMISSIONER REMICK: How about even -- you
17 mentioned that some of them were five years old. I
18 hope those are low priority --
19 MR. HELTEMES: Yes, sir.
20 COMMISSIONER REMICK: -- items, but why do
21 some of the -- I assume that there have been other low
22 priority items established much sooner than that.
23 Just because they're low, they don't wait five years.
24 How do you determine what can wait from the standpoint
25 of putting resources on it and what can't? Being kind

1 of a compulsive individual, I like to get things kind
2 of out of the way. I was wondering why we'd go as
3 long as five years not closing those out one way or
4 the other.
5 MR. HELTEMES: I personally agree with you,
6 Commissioner Remick. A lot of the things we will have
7 to go back and look at. But the answer is that we do
8 the preliminary screening in order to place the
9 available resources on those we consider of the
10 highest priority. So, if one is considered to be
11 dropped or non-safety, then it tends to get pushed
12 back further and further. From time to time, the
13 staff does sweep through these to see if there's a
14 possibility that there may be a safety concern that's
15 somehow embodied in any of these and we've gotten
16 confidence that that's not the case
17 MR. TAYLOR: We've had a big press to solve
18 the USIs obviously --
19 COMMISSIONER REMICK: Sure.
20 MR. TAYLOR: -- because there is deeper
21 connotations. And the GSI issues, of course, the high
22 priority is as we've made progress with the people
23 we've had, that's the whole purpose of this briefing,
24 is to show we're making the progress. I can't say--
25 and when you look at the issues individually that are

1 in the wrong category, you say, "Hey, that doesn't
2 override all that you're doing. It's something that
3 needs to be looked at when the resources are
4 available." That's the way this program is operated.
5 It isn't where we'd stop ongoing work in another
6 portion of the office or in NRR to solve that
7 particular issue.
8 COMMISSIONER REMICK: No, I understand, and
9 you do have limitations. But I guess I am surprised
10 that something would high, potentially might be a USI
11 for all we know --
12 MR. TAYLOR: That's why we worked in the
13 past two years from nine USIs to zero because we--
14 and give some examples of those and we said, "We've
15 got to handle these issues.
16 COMMISSIONER REMICK: Sure.
17 Warren, I would like to know the more
18 details on that one, why the one in '87 haven't been
19 the priority established.
20 DOCTOR MINNERS: Got that.
21 COMMISSIONER ROGERS: Can you say anything
22 about whether you think there are -- whether there's a
23 potential for any USIs being in that group of 32 or
24 just high priority but not USI?
25 DOCTOR MINNERS: We periodically review--

1 oh, of these to be prioritized?

2 COMMISSIONER ROGERS: Yes.

3 DOCTOR MINNERS: I would say they're not

4 USIs. We've looked at that and if they're USIs --

5 COMMISSIONER ROGERS: There's no USIs. They

6 might be high priority, but no USI.

7 DOCTOR MINNERS: Right.

8 CHAIRMAN CARR: So, the argument is not over

9 whether it's a USI or high priority, it's more likely

10 to be whether it's high priority or medium priority.

11 MR. HELTEMES: That's correct. Yes, sir.

12 DOCTOR MINNERS: In fact, one of the issues

13 I'm going to discuss started out as a low priority,

14 okay, and is now a high priority. And that may be--

15 that's another possibility of this issue 142, that it

16 started out as a low priority and then we got some

17 additional information recently which changed our view

18 of it. But I'll find out specifically what it was.

19 MR. TAYLOR: Mr. Speis would like to add --

20 Doctor Speis, would you like to just add a

21 thought?

22 DOCTOR SPEIS: Themis Spies. I have been

23 involved in this program for awhile and I'd like to

24 add something. We don't really wait for the formal

25 process to be completed before we take action. When

1 something comes up, sometimes we take action within a
2 week or within a month or a few months via notices or
3 bulletins or other things. The longer term resolution
4 is what we're talking about. So, I think that's very
5 important too.
6 MR. TAYLOR: We issue bulletins to solve
7 immediate issues fast and they never -- therefore,
8 unless the resolution changes, they never get caught
9 up in this. The USIs have been issues that have taken
10 a lot of work to figure out the solutions.
11 COMMISSIONER REMICK: Well, I hear you, but
12 at the same time when I think it's been almost three
13 years since initial screening indicated something
14 might be high and we haven't established whether it's
15 high, medium or low or what --
16 MR. TAYLOR: Okay.
17 COMMISSIONER REMICK: How do we know if
18 action should have been taken on that one if we
19 haven't determined what priority it is?
20 MR. TAYLOR: You'll give that rationale when
21 you report the issue.
22 COMMISSIONER REMICK: Right.
23 DOCTOR MINNERS: I'm sure somebody has
24 looked at it to see if immediate action is required.
25 MR. HELTEMES: That's part of our screening.

1 The only other comment I wish to give on
2 chart 8, if we could return to that, is the nearly
3 resolved category which I hadn't talked about. Nearly
4 resolved category is an issue where we have the
5 technical solution in hand. What we need to do is
6 formulate a regulatory end product, do the regulatory
7 analysis, and take it through the approval steps.
8 When you look at the overall summary, where
9 we are today, we have 32, as I mentioned, issues in
10 the resolution stage. Of those 32, as Warren will
11 discuss in just a minute, 16 are scheduled to be
12 resolved this fiscal year and then we have the rest
13 scheduled over the next few years.
14 At this particular point, what I'd like to
15 do is ask Warren to discuss, summarize the three USIs
16 that have been resolved since the last time that the
17 staff briefed the Commission. These are identified in
18 the next chart.
19 DOCTOR MINNERS: (Slide) Can we have slide
20 9, please?
21 The three USIs are concerned with system
22 interactions, seismic design criteria and safety
23 implications of control systems. That is really
24 interaction of control systems with safety systems.
25 (Slide) May I have slide 10?

1 System interactions, we reported that to the
2 Commission in a paper in August 1 of 1989 and we have
3 since that time sent out a generic letter to licensees
4 on September 6th of the same year. There were no new
5 requirements laid on licensees, but the generic letter
6 did discuss the basis for the resolution so that
7 licensees would know that we had resolved this issue.
8 It also took some of the information that had been
9 gathered during the resolution process which was
10 relevant to the review of operating experience, which
11 is something that licensees are required to do under
12 one of the TMI action items. I'll discuss that a
13 little more further.
14 The basic thrust of this issue was to see if
15 we could develop a method and then require licensees
16 to review their plant with a method that would
17 discover system interactions that were significant,
18 that would have adverse effects. There was a large
19 worry that there were some hidden interactions in
20 there which could come back and bite us.
21 Well, we did a large amount of work looking
22 for methods, such things as some inspections by walk-
23 throughs. We had analysis methods which included
24 failure modes and effects analyses, decision tables.
25 We had graphical methods, digraph matrix, event trees

1 and fault trees, even the go method. So, we
2 determined that there were methods available to do
3 this and we had some pilot studies to see how these
4 would work. We had a couple of licensees go through
5 and do this for us.
6 The results of that indicated that such a
7 review is costly. It takes a lot of manhours to do
8 the system interactions and that in the cases that we
9 did, we didn't find anything very significant and in
10 evaluating the methods, we thought that even if you
11 did it, there would really be no high assurance that
12 you would discover an adverse system interaction using
13 any of these methods or that you would discover all of
14 them. So, we said this was not worthwhile to have
15 everybody go through and do a systematic comprehensive
16 analysis. We were unlikely to get results that
17 justified the cause.
18 However, as part of looking at this, we did
19 identify two system interactions, specific ones that
20 we thought people should look at. One of them was
21 seismic interactions and we said something ought to be
22 done about that and that is being done under the USI
23 846, which is the USI for seismic qualification of
24 equipment.
25 The other interaction was the possible

1 effects of water intrusion, flooding inside the plant.
2 Not external floods, but pipe breaks inside the plant.
3 But this type of interaction is very plant specific
4 and we couldn't figure out any generic requirement for
5 people to do except to inspect their plant for this
6 interaction. So, we included this in the individual
7 plant examination program and the generic letter on
8 that 8820 includes a section or an appendix which
9 tells licensees that water intrusion and flooding
10 should be part of their IPE and to specifically
11 consider that.
12 As a result of this issue, there were some
13 other actions taken. In reviewing it with the ACRS,
14 they came up with some things that they were still
15 concerned about that we were not and these were
16 labeled, for lack of a better name, I guess, multiple
17 system responses. We have taken that list and we are
18 now in the prioritization branch, screening those for
19 any possible generic issues. We also have a plan to
20 develop SRPs for future plants which would discuss how
21 to do the review to be sure that system interactions
22 were considered in the design of the plant.
23 Then, as I mentioned earlier, the generic
24 letter laid out some information relevant to operating
25 experience, evaluation in areas such as electric power

1 where our studies had shown that these are important
2 systems and the possibilities for interactions are
3 large as in support systems such as service water
4 systems and air systems. Again, this was sort of a
5 caution to licensees that these events in these
6 categories should be looked at carefully.
7 We also identified some areas in which the
8 design relied excessively on a supposedly fail safe
9 design and that people should be careful that fail
10 safe designs are really fail safe. And there are also
11 some cases in which the design kind of assumed that
12 there was a preferred failure mode and that it really
13 didn't consider conditions of where you didn't get a
14 failure mode, you may have gotten only a partial
15 failure and those should be looked at.
16 Then, the last area was similar to
17 electrical power, instrument and control power
18 supplies, an important area where system interactions
19 can easily occur.
20 COMMISSIONER REMICK: Warren, you mentioned
21 the updating or revision of the standard review plan
22 so people would know how to do this. What is the
23 status of that specifically with the evolutionary
24 plants under review right now, like ABWR? Are
25 people -- and I guess that's not a research question,

1 that's an NRR question in this case. Are people
2 looking at that type of thing in their review of ABWR
3 and System 80+?
4 MR. THADANI: I don't expect to believe the
5 status of the standard review plans, but in fact the
6 staff reviewing the ABWR and other ALWR designs is
7 familiar with the resolution of A-17 and that is being
8 factored in in the review.
9 COMMISSIONER REMICK: Do you know if they
10 found anything of any significance?
11 MR. THADANI: I don't know the answer to
12 that.
13 MR. MALSCH: There is a requirement in Part
14 52 that these species of unresolved safety questions
15 actually be addressed in the application for design
16 certification.
17 COMMISSIONER REMICK: And that's the broader
18 question of generic issues in general, which I was
19 going to ask at some point.
20 COMMISSIONER CURTISS: I just had a general
21 question about -- picking up on that point. I gather
22 for the GSIs, that at some point in the process of
23 analyzing what the -- prioritizing the issue and
24 assessing what the fix should be, you go through a
25 cost benefit analysis that may lead you to the

1 conclusion for the existing generation of plants that
2 are subject to that issue that you do this but not
3 that.
4 I gather the ACRS has raised in the past the
5 question of how you approach an issue for the new
6 generation of plants where the cost benefit balance
7 may be struck differently. The resolutions that you
8 set forth, I gather, reflect the cost benefit
9 determination for the existing generation. How do you
10 go through a process of evaluating whether that
11 particular fix or something else in addition to that
12 might be the more appropriate approach?
13 DOCTOR MINNERS: Well, we had a meeting with
14 NRR, if I understand what you're asking, on this very
15 approach and we're trying to develop a process by
16 which we're assured that these generic issues are
17 brought forward and identified in future plant
18 reviews. We don't have that developed yet, but we're
19 working on that.
20 MR. TAYLOR: I think we'll -- I want to say
21 more about it --
22 MR. THADANI: In fact, the designers are
23 expected to address each medium and high priority
24 generic safety issue as well as the unresolved safety
25 issues. We are, in NRR, developing procedures, step

1 by step, as to how we are going to review the
2 submittals that we expect to receive from the
3 designers, vendors and EPRI and so on on these issues.
4 That's the process we're in, currently developing
5 those procedures.
6 MR. HELTEMES: Commissioner Curtiss, I think
7 part of the answer to your question really is the cost
8 benefit analysis. Often times when you look at an
9 issue such as the backfit analysis, you cannot back
10 fit in on a plant, but it is a good thing to do. And
11 generally what we'll do is forward fit it to all
12 future plants. We did that for the SRP through a
13 regulatory guide. So it's not a backfit issue, but
14 it comes a forward fit for all future plants. That's
15 typically a result that will come out of a generic
16 issue resolution.
17 DOCTOR MINNERS: In fact, the next USI is
18 that situation.
19 COMMISSIONER CURTISS: Let me sharpen up the
20 question just a little bit. I gather where you decide
21 that a fix is cost beneficial for a GSI, that
22 evaluation is based upon an assessment for the
23 existing generation of plants and the fix that you set
24 forth for that GSI reflects that cost benefit balance
25 that you have struck. When we direct the applicants

1 for design certification in Part 52 to address medium
2 and high priority issues, is it that fix that they're
3 to address or do we envision that the cost benefit
4 balance might be struck differently than the fact that
5 these are plants that are still on the drawing board?
6 MR. THADANI: There are examples that go
7 both ways and you might recall we have discussed some
8 specific generic issues and let me use ATWS as an
9 example, unresolved safety issue A-9. For the ABWR
10 design, the proposal is to provide diversity in the
11 SCRAM system itself which clearly goes beyond what's
12 required by 10 CFR 50.62, I believe, is the ATWS rule.
13 A similar situation exists for some other
14 important safety issues, such as station blackout.
15 The designs incorporate alternate AC power source,
16 generally diverse, which is not necessarily the
17 solution adopted by operating reactors because of cost
18 considerations.
19 CHAIRMAN CARR: It's fair to say they
20 address the problem instead of the fix per se.
21 MR. THADANI: They do, yes. That's exactly
22 right.
23 MR. TAYLOR: That's the idea. Now, I think
24 in one of these subsequent briefings on the design, we
25 can bring some examples to the table --

1 COMMISSIONER CURTISS: Okay.

2 MR. TAYLOR: -- and give you some examples
3 where the cost to backfit wasn't there, but it's
4 certainly a good idea to fix in the next -- that's
5 part of trying to do it, if it's cost beneficial in
6 the future and the applicants are treating it that
7 way.

8 COMMISSIONER CURTISS: All right. Thanks.

9 CHAIRMAN CARR: Let's proceed.

10 COMMISSIONER ROGERS: Just before we leave
11 this, it seems to me that what we're really talking
12 about are really hardware matters, aren't they?
13 You're not really including human factors --

14 DOCTOR MINNERS: In this study, it's
15 considerations of hardware.

16 COMMISSIONER ROGERS: I know that's a whole
17 different area, but it is part of the system and some
18 of the problems are a breakdown in the human factors
19 part of the system, coupled together with hardware
20 considerations.

21 MR. HELTEMES: Yes, sir. A number of the
22 generic issues come directly from the human factors
23 program plan. When that plan was published, about 30
24 issues were integrated into the generic issue program
25 as a result of looking at the potential issues

1 associated with human factors.

2 COMMISSIONER ROGERS: The other thing is, I
3 take it that when analyses have been done, they've
4 really been done looking at a plant in normal
5 operation or something of that sort with everything
6 functional and then looking to see what the
7 interactions might be in a breakdown of something
8 that's normally functioning.

9 But what about situations such as when the
10 plant is in a refueling outage or something of that
11 sort? We're seeing examples of some concern in that
12 mode of operation. Do you think there's any
13 additional things that ought to be looked at in that
14 situation that we haven't paid attention to when we're
15 looking at systems interactions?

16 DOCTOR MINNERS: Well, we had a generic
17 issue which resulted in a generic letter sent out on
18 changes during shutdown. Okay. Mid-loop operation is
19 the jargon used. That was supposedly supposed to take
20 care of most of the problems. In addition to that,
21 there is a program that's now being worked on, and
22 it's basically a PAR, to look at the risk during
23 shutdown. It's supposed to take care of as a PAR of
24 system interactions.

25 MR. TAYLOR: In fact, the event that you're

1 obviously referring to is one of the reasons we wanted
2 to look in more depth at this event and set out an IIT
3 and made that decision. We want to learn as much as
4 we can from this experience where a plant is in an
5 outage, they did loop operation and we want to
6 understand the elements that were at play at this
7 example. And it may be out of this effort will come a
8 new issue of some type that we will try to address.
9 Obviously, they all get some in-depth looks
10 and feedback from the industry itself because they run
11 the outages and they have to do those things. But
12 they present some very peculiar circumstances where
13 equipment is down.
14 MR. HELTEMES: The generic issues seem to
15 come in batches, just what Jim was talking about. The
16 Davis-Besse event, 1985, was an IIT resulting in 34
17 new generic issues that were identified as a result of
18 that event. And so, out of the event of the current
19 investigation, if you will, it may very well turn out
20 there's some generic issues identified.
21 MR. THADANI: I might add that we have
22 resolved the issue, mid-loop operation issue, and the
23 concerns that we had. That addresses part of the risk
24 during shutdown. And as Warren noted, a couple of
25 studies are ongoing in terms of risk assessment during

1 shutdown, modes 4, 5, and 6 of operation.

2 We are also looking at the technical

3 specifications. As you probably know, there may be a

4 need to modify what our requirements are today during

5 shutdown operation. An expectation is that these

6 three programs together will lead to resolving

7 whatever concerns, any concern there might be with

8 shutdown operation issues.

9 CHAIRMAN CARR: All right. Let's proceed.

10 DOCTOR MINNERS: (Slide) Could I have slide

11 11, please?

12 The second USI we resolved this year was on

13 seismic design criteria, and we reported our

14 resolution to the Commission last September, and we

15 issued standard review plan revisions in August. And

16 so there are new requirements, but they're only for

17 future plants, except where plants have some backfit

18 requirements.

19 COMMISSIONER ROBERTS: And who are they?

20 DOCTOR MINNERS: They are Watts Bar,

21 Callaway, Wolf Creek, and Harris. And they were

22 required to look at the seismic design of their above

23 ground vertical tanks, which we were unsure of whether

24 that design -- you can see how a vertical tank could

25 be subject to earthquake damage. And we had looked at

1 this.

2 We thought that plants licensed after '84

3 were pretty well covered by our design requirements.

4 USI 846 looked at 70 of the older plants, but there

5 was a gap in the period between the late '70s and 1984

6 when these plants were licensed, so we wanted them to

7 look at this issue. And I understand, I've been told

8 that this has been completed on all of those plants

9 except Watts Bar.

10 COMMISSIONER ROBERTS: Thank you.

11 DOCTOR MINNERS: The SRPs, as I said, only

12 apply to future plants. So here's a case in which we

13 did our value impact analysis and found that it wasn't

14 worthwhile to backfit all of this to current plans,

15 but it was certainly cost beneficial or cost effective

16 to do it for future plants. And this was mostly in

17 seismic -- it was all in seismic design methods,

18 conservatism in the design methods, how to use elasto-

19 plastic methods in the analysis, how to develop site-

20 specific earthquake spectra, how to use non-linear

21 structural dynamic analyses. And also, the toughest

22 issue was sort of structure interaction, and the issue

23 is somewhat delayed in resolution because we had some

24 research that was being done in Taiwan with the

25 Taiwanese. And we got the results of that research

1 and there was quite a process trying to decide among
2 the experts what that research really meant and how we
3 should apply it.
4 COMMISSIONER REMICK: Have the revisions to
5 the standard review plans for this been completed?
6 DOCTOR MINNERS: They were issued in August
7 of '89.
8 The third USI we resolved last year was
9 safety implications of control systems. And again, we
10 reported this to the Commission in August of '89, and
11 a generic letter which put -- I'll use the word
12 "requirements" on licensees was issued in September of
13 '89. This issue really focuses around the question of
14 overfill of either the reactor pressure vessel of BWRs
15 or the steam generator of PWRs, and it was postulated
16 that overfill could cause water to go into the steam
17 lines and fail the steam lines and that could cascade
18 to the failure of steam generator tubes and you could
19 get into a bad situation.
20 So we reviewed all the plants and looked at
21 their overfill protection designs, and generally we
22 found for most plants that they could be grouped. We
23 had designs in which the overfill protection logic was
24 a two out of three, two out of four, or one out of
25 twice logic. And we felt that those designs were

1 acceptable if the overfill protection system was
2 separate from the main feedwater control system, and
3 if the protection system was tested. And a generic
4 letter asked licensees to provide tech specs to verify
5 the operabilities of these systems.
6 The second group, which was also found
7 acceptable under certain conditions, were those plants
8 which had a one out of one, one out of two, or two out
9 of two logic in the overfill protection. And again,
10 we found those acceptable if they were separate from
11 the control system for main feedwater and testable.
12 And obviously, if it's a one out of one or a two out
13 of two system, you have to have a bypass, so they
14 would have to add a bypass to be able to test that
15 system at power.
16 Now the systems that were of concern were
17 those plants that had none of these. And for BWRs, we
18 found that Big Rock, Lacrosse, and Oyster Creek did
19 not have an overfill protection system, so a generic
20 letter requested them to provide it.
21 For the Westinghouse plants, Yankee-Rowe and
22 San Onofre did not have a system for doing this. And
23 in the B&W systems, they had an additional concern
24 because of the small capacity of their steam
25 generators, that we could get dry-out in the steam

1 generator, which is undesirable. And so, we wanted an
2 automatic system to initiate feedwater to seek more
3 assurance that the steam generators would not dry-out.
4 And that was a concern on plants like Oconee 1, 2, and
5 3.
6 The other, in the CE plants, none of the CE
7 plants had automatic overfill protection, and we
8 required them to provide something, a testable system.
9 In addition to that, in looking at the CE plants, we
10 came across a kind of unrelated issue or a not
11 directly related issue. In CE plants which had high
12 pressure injection systems which had a very low shut-
13 off head, below 1275 psi, they might have to
14 depressurize their system to be able to take care of a
15 small break LOCA. So we requested those plants to
16 look very carefully again at their emergency operating
17 procedures for small break LOCAs to assure that
18 operators knew how to depressurize their system,
19 either through the steam generators or PORVs or
20 whatever the method was.
21 COMMISSIONER REMICK: In the case of
22 overfill protection, was it mostly just taking
23 existing level instrumentation and developing a logic
24 and so forth to provide --
25 DOCTOR MINNERS: No, some --

1 COMMISSIONER REMICK: -- it, or did some
2 have to provide new instrumentation?
3 DOCTOR MINNERS: I think some of the plants
4 didn't have anything, and they had to provide new
5 systems.
6 (Slide) May I have slide 13, please?
7 Well, that's what we accomplished. We still
8 have issues that we're working on. We have scheduled
9 28 of the 32 issues, and we're working on getting the
10 schedule for four of them. And this slide shows how
11 we expect to get the majority of them resolved this
12 year, and we taper off and hopefully we'll have
13 everything cleaned up by '94.
14 In addition to what's on there, there are
15 another 32 issues to be prioritized. Okay? So we
16 could expect, according to the preliminary screening,
17 another 11 issues that might be identified, as we
18 previously discussed.
19 (Slide) May I have slide 14?
20 I'd like to discuss three issues that we're
21 currently working on, to give you some idea of the
22 things that we're working on.
23 The first is diesel generator reliability,
24 which is a high priority issue, which is really part
25 and parcel with A-44, station black-out. A station

1 black-out rule is being issued and licensees are
2 working on it. And one of the things you have to do
3 in station black-out is have a target reliability.
4 And we promised at the time we put out the rule that
5 we would put out guidance on how licensees should
6 assure that they're going to meet their target
7 reliability reported by the rule. And we are working
8 on a reg guide which would be issued under a generic
9 letter, which would give this guidance. This reg
10 guide will endorse a NUMARC report, which will provide
11 this guidance.
12 This issue is a little delayed. We were to
13 have it done, according to the five year plan, last
14 November, and obviously we're delayed. And most of
15 this delay is because we have been working closely
16 with NUMARC and getting agreement between us as to
17 what their report should contain so that we can
18 endorse it. And we had been promised by NUMARC that
19 they will submit a final report approved by them at
20 the end of this month. And when that happens, then we
21 can issue our endorsing reg guide.
22 COMMISSIONER CURTISS: The June '90 date is
23 the date for the reg guide transmittal generic letter?
24 DOCTOR MINNERS: Yes, sir. That's the
25 schedule now.

1 The second issue is radiation effects on
2 reactor vessel supports. And as I said before, this
3 is one issue that started out as low priority and was
4 prioritized as such, and then we got additional
5 information from the HFIR reactor at Oak Ridge and
6 some people questioned our prioritization. We went
7 back through it again and decided it was a high
8 priority.
9 We have just started on this issue. We just
10 issued a task action plan in January. That's
11 completed. So we've just started out, and there's no
12 completion date as yet in the five year plan. Of
13 course it will be in the update, and we project quite
14 a long time to resolve this issue because it's a very
15 complicated issue.
16 We have done a preliminary assessment of
17 what we believe is the worse case, which is Trojan.
18 And based on that preliminary assessment, we don't
19 believe that there's any problem for plants in the
20 current license. Forty year license is probably not a
21 problem, although there's a lot of uncertainty with
22 that, and that's part of this issue is to investigate
23 those uncertainties and gaps in knowledge and confirm
24 that that's the case. To do that, we are doing a
25 multiple track.

1 One of them is to develop a new model of
2 neutron embrittlement, and we have this model
3 developed and now we're trying to confirm it. And
4 this would show, if confirmed, that the embrittlement
5 is a lot less significant than is indicated by
6 extrapolation of some of the data. So it may turn out
7 that by this kind of an analysis we can conclude that
8 there's no problem.
9 COMMISSIONER REMICK: What is it about
10 Trojan that would make it susceptible? Is it the way
11 it's supporting the vessel or the size of the vessel
12 or --
13 DOCTOR MINNERS: I think it's neutron
14 fluence, and it has a very strange support system.
15 They had burned some holes in the support system so
16 that they could get inside with concrete, and that has
17 given it a very poor stress configuration.
18 COMMISSIONER REMICK: I remember that.
19 MR. TAYLOR: It's a combination, then, isn't
20 it?
21 DOCTOR MINNERS: Yes. And actually, this
22 issue is not only the embrittlement. There's also
23 some uncertainty of what a lot of the vessel supports
24 are, and that's part of the issue which really isn't
25 an embrittlement issue. It's just what kind of

1 materials we've got in these supports.

2 A second thing we're looking at is to say,
3 hey, maybe we don't even need these supports. And
4 because our original design was based on the
5 coincident earthquake and LOCA, we're doing analyses
6 now to see what the loads would be if we had a LOCA or
7 a seismic -- an earthquake separately. And based on
8 those analyses, the preliminary results seem to
9 indicate that because of the heavy-wall pipes that
10 support these vessels you don't even need the
11 supports. So we're looking at that approach.

12 The third approach is to say, hey, let's
13 look at some -- search out and see if there are any
14 other fixes. So we're going to contract to look and
15 see what other fixes, such as maybe we'll put heaters
16 on the supports to keep the temperature up so they
17 don't have this low temperature embrittlement. And so
18 although the schedule date is '94, if we're lucky and
19 some of this stuff works out, we may be able to
20 resolve this issue much sooner than that projected
21 date.

22 CHAIRMAN CARR: Before you leave that one,
23 let's go back and address the issue of how you become
24 a USI from a GSI. As I read your paper there, it says
25 that "We think for 23 years there's no problem after

1 the start of full-power operation." We've got plants
2 out there that have been operating 23 years. What do
3 you mean by full-power operation? Is that equivalent
4 full-power hours, or is that -- there must be some
5 relationship between the amount of time they've
6 actually been at full-power and the embrittlement.
7 DOCTOR MINNERS: Well, I think people
8 usually take the conservative capacity factor. And
9 I'd have to double check it, but I think in this case
10 we assume an 80 percent capacity factor to project out
11 to the end of life or end of --
12 CHAIRMAN CARR: Well, you talk about based
13 on a 30 year operating lifetime average, and we're
14 talking about 40 years now in plant life extension.
15 And we're talking about the problem occurring some 23
16 years after full-power operation, and we agree it's
17 going to -- we don't know yet. I guess we agree, but
18 it looks like it may affect some plants. I don't
19 understand why this is not a USI, I guess, based on
20 your definition as you told me before. It's obvious
21 we're going to have to do something to these plants.
22 DOCTOR MINNERS: Well, no. I think we think
23 that we -- our conclusion is that we probably will not
24 have to do anything with these plants. I think that--
25 at least, that's the tentative conclusion I've drawn

1 from --

2 CHAIRMAN CARR: Well, we raised it to high

3 priority because we thought we were going to have to

4 do something to them.

5 DOCTOR MINNERS: Well, it's a high -- well,

6 there's a lot of uncertainty. That's the problem.

7 Okay?

8 CHAIRMAN CARR: I guess that's why I don't

9 understand why it's not higher than high priority. If

10 there's that much uncertainty and we don't really know

11 whether we've got a problem or not and we're about to

12 talk about plant life extension, it seems like we

13 ought to get rid of that problem.

14 DOCTOR MINNERS: Well, I think we are

15 getting rid of the problem. We're working on it. I

16 don't think we'd work on it any faster if it was a USI

17 than what we are now. So as far as allocation of

18 resources, it's not going to make any difference.

19 CHAIRMAN CARR: But what about those guys

20 that get to 23 years before '94?

21 DOCTOR MINNERS: I guess I'm confused about

22 that.

23 Bob, can you help me out on this?

24 MR. BAER: I'm Robert Baer of the staff, and

25 a branch chief working on this issue. I'm not sure,

1 but I think you refer -- there may have been -- I
2 don't know what you're looking at, but the initial
3 evaluation of Trojan was done for 32 effective full-
4 power years, which would be 80 percent capacity for
5 the 40 year life. And it looked like, on initial
6 survey, that there wasn't a problem up to that time.
7 Now as part of our looking at this issue, we
8 are going to consider to some degree what would happen
9 with life extension also. But the initial evaluation
10 of Trojan -- if it says 23, I'm quite sure it should
11 have said 32.
12 CHAIRMAN CARR: Well, I'm just looking at
13 the paper you gave me, which is NUREG 0933 --
14 COMMISSIONER ROBERTS: Known as a typo.
15 CHAIRMAN CARR: -- page 3.15-3. And it
16 says, "The approximate time at which the RVSS
17 materials are believed to become susceptible to
18 brittle fracture is 23 years after the reactor has
19 begun full-power operation. Therefore, potential
20 susceptibility of the RVSS to brittle fracture exists
21 for seven years at the end of the reactor's lifetime,
22 assuming an average operating life of 30 years."
23 MR. BAER: Okay. I guess I'm not familiar
24 with that calculation.
25 CHAIRMAN CARR: That's the only reason I was

1 curious. It's your paper.

2 MR. TAYLOR: I guess we'll have to follow up

3 on that.

4 MR. BAER: Yes, we'll have to.

5 MR. TAYLOR: We started out very, very

6 concerned about this issue when it first came up, as

7 to what was its meaning. Then we went to work and --

8 CHAIRMAN CARR: I agree. It came up, went

9 away. It's come back, and I just -- my curiosity is

10 based on his definition of a USI as something we may

11 have to do to a plant. It looks to me like we've got

12 a potential here, and I was just trying to get both

13 the definition clear in my mind, A, and, B, have we

14 really got a problem before we get to plant life

15 extension?

16 MR. TAYLOR: You could start treating this

17 out as a high priority GSI. And if the technology

18 gave you information that you didn't expect, you could

19 make this a USI. Right? That's exactly what we do.

20 We haven't -- that's always a possibility. The work

21 to date doesn't push it that way, and we'll try to

22 give you an explanation for that write-up.

23 Is that correct? We haven't made -- the

24 information and study of this problem to date hasn't

25 led us to say this is a USI.

1 DOCTOR MINNERS: Everything seems to be
2 leading us the other way, that it's not a USI.
3 MR. TAYLOR: Yes, that's my understanding of
4 how we've been working this. If we learn something we
5 didn't expect up to this point, we could very well
6 change this category --
7 CHAIRMAN CARR: Well, the --
8 MR. TAYLOR: -- at any time during the
9 analysis.
10 CHAIRMAN CARR: -- priority -- the section I
11 read was based on the priority determination. And it
12 says the assumptions were this.
13 MR. TAYLOR: Okay.
14 CHAIRMAN CARR: Those assumptions I gave
15 you. So you can clear that up for me, if you would.
16 MR. TAYLOR: We will.
17 COMMISSIONER CURTISS: Just one other quick
18 question, Warren. The three tracks that you've got
19 underway, are they proceeding in parallel? Or do you
20 intend to do --
21 DOCTOR MINNERS: Yes.
22 COMMISSIONER CURTISS: And what's the
23 schedule for development of the new model? Is that a
24 pacing item now, or a --
25 DOCTOR MINNERS: Yes. The analysis is the

1 pacing item, because we have to try to get some data
2 and that's going to take the longest time, I think.
3 But again, we haven't identified all of the possible
4 fixes, and maybe there's some real tricky fix that
5 would take us longer to work out than we anticipate.
6 COMMISSIONER CURTISS: When you complete
7 your work on the new model and if you conclude that
8 you still have a problem with neutron embrittlement,
9 is it envisioned at that point that you would also be
10 able to turn to the work on the other two tracks and
11 know whether the supports are required, first, and
12 secondly what the potential fixes are if there need to
13 be fixes? That at all come together at the same time?
14 DOCTOR MINNERS: Yes. The support work and
15 the other fixes, I think, are going to be done before
16 the analysis.
17 COMMISSIONER CURTISS: Okay.
18 CHAIRMAN CARR: Some of them require heaters
19 and some of them require coolers, dependent on where
20 they are. As he says, it's a complex problem.
21 MR. TAYLOR: We expect that analysis in the
22 second quarter, right? That's what my own chart says.
23 Well, the analysis, the consequences analysis is
24 expected, I believe.
25 DOCTOR MINNERS: Well, I think you're going

1 to have a hard time. We have a great big PERT chart
2 that puts this all together, and to look at simple
3 milestones is sometimes misleading. It's a very
4 complicated problem. We get stuff coming from here
5 and there and everywhere fitting together and it's
6 hard to --
7 MR. BAER: This is Robert Baer of the staff.
8 Was the model you're talking about the irradiation
9 damage model?
10 COMMISSIONER CURTISS: The neutron
11 embrittlement.
12 MR. BAER: Yes. Okay. There's been some
13 work done both at Pacific Northwest Laboratories and
14 at Argonne that looks at irradiation damage
15 differently than the classical method. The classical
16 method and most of the data was done -- was data from
17 high energy neutrons, above eight-tenths of an MEV,
18 and ignored the contribution due to thermal neutrons.
19 HFIR is where this potential problem was identified,
20 has a very high thermal neutron flux and not much of a
21 fast neutron flux. And when people first looked at
22 the data and looked at just the fast neutrons, they
23 saw much more embrittlement than would be predicted by
24 just the fast neutron.
25 The two models that have been developed

1 partially at the national labs -- and I have a very
2 bright young nuclear engineer working on this -- tries
3 to explicitly account for the effect of thermal
4 neutrons. They don't cause nearly as much damage as
5 the fast neutrons, but in the support areas there is a
6 softer spectrum and a higher percentage of thermal
7 neutrons.
8 The models so far seem to take all the
9 existing relevant data that was done at low
10 temperature and bring them down to a single curve.
11 And based on the model development as of this moment,
12 it looks like where HFIR -- extrapolation of the HFIR
13 data said the ductility transition temperature would
14 shift about 300 degrees, it looks like it's more like
15 90 or 100 degrees.
16 But I do want to emphasize what Warren said,
17 that irradiation damage alone may not be the entire
18 problem. There's big uncertainties of the materials.
19 The fabrication process at Trojan, they have some
20 members that are bending, so there's a tensile stress,
21 which is what you'd worry about with this radiation
22 damage. And as he indicated, they had cut route holes
23 in the box beams just near the point of maximum
24 stress, within ten inches or so. So it's those sort
25 of uncertainties that exist, as well as radiation

1 damage.

2 COMMISSIONER CURTISS: Thank you.

3 CHAIRMAN CARR: All right. Let's proceed.

4 DOCTOR MINNERS: The last issue I'd like to
5 discuss is issue 105, interfacing systems LOCA. This
6 issue has had an interesting history. We did this
7 once back in '81. We sent orders to 32 PWRs and 2
8 BWRs to provide testing for check valve, motor-
9 operated valve configuration. And this had been
10 identified in the WASH 1400 PRAs as a risky situation
11 if you didn't do some inspection or surveillance of
12 your check valve. You could have the check valve fail
13 and you wouldn't know it. And then if the motor-
14 operated valve was opened up and couldn't close again,
15 you were into some un-isolatable situation and this
16 could bypass containment.

17 All plants that were licensed after TMI were
18 reviewed in this way and required to have testing. In
19 fact, they were required to have more than that. All
20 pressure isolation valves, no matter what the
21 configuration was, as long as they isolated the high-
22 pressure coolant system from low-pressure systems,
23 were required to be leak tested.

24 But that left the plants that were licensed
25 before TMI. And even the 34 plants that we sent

1 orders to, they had valves and other configurations
2 that isolated high-pressure from low-pressure. So we
3 wanted to look at those, and we had worked on this
4 issue a while and the value impact results weren't
5 coming out with much saying that this was cost
6 beneficial.
7 And I guess the issue just kind of slowed
8 down and was dragging along with not much interest in
9 it when we began to get some precursors, in fact some
10 foreign experience in which we thought we saw
11 precursors to intersystem LOCAs. And I think mostly
12 at Doctor Murley's initiative he had revived this
13 issue, but with a different focus. And the focus was
14 on human factors, as Commissioner Rogers was
15 discussing.
16 We had been looking at the hardware and the
17 interactions of the hardware. And from the operating
18 experience, we said, hey, human factors could be the
19 problem, both as initiators of the accidents and that
20 the operators are relied upon to take recovery
21 actions. So in both senses, we are working on it.
22 So because we changed the scope and expanded
23 the scope of this issue a lot, we've revised the task
24 action plan. And we just completed that revision
25 again in January, and based on that we now think that

1 we can get something out in October of '91, which is a
2 year and a half against the five year plan date of
3 February of this year, as I said, because we've
4 changed the scope of the issue. So here's another
5 case of an issue in which we've found new information
6 which has made us change our mind and change our
7 course.
8 I might note that the ACRS is quite
9 interested in this issue, and they have somewhat of a
10 disagreement with us. They would favor that we take
11 this issue and include it into the IPE program. And
12 we have responded to them and said, "Well, that might
13 be appropriate, but until we get through with our
14 studies we don't really know what the course of action
15 is on this issue and we're going to continue with our
16 studies," which is not meaning that licensees
17 shouldn't look at this in their IPE. I mean, it's
18 inherent in the IPE that you should be looking at
19 intersystem LOCAs anyway.
20 So that concludes my discussion of the
21 issues that we're working on.
22 MR. THADANI: If I might just add to that,
23 as you know, NRR has been looking at some plants,
24 particularly this interfacing system LOCA, to see high
25 diameter piping and what the potential might be of

1 human actions, potentially initiating an event like
2 this and so on. We've taken a very thorough look at a
3 plant and the conclusion seems to be that, in fact,
4 humans dominate the risk from inter system LOCA and
5 particularly that this risk might be greater during
6 start-up and shutdown operations, when people are
7 making changes.
8 As you might recall, IPE's scope is limited
9 to analyses for at-power operation and IPE does not
10 include analysis during shutdown conditions. So it is
11 important for us to proceed the way we're proceeding
12 on this issue.
13 COMMISSIONER REMICK: Well, let me just pick
14 up on that point.
15 Warren, you did indicate that it is
16 important that licensees consider this as part of
17 their IPE, realizing that in October or so you might
18 have a more definitive approach. What have we done to
19 provide them with information we have now so that
20 they're aware of this potential problem and might look
21 at it from their perspective as part of the IPE? Have
22 we done anything to make them aware of the fact that
23 they --
24 MR. THADANI: I know we had planned to issue
25 an information notice, but I'd like to confirm that.

1 Is Richard Barrett here?

2 MR. HELTEMES: Commissioner Remick, we

3 certainly have publicized a number of events involving

4 inter system LOCAs, if you will, however minor they

5 may be. We've also greatly publicized the foreign

6 event. So, our licensees have been fed continued

7 information on operational experience that, as Warren

8 mentioned, may serve as precursors to a more serious

9 event.

10 I know that's a broader answer than you were

11 really looking for.

12 MR. TAYLOR: Rich, can you answer that?

13 CHAIRMAN CARR: Would you identify yourself,

14 please?

15 MR. BARRETT: Yes. I'm Richard Barrett with

16 NRR.

17 We have not issued any information to the

18 licensees giving guidance on how to do the IPE with

19 respect to IS LOCA any differently from the way in

20 which it's traditionally done in PRAs. We don't feel

21 as if we understand the problem well enough yet to

22 give them information of that type.

23 COMMISSIONER REMICK: But isn't it true that

24 the best approach might not be through PRAs. If we're

25 talking about human factors or other things, it seems

1 to me that maybe we have through the information
2 notices that Jack mentions, have alerted licensees
3 that this potentially is a problem. All I'm
4 interested in is making sure that when they are doing
5 the IPE and presumably doing walk-downs and thinking
6 about all these, at least in the back of their head
7 they're thinking, "Is there anything at our particular
8 plant that we're particularly vulnerable from this
9 interfacing system LOCA?"
10 MR. TAYLOR: We'll give you a listing of
11 what has happened. We've talked a lot about this
12 problem with the industry and the utilities, but we'll
13 give you a follow-up on that. If more is needed,
14 we'll do it. The industry knows we're working on this
15 issue.
16 COMMISSIONER CURTISS: Could you say a word
17 or two on why this is a GSI rather than a USI and the
18 thinking that went into that?
19 DOCTOR MINNERS: Well, as I said, when we
20 were working on it before, it wasn't coming out even a
21 high priority. I mean it was prioritized the high
22 priority, but as we worked on it we found out if you
23 just looked at hardware, you couldn't really justify
24 very much. So, I think that's an explanation why we
25 weren't considering it back then as a USI.

1 Now, since then, if we focus on the human
2 factor issues, I'm not sure that people have gone back
3 and reviewed it again against the USI criteria to see
4 if it is a USI. Okay? I don't know how it would
5 stand against that.
6 COMMISSIONER CURTISS: Your determination on
7 this one right now is based upon your initial review
8 though --
9 DOCTOR MINNERS: Yes.
10 COMMISSIONER CURTISS: -- rather than a re-
11 review based upon the human factors dimension?
12 MR. TAYLOR: We'll look at that as part of
13 looking at this.
14 COMMISSIONER CURTISS: It might be helpful.
15 MR. TAYLOR: It could be.
16 COMMISSIONER CURTISS: Okay.
17 MR. THADANI: So far, we have looked at one
18 plant from a human factors point of view. It's our
19 intention to look at two more plants and I think after
20 that we'll have a better picture of the issue.
21 COMMISSIONER CURTISS: Okay.
22 MR. TAYLOR: Mr. Chairman, that concludes
23 our briefing. We'll respond to any questions.
24 CHAIRMAN CARR: Commissioner Remick?
25 COMMISSIONER REMICK: Just a couple. One, I

1 might take the opportunity to congratulate Jack
2 Heltemes on his new position because certainly the
3 Office of Research is very important and I know that
4 Jack will contribute to that and be a big help to
5 Eric. So, I would like to congratulate him on having
6 that chance to do that.
7 I'd like to go back to the -- Marty
8 introduced the subject of Part 52 in saying that a
9 generic issue should be considered in future standard
10 designs. I just want to make sure of the answer I
11 heard, that we are, as part of our review, looking to
12 see that people are considering the generic and
13 unresolved safety issues in the designs of the plants
14 under review?
15 MR. THADANI: Yes.
16 COMMISSIONER REMICK: Okay.
17 MR. THADANI: Yes. Medium and high
18 priority.
19 COMMISSIONER REMICK: Medium and high
20 priority, yes. Okay.
21 Another -- I found your discussion in some
22 depth of several of the topics particularly of help,
23 more than perhaps the scheduler, although the
24 scheduler is important. And looking to the fact that
25 next year presumably the number of issues still that

1 we'll be considering is even down further, it might be
2 helpful just to give us a brief summary, the technical
3 summary of those remaining issues. Not perhaps in the
4 depth you did on the several here, but to help remind
5 me anyhow what some of these issues are. Presumably
6 there will be fewer next year.
7 MR. TAYLOR: It gives you more on the
8 quality.
9 COMMISSIONER REMICK: Right.
10 DOCTOR MINNERS: Well, let me try. All of
11 these issues and the prioritizations are documented in
12 NUREG-0933.
13 COMMISSIONER REMICK: Yes.
14 DOCTOR MINNERS: So, you can look it up
15 there. I think they have pretty good --
16 CHAIRMAN CARR: There's about a two page
17 summary on each one of them.
18 DOCTOR MINNERS: If you want more than that,
19 we can give you -- would you like to try to read that
20 and --
21 COMMISSIONER REMICK: Maybe it's just I'm
22 lazy, Warren.
23 DOCTOR MINNERS: I guess I'm asking what
24 different from that would you like to have?
25 COMMISSIONER REMICK: I'd have to look at

1 the NUREG again to see. I just found it helpful to go
2 into some --
3 MR. TAYLOR: Some examples?
4 COMMISSIONER REMICK: Some examples, yes.
5 That's all.
6 CHAIRMAN CARR: Commissioner Roberts?
7 Commissioner Rogers?
8 COMMISSIONER ROGERS: Yes. I was just
9 curious. I don't know if you really touched on it or
10 not. What happens to those issues that get dropped
11 during the initial prioritization process after
12 they've been first identified? What happens to those?
13 They've dropped from the rest of your procedures, but
14 where do they go and do they ever get looked at again?
15 MR. HELTEMES: Well, they're maintained in
16 the NUREG-0933. The drop is a conscious decision.
17 It's a documented decision. So, they're maintained
18 available for all. By going to 933, you can find
19 them. In case the issue comes up or a related issue
20 comes up, you can go back and see what the decision
21 was and the basis for the decision. So they're not
22 lost from visibility, but resources are not applied to
23 them.
24 MR. TAYLOR: Experience may make you revisit
25 it.

1 COMMISSIONER ROGERS: Okay.

2 MR. TAYLOR: One of the things that's a big

3 feed is experience.

4 COMMISSIONER ROGERS: There is some way of

5 going back and looking at those again?

6 MR. HELTEMES: Yes, sir.

7 MR. TAYLOR: The experience, the operational

8 experience may make --

9 CHAIRMAN CARR: They're all still in the

10 file.

11 MR. TAYLOR: They're alive.

12 CHAIRMAN CARR: What we did with them and

13 why we did it. If it changes, we know why we were

14 wrong.

15 MR. TAYLOR: That's right. Experience may

16 tell us what we thought then was as good as we had.

17 But we may have to go back and reopen --

18 COMMISSIONER ROGERS: Have we gone back to

19 any of those?

20 MR. TAYLOR: Yes. Some of the staff --

21 MR. HELTEMES: Fifteen is the example where

22 it was prioritized low and as a low issue it would not

23 receive any resources.

24 COMMISSIONER ROGERS: Oh, at that point, at

25 the initial prioritization?

1 MR. HELTEMES: Yes, sir.

2 COMMISSIONER ROGERS: I see.

3 MR. HELTEMES: The initial prioritization.
4 The former prioritization was low, which would
5 indicate that it would go into the resolve category
6 and no additional resources would be applied to it.
7 But the new information from HFIR -- new
8 information --

9 CHAIRMAN CARR: I'm afraid to say I think
10 we've got a problem in support structure.

11 COMMISSIONER ROGERS: That was one that was
12 just dropped initially. That was the --

13 MR. HELTEMES: Yes, sir.

14 COMMISSIONER ROGERS: Okay. Good. Fine. I
15 don't have anything else, other than to say that I
16 think it was an excellent briefing. I really thought
17 we got a great deal out of it.

18 CHAIRMAN CARR: Commissioner Curtiss?

19 COMMISSIONER CURTISS: Just one quick
20 question on advanced reactors. We'll have an
21 opportunity, I guess, in a couple weeks to look at the
22 schedule of questions for that. Focusing on these
23 issues, are any of the medium and high priority
24 generic issues what you'd consider to be pacing items
25 now for the evolutionary reviews? Are we on the

1 critical path for those?

2 MR. TAYLOR: Do you want to take a guess at

3 that or do you want to give an answer later?

4 MR. THADANI: I think I need to look into it

5 to be sure.

6 MR. TAYLOR: I think we'll have to get back

7 to you.

8 COMMISSIONER CURTISS: Maybe at the briefing

9 later.

10 MR. THADANI: What we have asked, and in

11 some cases we have not received the assessment by, for

12 example, GE on some of the generic safety issues. But

13 I need to look into it to give you specifics.

14 COMMISSIONER CURTISS: If you could, take a

15 look at two things. One where we've resolved the

16 issue and where we're waiting for submittals for the

17 licensee and, two, where some of these issues, and

18 particularly the high -- well, the high and medium are

19 the only ones to be addressed, but where those haven't

20 been resolved yet, if we're holding up action on the

21 review of the vendor design pending resolution within

22 this process, I guess I'd be interested in knowing

23 where --

24 MR. TAYLOR: We can check that.

25 MR. THADANI: Okay.

1 COMMISSIONER CURTISS: All right. That's
2 all I have.
3 CHAIRMAN CARR: Well, I'd like to thank the
4 staff for an informative briefing. It appears the
5 Office of Research has an effective process in place
6 for identification, prioritization and tracking
7 resolution of generic safety issues. It also appears
8 we're making progress in resolving generic safety
9 issues and I commend the staff for your work.
10 It's important that once an issue is
11 resolved by the Office of Research there's close
12 coordination between the Office of Nuclear Reactor
13 Regulation and the regions when new requirements are
14 identified, in the resolution of an issue and to
15 ensure proper imposition and implementation by the
16 licensees.
17 I challenge the staff to resolve the
18 outstanding generic safety issues on the schedules
19 that have been provided to the Commission today.
20 Do any of my fellow Commissioners have
21 additional comments?
22 If not, we stand adjourned.
23 (Whereupon, at 11:24 a.m., the above-
24 entitled matter was adjourned.)
25

CERTIFICATE OF TRANSCRIBER

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

TITLE OF MEETING: PERIODIC BRIEFING ON PROGRESS OF RESOLUTION OF GENERIC SAFETY ISSUES

PLACE OF MEETING: ROCKVILLE, MARYLAND

DATE OF MEETING: MARCH 29, 1990

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

Carol Lynch

Reporter's name: Peter Lynch

COMMISSION BRIEFING
ON
PROGRESS AND STATUS OF
RESOLUTION OF GENERIC SAFETY ISSUES

BY RES

C. J. HELTEMES, JR., X23720
W. MINNERS
R. EMRIT

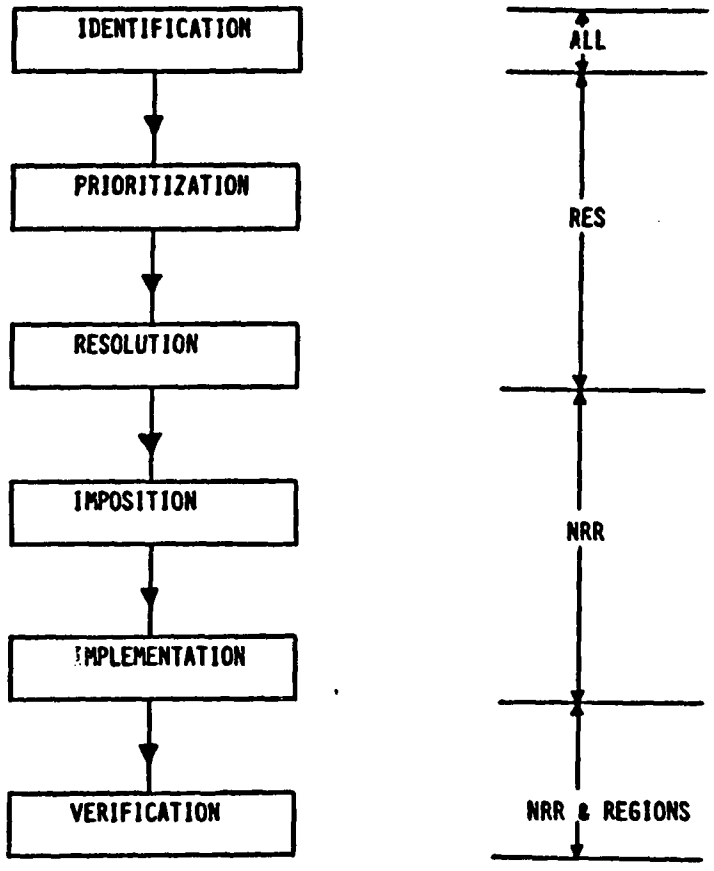
MARCH 29, 1990

OUTLINE

- OVERALL PERSPECTIVE
  - PROCESS
  - HISTORY
  - PROGRESS SINCE 10/21/87 BRIEFING
  - STATUS AND FUTURE ACTIONS.

- STATUS OF SELECTED GSIs
  - GSI B-56, DIESEL GENERATOR RELIABILITY
  - GSI 15, RADIATION EFFECTS ON REACTOR VESSEL SUPPORTS
  - GSI 105, INTERFACING SYSTEMS LOCA

GENERIC ISSUE PROCESS



PROCESS

- INITIAL SCREENING PERFORMED TO DETERMINE NEED FOR PROMPT ACTION
- PRIORITIZATION EVALUATIONS ARE PEER REVIEWED
- PROGRESS OF ALL GI RESOLUTIONS TRACKED IN GENERIC ISSUES MANAGEMENT CONTROL SYSTEM (GIMCS) - REVISED QUARTERLY
- PRIORITIZATION AND RESOLUTION OF ALL GIS DOCUMENTED IN NUREG-0933 - REVISED SEMI-ANNUALLY

HISTORY

- PRIORITIZATION STARTED IN 1981 WITH 511 ISSUES
- 261 SUBSEQUENT ISSUES IDENTIFIED
- 772 TOTAL ISSUES IDENTIFIED AS OF 3/29/90

SUMMARY BY ISSUE TYPE

	10/21/87	5/12/88	4/25/89	3/29/90
SAFETY ISSUES	690	689	690	697
NON-SAFETY ISSUES	41	44	45	75
	731	733	735	772

STATUS OF SAFETY ISSUES

	10/21/87	5/12/88	4/25/89	3/29/90
RESOLVED	569 (82%)	584 (85%)	610 (88%)	633 (91%)
TO BE RESOLVED	121 (18%)	105 (15%)	80 (12%)	64 (9%)
TOTAL:	690	689	690	697

STATUS OF SAFETY ISSUE RESOLUTION

	10/21/87		5/12/88		4/25/89	Δ	3/29/90
PRIORITIZED LOW	25		24		24	+2	26
PRIORITIZED DROP	62		66		73	+5	78
INTEGRATED W/OTHER ISSUES	119		121		122	+4	126
RESOLUTION DEFINED IN NUREG-0737	88		88		88	0	88
RESOLVED ISSUES	275		285		303	+12	315
SUB-TOTAL:	569	(+15)	584	(+26)	610	+23	633

ISSUES STILL TO BE RESOLVED

	10/21/87	5/12/88	4/25/89	3/29/90
USIs	9	9	3	0
HIGH	32	28	20	16
MEDIUM	16	12	13	9
NEARLY-RESOLVED	12	11	8	7
TO BE PRIORITIZED	52	45	36	32
TOTAL:	121	105	80	64

3 USIs Resolved

- A-17: Systems Interactions in Nuclear Power Plants
- A-40: Seismic Design Criteria
- A-47: Safety Implications of Control Systems

A-17: Systems Interactions in Nuclear Power Plants

- SECY-89-230
- Generic letter 89-18
- No new requirements

A-40: Seismic Design Criteria

- SECY-89-296
- Standard Review Plan Revisions
- New Requirements

A-47: Safety Implications of Control Systems

- SECY-89-255
- Generic Letter 89-19
- New Requirements

FUTURE ACTIONS

- 28 GSIs ISSUES SCHEDULED TO BE RESOLVED BY FY 94
- 4 GSIs WITH SCHEDULES TO BE DETERMINED
- RESOLUTION BY FISCAL YEAR

FY 90	FY 91	FY 92	FY 93	FY 94	TBD
16	6	5	0	1	4

B-56: Diesel Generator Reliability
(High Priority)

ACRS/CRGR review	5/90
Federal Register Notice	6/90
5-yr plan date	11/89

15: Radiation Effects on Reactor Vessel Supports
(High Priority)

ACRS/CRGR review of Draft Technical Resolution	10/93
ACRS/CRGR review of Final Technical Resolution	01/94
Federal Register Notice	03/94
5-Yr plan	To be determined

105: INTERFACING SYSTEMS LOCA

(HIGH PRIORITY)

REVISE TASK ACTION PLAN	01/90C
ACRS/CRGR REVIEW	08/91
ISSUE GENERIC LETTER	10/91
5-YR PLAN	02/90