

# UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

Title: BRIEFING ON STATUS OF IMPLEMENTATION OF  
SEVERE ACCIDENT MASTER INTEGRATION PLAN

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2 NUCLEAR REGULATORY COMMISSION

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4 BRIEFING ON STATUS OF IMPLEMENTATION OF  
5 SEVERE ACCIDENT MASTER INTEGRATION PLAN

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7 PUBLIC MEETING

8 \* \* \*

9 Nuclear Regulatory Commission  
10 One White Flint North  
11 Rockville, Maryland

12  
13 Thursday, April 13, 1989  
14

15 The Commission met in open session, pursuant to  
16 notice, at 9:30 a.m., the Honorable LANDO W. ZECH, JR.,  
17 Chairman of the Commission, presiding.  
18

19 COMMISSIONERS PRESENT:

20 LANDO W. ZECH, JR., Chairman of the Commission  
21 THOMAS M. ROBERTS, Member of the Commission  
22 KENNETH C. ROGERS, Member of the Commission  
23 JAMES R. CURTISS, Member of the Commission  
24  
25  
26

1 STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

2 SAMUEL J. CHILK, Secretary

3 WILLIAM C. PARLER, General Counsel

4 VICTOR STELLO, JR., Executive Director for Operations

5 TOM MURLEY, NRR

6 ERIC BECKJORD, Director, Office of Research

7 THEMIS SPEIS, RES

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P R O C E E D I N G S

(9:33 a.m.)

CHAIRMAN ZECH: Good morning, ladies and gentlemen.

This morning, the Commission will be briefed by the NRC Office of Research and the Office of Nuclear Reactor Regulation, on the status of implementation of the Integration Plan for Closure of Severe Accident Issues.

The Commission was briefed by the staff on the master plan for integrating all severe accident issues, on June, 1988. Following that meeting, the Commission requested today's progress report on the implementation of the Master Integration Plan.

The Integration Plan is a description of all severe accident programs currently being undertaken by the Commission. It describes how the agency will reach closure on these programs, and describes the inter-relationships among the various programs.

The Integration Plan for Closure of Severe Accident Issues was developed primarily to assure consistency between programs, and consistency with Commission policy and strategic goals.

The Commission is interested in hearing how consistency between programs is maintained in the implementation of this plan.

1           This is an information briefing this morning,  
2 and no Commission vote is planned on this issue today. It  
3 is my understanding that copies of the staff's Vu-Graphs  
4 are available at the entrance to the meeting room.

5           Do any of my fellow Commissioners have any  
6 comments they wish before we begin?

7           (No response.)

8           All right. Mr. Stello, you may proceed.

9           MR. STELLO: Thank you, Mr. Chairman. I would  
10 like to start with an overview of the plan -- emphasizing  
11 that's what it is, is a plan -- and reminding the  
12 Commission that each of the issues that are in there which  
13 will require the Commission to decide to take a position  
14 on something, that we have been bringing those issues,  
15 one-by-one, to the Commission, and I would just summarize  
16 very quickly.

17           For example, we have the IPE program. We  
18 brought that before the Commission. The Commission gave  
19 its guidance and policy, made a decision, and we're on the  
20 way.

21           We came with the Accident Management Program.  
22 The Commission reviewed it, gave us the guidance, and now  
23 we were again on our way.

24           You have before you -- the Commission is  
25 considering the MARK I program which is, again, an element

1 of this that the Commission eventually will make a  
2 decision and give us the guidance for implementing that  
3 part of the program.

4 This afternoon, you will review the safety goal  
5 implementation policy and, hopefully, following that  
6 meeting you will, again, provide the staff with the  
7 Commission's decision and the guidance.

8 And you will notice that all of these, in fact,  
9 were what we were trying to do when we put the integration  
10 plan together, to try to show you the inter-relationship  
11 and making sure that we had consistency with these  
12 programs.

13 We feel comfortable that the thrust and the  
14 purpose of putting together this particular plan is, in  
15 fact, being implemented, and I'm pleased and delighted  
16 that we, in fact, have the plan and we are, indeed,  
17 following it, and what we will do this afternoon, Eric  
18 Beckjord -- or this morning -- will give you the status of  
19 where we are, but there is no need, unless the Commission  
20 wishes in some way to make a major change to that plan,  
21 for any further decisions by the Commission because we  
22 will continue to bring each of these pieces to you as they  
23 are finished.

24 We have Eric with me today, on my right and, of  
25 course, Dr. Murley on my left, and Themis Speis on Eric's

1 immediate right, and I'll have Eric go through the  
2 briefing, and we're prepared to answer any questions you  
3 might have. Eric?

4 CHAIRMAN ZECH: Thank you very much. Mr.  
5 Beckjord, you may begin.

6 MR. BECKJORD: Thank you, Mr. Chairman.

7 May I have the first Vu-Graph, please. (Slide)  
8 These are the topics I will speak to in the presentation.  
9 They are the elements of the Integration Plan for Closure  
10 of Severe Accidents -- Severe Accident Issues that this  
11 office presented to you on June 1st of last year, and the  
12 Commission paper was dated May 25th of 1988, and that is  
13 SECY-88-147.

14 Closure of severe accident issues and related  
15 research has been, and remains, one of the top priority  
16 activities in the Office of Research, and has been since  
17 I've been here.

18 I'm pleased to report progress on all of the  
19 aspects of this program during the past year. The  
20 activities which have been underway are shown on the next  
21 few Vu-Graphs.

22 If I could have the second, please. (Slide)  
23 This and the next Vu-Graph list the events and the dates  
24 of the important actions. The purpose of the Severe  
25 Accident Integration Plan was, and is, to set forth the



1 essential strategy for resolution of severe accident  
2 issues, and that plan is consistent with, and for the  
3 purpose of, carrying out the Commission's Severe Accident  
4 Policy Statement of August 5th, 1985.

5 There are six elements in the plan. I'm going  
6 to say more about them in a minute, in several Vu-Graphs  
7 ahead.

8 As a result of the staff requirements memorandum  
9 on the plan -- that was June 24th of last year -- we have  
10 established a senior group to review and coordinate the  
11 severe accident program in the several offices that are  
12 involved in it.

13 This group has met a number of times, and is  
14 providing coordination. They issued a schedule, which I  
15 believe you have, dated February 24th of this year. It's  
16 a detailed schedule of all of the activities.

17 At the bottom line of this appears the IPE  
18 program, mentioning the briefing in August of last year.  
19 If I could have the third, please. (Slide) Following  
20 that, the Commission approved the IPE generic letter in  
21 October, and we sent it out in November.

22 We held a workshop in Fort Worth, with industry  
23 representatives, to discuss the generic letter and to get  
24 their comments. I'm going to talk more about that in a  
25 few minutes.

1           This Vu-Graph shows the other important related  
2 events. The MARK I Containment Performance Improvements,  
3 which was presented to you in January; the Accident  
4 Management Program also in January, and the first briefing  
5 on Severe Accident Risk, NUREG-1150, which we presented on  
6 the 15th of March, and the briefing on the complete  
7 revised report scheduled to be presented to you on the 3rd  
8 of May.

9           The Implementation of the Safety Goal Policy, as  
10 Mr. Stello said, comes up this afternoon. I wasn't going  
11 to say anymore about that because it will be covered in  
12 detail then.

13           And, finally, the last item on this is the  
14 Severe Accident Research Plan, the revised SARP. We've  
15 sent the paper describing that program up, and the  
16 briefing for you is scheduled on the 2nd of May.

17           If I could have the fourth, please. (Slide)  
18 This is the schematic diagram of the Severe Accident  
19 Program. I think you've seen this a number of times  
20 before. The six key elements of the program are shown on  
21 the schematic.

22           At the top of the diagram, upper left, is the  
23 improved plant operations. This is actually the third  
24 item mentioned in the Integration Plan, and it's led by  
25 NRR.

1           At the left, center is the IPE block -- that's  
2 the first item mentioned in the Integration Plan -- and  
3 its purpose is to disclose vulnerabilities in individual  
4 plants.

5           When the individual plant examination program is  
6 completed, the probability of undiscovered problems that  
7 could initiate or aggravate an accident in a plant, will  
8 be greatly reduced, and there will then be high confidence  
9 in improved safety performance for each plant -- that is  
10 to say, assuring you that performance is uniformly high  
11 among all plants. Of course, the data from the improved  
12 plant operations shows that as a group, taking them all  
13 together, the average performance has been improving  
14 markedly over the five years.

15           Carrying out the IPE is the responsibility of  
16 the plant owner and licensee. He knows his plant best,  
17 and he is responding to the requirements which the NRC has  
18 established and, of course, the NRC staff will review  
19 these reports when they are completed.

20           The containment performance block is underneath  
21 the IPE block, and the MARK I analysis, which is the  
22 second item mentioned in the Integration Plan, is at the  
23 left-hand side of that box. The other containments not  
24 yet complete are on the right.

25           The Containment Performance Improvement approach

1 is very different from the IPE. It's the study of  
2 performance of generic containment types. The NRC staff  
3 is doing a study, and the -- is doing all of these  
4 studies, and the utility licensees will respond to the  
5 decisions which you, the Commission, make after you have  
6 considered the recommendations on each type.

7 If I could have the -- no, I'm still on this  
8 slide. Turning to the CPI, again, that's very important  
9 because it's a generic approach, and it focuses on the  
10 performance of the containment types. It is not likely  
11 that the IPE will disclose any generic problems because of  
12 the fact that each licensee will focus separately on his  
13 plant.

14 The IPE will assure that the systems provided in  
15 the individual plant will perform according to design  
16 requirements. And I think that the difference between the  
17 CPI -- this difference between the CPI and the IPE is very  
18 important, and taking the two programs together, they form  
19 a very robust pair, which I think has a very high  
20 likelihood of success in this whole area.

21 Now, the ACRS has recommended to you  
22 incorporation of the MARK I containment questions in the  
23 IPE program. There are several consequences of that  
24 recommendation that I want to point out.

25 The first is that the process of evaluation will

1 be changed from the one that I have outlined, and this  
2 process is the one in which the NRC is taking the lead on  
3 the generic requirements, and the -- as I said, the  
4 individual owners are taking the lead on the IPE.

5 The findings that would come out at the end of  
6 the IPE process -- if the process was changed and we put  
7 MARK I into the IPE, the findings would come out perhaps  
8 two or three years later, and then the NRC would have to  
9 put the picture together, attempting -- you know, looking  
10 at each one, plant-by-plant.

11 So, what we would wind up doing, at that time, I  
12 think, a generic look, but it would not be now. It would  
13 be several years from now.

14 COMMISSIONER CURTISS: Are you saying that if we  
15 combine the CPI and the IPE program, would delay the IPE  
16 program two to three years beyond what it would otherwise  
17 entail?

18 MR. BECKJORD: Yes, that is -- yes, sir, that's  
19 what I'm saying.

20 COMMISSIONER ROBERTS: I think that's highly  
21 arguable.

22 MR. BECKJORD: Well, I think it's --

23 COMMISSIONER ROBERTS: I would disagree. Keep  
24 going.

25 MR. BECKJORD: It's a consequence of how we've

1 set it up. It's the process that I'm talking about. I  
2 think that if the integration of generic issues on these  
3 plants, coming at the end of the IPE process, would  
4 probably lead to a delay of at least three years, and  
5 maybe as long as five.

6 DR. SPEIS: On the generic improvements.

7 MR. BECKJORD: On the generic improvements, yes.  
8 There's a second point that I wanted to make, is that the  
9 strategy and plan shown on this schematic would no longer  
10 apply, in a different way of carrying out the process, to  
11 the severe accident resolution as we've described it here,  
12 and the whole approach would have to be rethought, I  
13 think. I'm talking about not only the IPE and the CPI,  
14 but the Severe Accident Research Program.

15 Let me turn then to the Severe Accident  
16 Research, which is element number four in the Integration  
17 Plan. That is under the Containment Performance  
18 Improvement block, and the Research Program supports the  
19 IPE, the CPI and the Accident Management Program, and it  
20 supports them in the near-term on the resolution of the  
21 issues, but I would expect that there will continue to be  
22 a long-term research program for confirmatory purposes,  
23 after these issues are resolved.

24 The next point is the fifth one in the  
25 Integration Plan, and it's External Events, and that is

1 identifying the requirements for the External Event IPE  
2 Program. That's shown within the IPE block here as--  
3 it's referred to as External Hazards on this -- in the box  
4 at the left, center. I expect that we will be ready to  
5 initiate and move out on this activity at the end of this  
6 year.

7 The sixth element of the plan is Accident  
8 Management -- that's at the top, right of the diagram--  
9 and this program includes the actions that NRR is  
10 undertaking with plant owners, to develop an accident  
11 management framework for each plant, and the actions which  
12 will follow to upgrade the emergency operating procedures,  
13 whatever changes here are indicated. And it also includes  
14 an element of research, the purpose of which is to  
15 generate some new information for confirming the technical  
16 base for accident management, to make sure that it will do  
17 what we think it will do. I think the accident management  
18 is an essential part of the plan.

19 COMMISSIONER CURTISS: One quick question on  
20 this schematic. You've separated the MARK I improvements  
21 in the box on the left, from the other CPI improvements.  
22 The way the schematic is laid out, the MARK I improvements  
23 feed into the identification of plant-specific  
24 vulnerabilities.

25 Does this reflect a difference in the way you

1 intend to treat CPI fixes other than MARK I, or is the  
2 strategy the same?

3 MR. BECKJORD: The strategy is the same. We  
4 could have -- I think it was drawn this way originally  
5 simply because MARK I was the first, it was the lead of  
6 those. The others are following -- I think we're moving  
7 ahead somewhat faster on the analyses for the other  
8 plants, than we originally expected -- I was going to say  
9 more about that later -- and it turns out that, for  
10 example, in the case of the MARK IIs and the MARK IIIs,  
11 some of the issues are common with MARK I issues, so there  
12 is a synergy here that I think is something we can really  
13 appreciate.

14 MR. STELLO: I think the real intent, though,  
15 was -- the real intent was that we had suggested and the  
16 Commission concurred, that we would do the MARK Is first,  
17 earliest, in order to make it clear that they were, in  
18 fact, the first plants that published that.

19 CHAIRMAN ZECH: All right. Let's proceed,  
20 please.

21 MR. BECKJORD: If I could have the fifth,  
22 please. (Slide) This Vu-Graph and the next one give more  
23 detail on the independent plant examination. The  
24 important points here are that we are proceeding on  
25 schedule, to start the IPE clock running in June.



1           We've met, as I said already, with the utility  
2 representatives in Fort Worth. There were more than 300  
3 representatives of industry, mostly utilities, but also  
4 consultants, some hopeful consultants, and a few overseas  
5 observers.

6           The meeting was, I think, very successful in  
7 achieving its objectives and it, frankly, exceeded my  
8 expectation. The exchange of views during the meeting  
9 were very positive and, at the same time, nobody pulled  
10 any punches.

11           We identified the key issues between ourselves  
12 and the utility representatives at the meeting. We've  
13 carefully reviewed the Fort Worth meeting transcript, and  
14 we are now revising the guidance document for the IPE,  
15 which is NUREG-1335. I expect that will be out in June.

16           May I have the sixth Vu-Graph, please. (Slide)  
17 Examples of some of the issues that came up at the Fort  
18 Worth meeting -- and there were quite a -- there was a  
19 long list of them, two to three dozen; I'm not going to go  
20 through them all, but a few examples include equipment  
21 qualifications. There were questions about the  
22 requirements and the criteria to be applied in the IPE.

23           There were questions about the use of source  
24 terms, where the utilities expected to generate new source  
25 terms. We said no. There were a lot of questions about

1 the estimate in our letter, of the effort required to  
2 carry out the IPE, and there were questions about internal  
3 flooding, as to whether that should be in the IPE or in  
4 the External Event Program.

5 Without going into the details of these,  
6 Research Office is answering these points, and those  
7 answers will be included in the revised 1335 document, and  
8 to incorporate some additional guidance as well.

9 As I said, the 1335 will be issued in June, and  
10 the clock will start for the IPE.

11 DR. MURLEY: Eric, could I make a point there?

12 MR. BECKJORD: Yes.

13 DR. MURLEY: We're on the path that this would  
14 be issued in June, however, if we have to revise the  
15 guidance on how they do containment studies, it could well  
16 be delayed, and at least our staff has not evaluated how  
17 we would even have to revise the guidance, but it clearly  
18 -- if we throw the MARK I and the containment evaluations  
19 into IPE, it's different from the guidance we've given  
20 them up till now.

21 MR. BECKJORD: Yes, I agree.

22 DR. MURLEY: And I can't estimate what the delay  
23 would be but, clearly, there would be some because we  
24 would have to rethink it.

25 MR. BECKJORD: The last item on this is the

1 Accident Management Program, if I could turn to the next  
2 --

3 COMMISSIONER CURTISS: One quick question on  
4 that previous chart with the Texas conference. Was there  
5 a consensus on the schedule that the staff laid out in the  
6 initial letter, to complete it in three years, or what  
7 kind of feedback did we get on that issue?

8 MR. BECKJORD: I wasn't there when that was  
9 discussed. Do you have --

10 COMMISSIONER CURTISS: Is our estimate of three  
11 years to complete the IPE process still pretty sound?

12 DR. SPEIS: I think for the majority of the  
13 utilities, it is sound, yes. There's always the  
14 experience factor -- you know, some utilities have more  
15 experience in this business, and they will be able to do  
16 this sooner than others. So, some of them will take a  
17 little bit longer, but the letter says that those factors  
18 will be taken into account and appropriate negotiations  
19 will --

20 CHAIRMAN ZECH: On the IPE workshop, could you  
21 talk to us just a little bit more about that? What kind  
22 of comments were received at that IPE workshop?

23 MR. BECKJORD: I was there for part of the  
24 meeting, but I'd ask Dr. Speis to answer your question.

25 CHAIRMAN ZECH: Fine.

1 DR. SPEIS: Well, a number of issues were  
2 raised, maybe 50 or 70, some of them more important than  
3 others. One of them was, of course, our estimate of the  
4 resources that it will take to perform the IPE.

5 If you recall, we had said that it will take  
6 about 45 manyears. The industry's comments indicated that  
7 we were off by a factor of 2, a qualitative factor of 2.  
8 I think, in retrospect, our number is probably okay for  
9 the utilities that have had experience with PRAs, but  
10 probably is an underestimate for the utilities with no  
11 experience in PRAs. So, that took some discussion.

12 Other issues that were raised were external  
13 events; as Mr. Beckjord said already, accident management  
14 procedures, how you apply the 5059 to it; the question of  
15 environmental qualifications, you know. We have a rule  
16 which applies for design basis conditions, and they want  
17 to make sure that in the severe accident area --

18 CHAIRMAN ZECH: There wasn't disagreement on the  
19 value of the IPE --

20 DR. SPEIS: No, there was no disagreement.

21 CHAIRMAN ZECH: -- but it was disagreement on  
22 the length of time it would take, is that about --

23 DR. SPEIS: There was no disagreement on the  
24 value. I think there is consensus that it is one of the  
25 best methods to identify plant-specific vulnerabilities,

1 identify your plant, its capabilities, and then fashion  
2 procedures to improve its operation and its safety.

3 Also, Eric mentioned issues like what type of  
4 analysis is expected -- you know, source term,  
5 phenomenological issues, containment loads, structural  
6 response -- and in this area, we said that the analysis  
7 would be very minimal because that type of analysis will  
8 be done in the generic part of the containment that we  
9 talked about, the MARK I and the other containments.

10 CHAIRMAN ZECH: All right. Fine.

11 DR. SPEIS: So, the back end of the IPE will  
12 focus mostly on systems, rather than phenomenological  
13 issues, which will be handled in the CPI program.

14 CHAIRMAN ZECH: All right. Thank you.

15 MR. BECKJORD: I would just add, what I heard  
16 from the people there was that the utilities want to move  
17 out on this IPE. They are very anxious to move on that.

18 CHAIRMAN ZECH: All right. Thank you. Let's  
19 proceed.

20 MR. BECKJORD: If I could have the next Vu-  
21 Graph. (Slide) This summarizes the status of the  
22 containment performance generic MARK I recommendations.  
23 As stated to you in the January 26 presentation, the  
24 recommended improvements for performance are not major  
25 changes but, as I said earlier, they are integrated and

1 complementary to each other, and they improve both  
2 prevention and mitigation, and they will improve defense  
3 in-depth for those plants.

4 If I could move on to the eighth Vu-Graph.  
5 (Slide) On the other containment performance improvements  
6 for the other types, the studies are underway. We will  
7 hold workshops on these in the summer. It will, I think,  
8 be difficult to discuss all of the remaining types in one  
9 workshop, so I think right now it looks like two would be  
10 a more practical approach. We'll make a decision on that  
11 finally, in May.

12 We will present the preliminary -- I expect that  
13 we will have ready to present to you the preliminary  
14 conclusions on the remaining generic containment studies,  
15 by the end of this year.

16 If I could move on to the ninth. (Slide) This  
17 is regarding -- this chart regards the external event  
18 effort.

19 CHAIRMAN ZECH: You're on slide number 10, are  
20 you not?

21 MR. BECKJORD: I should be on number 9.

22 CHAIRMAN ZECH: All right. Mine says 10, but go  
23 ahead.

24 COMMISSIONER ROGERS: Just before you leave that  
25 containment question on MARK Is, there's at least one

1 plant that has installed certain improvements -- I'm not  
2 clear on exactly what the state of affairs of that  
3 installation is -- and others that have very serious--  
4 some of those under very serious consideration.

5 Is anybody being held up now, from making a  
6 final decision on whether it's wise to implement those  
7 improvements, particularly so on this one, as a result of  
8 our own incomplete status on MARK I containments?

9 DR. MURLEY: Pilgrim is complete. They've done  
10 all the --

11 COMMISSIONER ROGERS: They've really implemented  
12 it, though, fully?

13 DR. MURLEY: Yes.

14 COMMISSIONER ROGERS: They have?

15 DR. MURLEY: Yes. They have.

16 COMMISSIONER ROGERS: Okay.

17 DR. MURLEY: Others are waiting -- well, quite  
18 frankly, I think they're waiting to see what the NRC does,  
19 with regard to the recommended course of action.

20 Some plants have done some aspects of it, like  
21 improved power supplies and that sort of thing, but they  
22 are basically waiting to see what we come down and  
23 require.

24 DR. SPEIS: For example, Vermont Yankee will  
25 undertake a number of these improvements during the next

1 outage, but not all of them.

2 COMMISSIONER ROGERS: I'm just concerned about  
3 someone who has something in the works, rather than  
4 someone who hasn't done anything, whether it's a delay  
5 occasioned by our not completing our part of the program.

6 MR. STELLO: I would think that, instinctively,  
7 the decisionmakers are sitting back, recognizing that the  
8 agency is trying to make a decision and, to the extent  
9 that they're dealing with it, they must -- instinctively,  
10 I would feel they would have to wait and say, "Hey, let's  
11 hold off and wait and see what happens, before we move  
12 forward". I would think, instinctively, that has got to  
13 go on for those that are in the process now, although I  
14 can't give you a specific example.

15 DR. MURLEY: That's my sense of things, too,  
16 kind of pausing.

17 CHAIRMAN ZECH: All right. Let's proceed.

18 MR. BECKJORD: If I could have the ninth Vu-  
19 Graph, please, on the external events. (Slide) We did  
20 not include the external events consideration in the  
21 Independent Plant Examination generic letter because, when  
22 that letter was ready to go out, we were still working on  
23 defining a clear scope and generating the requirements.  
24 These tests will be done by the end of this year.

25 If I could go on to the tenth then -- (slide)--



1 some more on external events. We have an External Event  
2 Steering Group which works across the offices. It's  
3 chaired by Dr. Shao, in NRR, and has membership from the  
4 several offices, and that's the place where the  
5 recommendations in this area are being considered, and  
6 they will recommend what should be included in the  
7 external event IPE.

8 It appears now that the seismic margins  
9 approach, which I think you've heard about, continues to  
10 look good for the seismic events.

11 CHAIRMAN ZECH: You need the next slide.

12 MR. BECKJORD: I should be on the tenth, yes--  
13 number ten -- (slide) -- yes.

14 CHAIRMAN ZECH: Okay.

15 MR. BECKJORD: I was going to say something  
16 about fire. I had commented on the seismic part. We've  
17 been thinking a lot about the question of evaluating  
18 fires, and we decided that we're going to go ahead and  
19 develop a simplified method for evaluating fire hazards.  
20 We've had a very interesting proposal that's been made in  
21 that regard, and we've started the work on that.

22 I believe that this can be done over the next  
23 six months, to develop a simplified fire evaluation  
24 method, and so we should have that ready by the end of  
25 this year.

1           Now, just a note on that. We will have done our  
2 work on it, but I think that that may take some extra  
3 time, to bring the utility representatives in on that  
4 proposed fire evaluation approach. I don't know exactly  
5 how long that will take, but I do feel that looking at the  
6 whole schedule, that this simplified method will make it  
7 possible to move out faster when we've established it.  
8 So, taking the whole thing together, I think we'll still  
9 get the job done sooner than we would otherwise.

10           Also, I believe that the approaches that we're  
11 taking here will get the job done, and they will not have  
12 the result of causing the IPEs themselves to be redone.  
13 The fact is, what I'm saying is that the separation of the  
14 internal events and the external events is not, obviously,  
15 the best approach. If we could have done them together,  
16 we would, but doing them the way they are being done, I  
17 don't think it will cause the internal events IPE to be  
18 redone for any plant.

19           Accident Management is on the 11th page.  
20 (Slide) We presented the coordinated plan for both the  
21 regulatory activities and the supporting research to you  
22 on January 24th. We received the staff requirements memo,  
23 and we are responding to that.

24           There were four items in the SRM. First was the  
25 integration of accident management into the IPE program.

1 That's done, and it's underway.

2 Second point, NRR and Research have met with  
3 NUMARC and their EPRI people who are working with them on  
4 accident management, and we've met to establish  
5 communication on developmental activities and the research  
6 relating to accident management.

7 We're going to continue this communication, and  
8 we're going to issue the information which we were  
9 directed to do in the SRM. We are going to put that  
10 information on accident management out in a series of  
11 generic letters, and those will be the way that we would  
12 communicate what we think needs to be done on emergency  
13 operating procedures, to the industry. We will review all  
14 of this information with the ACRS.

15 If I could have the 12th, please. (Slide) The  
16 third requirement, we will review accident management  
17 programs with the Commission, before they are implemented  
18 with licensees. And the fourth point, we will incorporate  
19 the four points mentioned here, as directed in the May  
20 version of the Five-Year Plan. And I will send on the  
21 reply, giving our official answer to the SRM, in a few  
22 days.

23 If I could have 13, please. (Slide) We come  
24 now to the Severe Accident Research Plan. The integration  
25 plan indicates how severe accident research can, and will,

1 support the IPE, the CPI and the Accident Management  
2 Programs. It does that by developing additional  
3 information which is needed to resolve the severe accident  
4 issues.

5 These include the four points shown here in the  
6 Vu-Graph -- assessing containment performance, evaluating  
7 the effectiveness of the generic CPIs, understanding  
8 severe accident phenomena, and establishing effective  
9 accident management procedures and, where possible,  
10 reducing the uncertainties in the PRAs. I'm going to talk  
11 about 1150 in a minute.

12 If I could go on to the 14th, please. (Slide)  
13 There is a revised Severe Accident Research Plan now. We  
14 have finished our work on it and sent it on to the  
15 Commission -- I expect you'll have it shortly -- and it  
16 will be presented to you -- the details of the plan will  
17 be presented at the Commission briefing scheduled on the  
18 2nd of May.

19 The revised SARP focuses on the resolution of  
20 the several issues having high risk significance in the  
21 near-term -- that is to say, especially the containment  
22 performance issues -- but it also aims at a longer-term  
23 program of confirmatory research.

24 We developed the revised SARP program with input  
25 from the experts in this field, from the universities,

1 from the national laboratories, and from industry. The  
2 performance of the research university people, Electric  
3 Power Research Institute, and the offices here at NRC, Tom  
4 Murley's office and AEOD, have also reviewed it and given  
5 us their comments.

6 Members from the Nuclear Safety Research Review  
7 Committee have reviewed it, and the full ACRS has reviewed  
8 it, and you have a letter from ACRS on this subject, which  
9 I think gives strong support to that plan.

10 CHAIRMAN ZECH: Let me just note that I was  
11 encouraged to receive that ACRS letter with that strong  
12 support for the program, and I think that's -- of course,  
13 is a very important issue, and it involves an awful lot of  
14 severe accident issues, so I was pleased to see that the  
15 ACRS has supported the research program, and we'll be  
16 interested to hear what the staff has to say when you come  
17 back to us in early May.

18 MR. BECKJORD: Right. That's all I was going to  
19 say about it, since you'll receive the paper shortly and  
20 it will be presented to you.

21 If I could move to the 15th slide on severe  
22 accident risks, the NUREG-1150. (Slide) We presented the  
23 front-end work, or the Level One PRA results, to you in  
24 the Commission paper dated the 17th of February -- that's  
25 SECY-89-058 -- and discussed them at the March 15th

1 briefing.

2           The work on the internal events risks on  
3 containment performance, and the external events is  
4 complete, and it will be sent on -- the report itself will  
5 be sent on as a ready-to-copy, on the 17th of April, next  
6 week. That report will include --

7           MR. STELLO: If I might interrupt, I do  
8 recognize, Mr. Chairman, that the slide, although it says  
9 I will have the report on the 17th, the Commission has  
10 also indicated it wishes to have the report on or before  
11 the 17th. Our expectation is that you will have it.

12           CHAIRMAN ZECH: Very good. Thank you. Let's  
13 proceed.

14           MR. BECKJORD: I just want to point out that, as  
15 you will receive it, it will include the treatment of  
16 seismic events. We had some discussion over that at the  
17 March meeting.

18           Regarding peer review, I've discussed the plan  
19 with you on several occasions. We're moving out on the  
20 peer review. The first meeting is scheduled in early  
21 July. That was the best time that all of the members  
22 could get together.

23           The transmittal letter for the document, which  
24 you will receive in a few days, will include the -- will  
25 ask for your final approval for the peer review plan but,

1 as I say, we're moving ahead because that was my  
2 understanding of your intent, at the March meeting.

3 Regarding the intended uses of 1150, we  
4 presented the intended uses in the integration plan and,  
5 again, in the February 17th Commission paper on 1150, with  
6 some further modifications.

7 We have reviewed these intended uses with the  
8 ACRS, both the final intended uses and the interim uses,  
9 during the period when the report will be undergoing peer  
10 review.

11 The ACRS told us when we met with them, that it  
12 will write a letter of advice to you, on the subject of  
13 those uses. I expect that they will do this in May.  
14 That's what they said. They thought they could get that  
15 letter out in May. That's all I was going to say about  
16 the 1150.

17 Now, if I could move to the last, number 16.  
18 (Slide) This relates to severe accident implementation  
19 for future plants. We're talking about two different  
20 programs here. The first is the advance reactors which  
21 are not light water reactors, and I'll speak to those.

22 The Commission paper on this was issued on July  
23 15th of 1988, and we were, at that time, underway to  
24 finish the safety evaluation report, and we had expected  
25 to get that and the policy paper to you last fall, but the

1 action was suspended on the HTGR because of the  
2 containment issue that came up, on the two types that DOE  
3 is considering.

4 So, we suspended the action, as I say, and we  
5 are awaiting the results of further DOE studies on two  
6 things. They are studying the containment question for  
7 the modular HTGR, and also improvements for the decay heat  
8 removal system, and they have indicated to us that they  
9 will be ready to come forth with the results of their  
10 study in June of this year. When they do come to us, we  
11 will take the study up again, and finish it.

12 Meanwhile, we sent the draft of the SER on the  
13 MHTGR to DOE, for their use in the evaluations that they  
14 are doing. And as I say, when we get underway, when we  
15 get that work underway again, we will complete the Safety  
16 Evaluation Report, and we will also, in a separate letter,  
17 recommend to you the policy issues that we think the  
18 Commission needs to address.

19 On the liquid metal reactors, especially the  
20 Prism concept at General Electric, we expect to send to  
21 the Commission the draft SER on that concept, about the  
22 15th of May. The SER will include the technical review of  
23 the NRC staff. It will make recommendations on the use of  
24 a prototype, and also on R&D that should be performed. I  
25 would just note that the SERs themselves do not address



1 the policy issues. That will be done separately.

2 That completes what I was going to say on the  
3 advanced reactors that are not light water reactors, and I  
4 wanted to say just for a minute, a little bit about the  
5 light water evolutionary plants.

6 There was a Commission paper to you on this  
7 subject last fall. It was withdrawn on December 28th, and  
8 it's being revised, and I expect it will be issued in the  
9 next several weeks. NRR is preparing this paper, and it's  
10 a paper which -- I believe it has the title Light Water  
11 Reactor Severe Accident Requirements.

12 We have been speaking of it as the "ABWR paper".  
13 As I said, NRR is preparing that, and we've been providing  
14 input on it.

15 We are having further discussions on proceeding  
16 with a generic rule on severe accident requirements, for  
17 these evolutionary plants, for the evolutionary light  
18 water reactors, and it would apply, I think, not only to  
19 the ABWR, but also to the SP90, to the System 80, and to  
20 the EPRI requirements document plan.

21 We'll be making a recommendation on this  
22 rulemaking after you have the Commission paper on the  
23 ABWR, which treats --

24 MR. STELLO: Let me say, Mr. Chairman, that Part  
25 52 has come out, to provide specific guidance on how to do

1 that, and we are going to implement that guidance, and the  
2 first indication of the implementation, that guidance will  
3 be the ABWR is considered as furthest along, and we hope  
4 that will be coming up to you, and we will follow the--  
5 I've forgotten which part of the rule, but that portion of  
6 the rule that deals with this issue --

7 CHAIRMAN ZECH: All right.

8 MR. STELLO: -- and we'll comply fully with the  
9 intent, spirit and letter of that requirement.

10 CHAIRMAN ZECH: All right. Thank you. You may  
11 proceed.

12 MR. BECKJORD: I'm finished with what I was  
13 presenting, Mr. Chairman, if there are any questions.

14 CHAIRMAN ZECH: All right. Thank you very much.

15 Questions from my fellow Commissioners?  
16 Commissioner Roberts?

17 COMMISSIONER ROBERTS: No.

18 CHAIRMAN ZECH: Commissioner Rogers?

19 COMMISSIONER ROGERS: No, I don't think so.

20 CHAIRMAN ZECH: Commissioner Curtiss?

21 COMMISSIONER CURTISS: I do have two or three  
22 questions. Let me go back to the discussion of the  
23 relationship of the IPE program and the CPI program that  
24 are underway.

25 It looks to me like you've identified two

1 significant consequences of deferring the CPI program, or  
2 at least the MARK I program, until completion of the IPE  
3 program. First, a scheduler conflict, which would result  
4 in, as I understand it, a delay in the IPE program as we  
5 know it today, by two to three years. And, secondly,  
6 related to that, the need to rethink the strategy for how  
7 we treat issues like containment load and containment  
8 performance. Can you expand upon that second point, and  
9 give us a feel for what would be required as we rethink  
10 the strategy, if we were to combine the two programs?

11 MR. STELLO: Well, two answers, first. Part A  
12 of the answer would be, it would depend on whether you  
13 would allow the IPE to continue, or you would make a  
14 policy decision and say "Stop the IPE until I have  
15 finished that work", then figure out how to combine them  
16 and move forward.

17 Clearly, if you went and followed that approach,  
18 that would be the longest of all of them, by adding it and  
19 saying stop until you've done it. If, on the other hand,  
20 you take the approach like we are now, which is the IPE  
21 ongoing, working the containment issues -- if I recall,  
22 all of those will be finished about the end of this year  
23 -- and then allowing those --

24 MR. BECKJORD: I think preliminary, not final.

25 MR. STELLO: Yes -- allowing those to be

1 integrated into the process as it moves on. Our judgment  
2 is that that's the best approach because it allows the  
3 gain and the benefit for where we think the most  
4 significant benefit and risk reduction is, is from the  
5 application of the IPE program and the internal event, and  
6 that's the prevention side.

7 We think you can, based on what we have seen, is  
8 there's quite a bit, the lessons learned, that we have in  
9 severe accident management, for example.

10 COMMISSIONER CURTISS: I understand that. If  
11 you deferred the CPI program until you completed the IPE  
12 program, or integrated it within the IPE program -- I  
13 guess my question is, how would the analytical approach  
14 that we're using now in the IPE program, differ on  
15 containment issues?

16 DR. SPEIS: Okay. Let me -- let's talk about  
17 delay because it's part of it. When we talk about a  
18 delay, we're not talking about delay of two to three years  
19 in the IPE, we're talking about delay in implementing  
20 generic improvements of containment performance. So,  
21 that's a little bit different than delaying the IPE.

22 COMMISSIONER CURTISS: No, I understand that.  
23 If you postpone the CPI fixes for MARK I until after the  
24 IPE program, and if the IPE program is three years off  
25 from June, or whenever the revised letter goes out, you'll

1 have a three-year delay in the imposition of the MARK I  
2 fix.

3 My question is, if you do that, will there be a  
4 delay in completion of the IPE program?

5 DR. SPEIS: Okay. Let's come up to that  
6 question. Right now, the IPE addresses two parts. The  
7 likelihood of core damage -- okay, the systems, the  
8 prevention side, as well as the mitigation side, but the  
9 mitigation side is very limited in scope because the large  
10 part of the scope dealing with the mitigation will be  
11 handled in the Containment Performance Improvements part,  
12 okay?

13 So, if we are to fold the CPI program into the  
14 IPE, then we'll have to go and revisit the containment  
15 performance part of the IPE, to make sure that the things  
16 that we're hoping to do in the CPI part will be done, and  
17 we see some delay there, for over six months or,  
18 certainly, at least it's my estimate, to revisit the  
19 guidance on the back end, to make sure that the things  
20 that we thought were going to be done in the CPI, will now  
21 definitely have to be done in the IPE part of the program.

22 DR. MURLEY: The kinds of analyses,  
23 Commissioner, that were done by the staff in the generic  
24 study, they are very sophisticated analyses. They result  
25 from years and years of experience not only the staff, but

1 at the laboratories.

2 It was not intended that the utilities should  
3 duplicate that analysis. It's detailed structural  
4 analysis and that sort of thing. If, now, we do have to  
5 go back and ask them to consider these generic things that  
6 we have come to a conclusion on, I think it's a much more  
7 sophisticated requirement that we're laying on them, and  
8 I, for one, have to rethink the whole process if we do  
9 that.

10 MR. BECKJORD: There's an aspect which hasn't  
11 really been mentioned yet, which is our own resources, and  
12 that was a factor. Consideration of our resources was a  
13 factor in developing the program this way. If the two  
14 approaches are put together, I think it's likely to  
15 require greater resources here at the Commission in order  
16 to carry it out, as well as, I think, implicit in what Tom  
17 is saying, I think greater utility resources. So, that's  
18 another consideration.

19 COMMISSIONER CURTISS: Is it possible that the  
20 IPE process as we know it today, will result in new  
21 phenomenological information that might shed some light on  
22 the CPI?

23 DR. SPEIS: I doubt it, personally, you know. I  
24 think most of the issues -- in fact, I don't think any new  
25 issues, phenomenologically, have been identified for the

1 last two or three years. It's a kind of refinement of the  
2 calculations. I don't foresee any new -- but it's  
3 possible, you know, we don't want to exclude it but, based  
4 on our experience, I doubt it.

5 MR. BECKJORD: Can't you say that in most cases,  
6 what it will do, it's a kind of a quality assurance check  
7 from a PRA point of view, to show that the -- if there are  
8 any faults in existing systems and, as a result of fixing  
9 those, you'd be assured that existing systems will  
10 function as designed.

11 COMMISSIONER CURTISS: One other question on  
12 CPI. As I understand the schedule, we'll have the staff's  
13 recommendations on ice condensers, and the other  
14 containments, by the end of this year?

15 MR. BECKJORD: Yes. I said preliminary. We  
16 presented to the Commission the preliminary  
17 recommendations on MARK I late last fall, and it would be  
18 analogous to that. So, there would be another round. The  
19 final might take several months after that.

20 COMMISSIONER CURTISS: So, we're looking at mid-  
21 '90, to make the -- to have the kind of recommendation we  
22 had on MARK I for the specific fixes.

23 DR. SPEIS: I think we can do a little bit  
24 better because we have now access to the 1150, and I think  
25 we have pretty good control of what's going on in the

1 other containments, as far as what are the important  
2 challenges in the priority of failure modes, so I think  
3 we'll play the leg out. So, I think it looks very good,  
4 that probably -- maybe a few months beyond the end of this  
5 year, we'll have the final recommendations.

6 COMMISSIONER CURTISS: One other quick question,  
7 jumping over to the last graph on severe accidents for the  
8 LWRs. I want to make sure I understand the schedule here.  
9 You will submit the proposed approach for severe accidents  
10 when we get the ABWR paper?

11 DR. SPEIS: Yes.

12 MR. STELLO: That will be within a week or two,  
13 and that will be the first application of the new approach  
14 to Part 52.

15 COMMISSIONER CURTISS: Will that, based upon  
16 what we know now, reflect this staff generic thinking of  
17 how to approach it?

18 MR. STELLO: Yes. Well, the Commission asked  
19 that we would specifically look, is there something that  
20 comes out of it which we believe is worthy of generic  
21 rulemaking and to identify that, and we'll do that.

22 I'll give you a -- I was going to call it  
23 probably combination judgment-guess at the moment. Based  
24 on what I've heard so far, it doesn't appear that we have  
25 any of those that would pop up but, if we do, it may be



1 one --

2 COMMISSIONER CURTISS: And following on that,  
3 shortly after that, we'd have a paper from the staff, both  
4 a recommendation as to whether to proceed with rulemaking  
5 or severe accident --

6 MR. STELLO: On those issues.

7 COMMISSIONER CURTISS: -- for LWRs.

8 MR. STELLO: Well, we're going to do it for the  
9 ABWR first.

10 COMMISSIONER CURTISS: I understand that.

11 MR. STELLO: We're working the EPRI requirements  
12 document, we may need to have some of that under our belt  
13 before we can take then, is there any question of generic,  
14 and we need to think about that a little bit more.

15 COMMISSIONER CURTISS: What would the schedule  
16 be for submitting the paper on the rulemaking?

17 MR. STELLO: When are we getting the EPRI  
18 requirements, Chapter 13? It's probably later this year,  
19 do you know? I don't remember the date on which that  
20 information is coming in. We'll get back to you.

21 COMMISSIONER CURTISS: Thank you. That's all I  
22 have.

23 CHAIRMAN ZECH: Thank you. Commissioner Rogers,  
24 any questions?

25 COMMISSIONER ROGERS: No. I'd just like to go

1 back to the external events question for a moment. Could  
2 you clarify why we had to develop a simplified methods  
3 approach for including external events during analyses?  
4 There have been methods found by industry, for this. What  
5 was the issue that required us to set up a new group to  
6 define a simplified method approach?

7 DR. SPEIS: I think the setting up of the group  
8 was more than -- as we said in the IPE generic letter, was  
9 to determine which events should be included in the  
10 examination. We also said at that time, that we felt that  
11 a number of external events went beyond the design basis,  
12 and we want to make sure that we understand those external  
13 events, so we don't have the industry repeat an evaluation  
14 for those external events that went beyond the original  
15 design basis.

16 Also, there was a question about integrating a  
17 number of external event issues, generic issues like 846,  
18 which is the equipment qualification to external events,  
19 and the other issue was, let's make sure that we use the  
20 best methods available. Both the industry and NRC in  
21 parallel, were developing a seismic response method which  
22 was much more simple and effective than full scope PRA for  
23 external events and, in addition, I think what Eric said,  
24 we are taking a look at the possibility of coming up with  
25 a more simplified fire methodology, which will be as

1 effective, and maybe much cheaper than using a complete  
2 PRA for fire.

3 So, all these things were a part of the scope of  
4 this group for external events.

5 MR. STELLO: Commissioner Rogers, maybe I  
6 misunderstood your question, but our intent is to, in  
7 fact, use some of these methods that have been developed  
8 by the industry, but those are a side door --

9 COMMISSIONER ROGERS: Kind of a side door  
10 effect.

11 MR. STELLO: Yes, and those are --

12 COMMISSIONER ROGERS: They bring this all  
13 together.

14 MR. STELLO: Yes, and our intent is to do that.  
15 It is not different from, but it is taking that plus some  
16 other things and getting it all, so we can do it all at  
17 one time.

18 COMMISSIONER ROGERS: All right. Good. Good.

19 MR. BECKJORD: And I think that the work in the  
20 seismic area is what got people to thinking about,  
21 couldn't we do something like that in fire, and so that's  
22 where this idea came from.

23 COMMISSIONER ROGERS: All right. Okay. Fine.  
24 Thank you.

25 CHAIRMAN ZECH: Are there any other comments

1 from my colleagues?

2 (No response.)

3 Well, let me thank the Commission for a very  
4 informative briefing. It certainly would appear to me  
5 that the NRC staff has made significant progress towards  
6 closure of the severe accident issues, and I certainly  
7 commend the staff for the progress that has been made,  
8 although there's still a lot of work to be done, and I  
9 think in the remaining work, we must be diligent in our  
10 efforts to ensure consistency in all of our NRC programs.

11 We are addressing a number of very important  
12 issues here, and we are trying to keep them integrated,  
13 and I think in so doing, it's awfully important that we  
14 address these issues, recognizing the threat of  
15 consistency that must run through all of them. It's  
16 apparent to me that you're doing that, and I just  
17 encourage you to continue.

18 Also, I think it's important to emphasize the  
19 importance of the schedule that we're trying to keep here,  
20 and some of the dates you've given us, I think, are  
21 important. On the other hand, I think we should  
22 particularly keep in mind the implementation of quality  
23 resolutions of these issues. To me, that's of primary  
24 importance. I think you're doing that, too.

25 I don't think we should hurry into these things

1 that are going to have generic and significant impacts,  
2 but I do feel that we should adhere to some kind of a  
3 schedule that disciplines our actions, and I think we're  
4 doing that also, but I emphasize the importance of the  
5 quality of the work you're doing.

6 I think it's important that the Commission be  
7 kept informed of the status of your implementation of  
8 these severe accident integration plans, and I would  
9 suggest that we need to be informed at least on a  
10 quarterly basis, and perhaps with an information paper you  
11 can keep us informed so that we'll have something to look  
12 at in that regard.

13 We'll have other briefings, of course, but I  
14 think a paper that would kind of keep the Commission  
15 current as to the number of issues we're discussing and  
16 that could summarize the status of this program would be  
17 very useful. So, I would ask you to do that for us,  
18 please.

19 COMMISSIONER ROGERS: Excuse me.

20 CHAIRMAN ZECH: Yes.

21 COMMISSIONER ROGERS: I wonder if some kind of a  
22 matrix of a calendar, with all these things on it, would  
23 give us an overall picture of where these --

24 MR. STELLO: I might suggest, Mr. Chairman, at  
25 the pace these things move, perhaps it might be more

1 useful to try it twice a year first. I don't know that  
2 they're moving on a basis fast enough to do it quarterly,  
3 but we'll try one and go from there.

4 CHAIRMAN ZECH: Why don't you put one together  
5 for us, and --

6 MR. STELLO: And then we can see how fast things  
7 change.

8 CHAIRMAN ZECH: I think perhaps twice a year  
9 would be sufficient, but in the first one you present to  
10 us, why don't you give us a recommendation as to the --

11 MR. STELLO: Yes, we will.

12 CHAIRMAN ZECH: -- as to the timeliness you  
13 think would be appropriate. I would say at least twice a  
14 year, but perhaps more often. You take a look at it as  
15 you put it together for us, if you would.

16 MR. STELLO: Okay.

17 CHAIRMAN ZECH: Are there any other comments  
18 from my fellow Commissioners?

19 (No response.)

20 If not, thank you very much for an excellent  
21 briefing. We stand adjourned.

22 (Whereupon, at 10:35 a.m., the meeting was  
23 adjourned.)

24

25

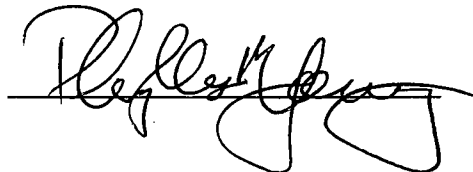
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PLACE OF MEETING: ROCKVILLE, MARYLAND

DATE OF MEETING: APRIL 13, 1989

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1323 RHODE ISLAND AVENUE, N.W.  
WASHINGTON, D.C. 20005

**COMMISSION BRIEFING**  
**ON**  
**IMPLEMENTATION OF THE**  
**SEVERE ACCIDENT INTEGRATION PLAN**

**E. S. BECKJORD**  
**THEMIS P. SPEIS**  
**(301) 492-3710**  
**OFFICE OF RESEARCH**  
**USNRC**  
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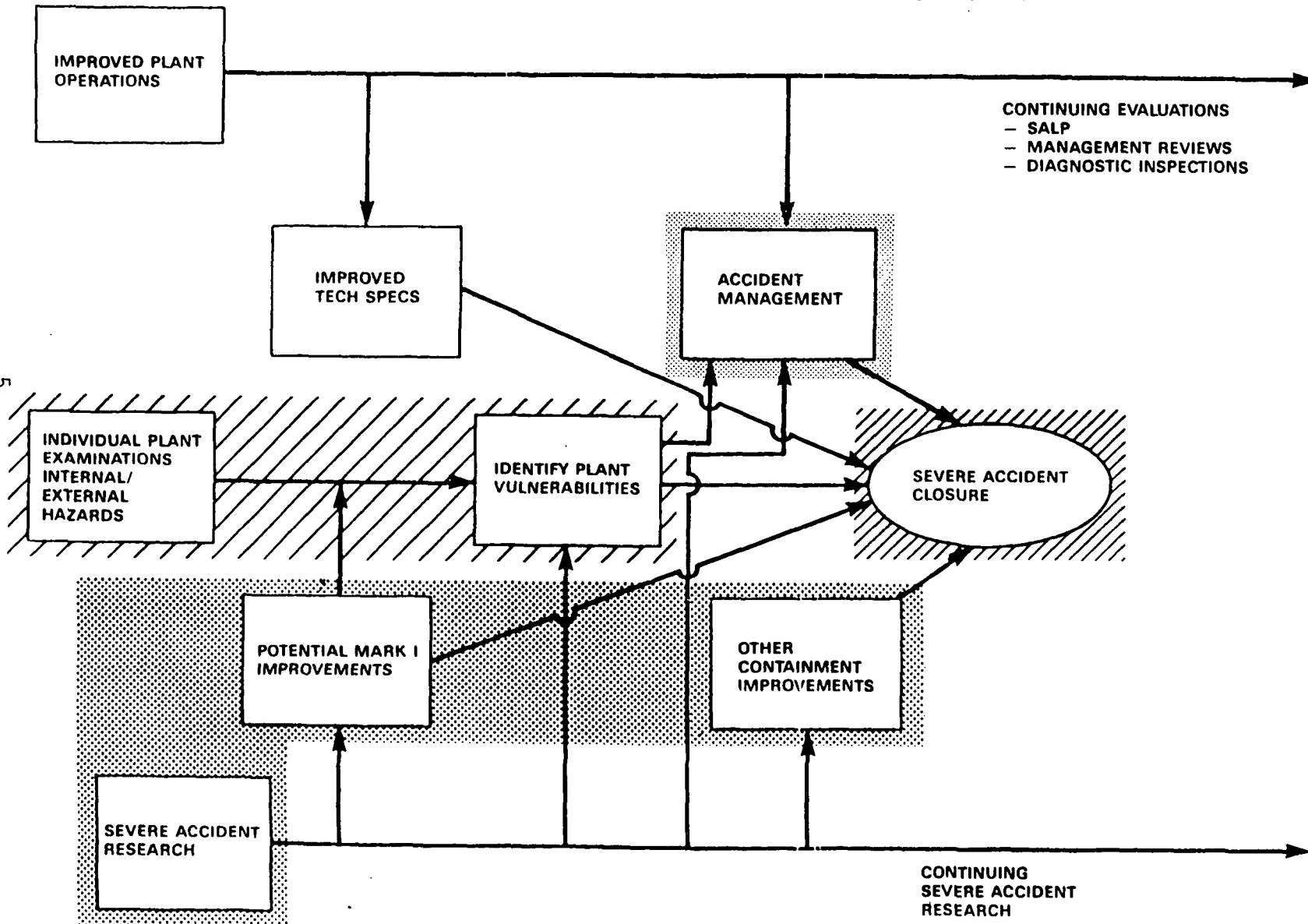
## **BACKGROUND**

- o - JUNE 2, 1988, STAFF BRIEFED COMMISSION ON SEVERE ACCIDENT INTEGRATION PLAN (SECY-88-147)**
- o - AS A RESULT OF THE FOLLOW-UP SRM OF 6/24/88 THE STAFF HAS:**
  - 1. -ESTABLISHED (9/22/88) A SENIOR SEVERE ACCIDENT REVIEW GROUP (SSARG) TO REVIEW AND COORDINATE RELATED SEVERE ACCIDENT PROGRAMS**
  - 2. -ISSUED (02/24/89) A PLAN CHARTING IMPORTANT MILESTONES OF THE SEVERE ACCIDENT PROGRAM**
- o - THE SSARG HAS MET ON 12/8/88 AND 02/7/89. THE DISCUSSIONS HAVE FOCUSED ON ISSUES AFFECTING THE INTEGRATION OF THE CPI, AM, IPE PROGRAMS AND THE IPE WORKSHOP**
- o - AUGUST 5, 1988, STAFF BRIEFED COMMISSION ON THE IPE PROGRAM (SECY-88-205)**

## **BACKGROUND (CONTINUED)**

- o - OCTOBER 1988, COMMISSION APPROVED ISSUANCE OF IPE GENERIC LETTER, SECY-88-205**
- o - NOVEMBER 1988, ISSUED IPE GENERIC LETTER 88-20**
- o - JANUARY 26, 1989, STAFF BRIEFED COMMISSION ON RECOMMENDATIONS FOR MARK I CONTAINMENT PERFORMANCE IMPROVEMENTS (SECY-89-017)**
- o - JANUARY 24, 1989, STAFF BRIEFED COMMISSION ON ACCIDENT MANAGEMENT PROGRAM (SECY-89-012)**
- o - MARCH 15, 1989, STAFF BRIEFED COMMISSION ON STATUS OF NUREG-1150 (SECY-89-058)**
- o - FEBRUARY 28 - MARCH 2, 1989, HELD IPE WORKSHOP**
- o - APRIL 13, 1989, BRIEFING ON SAFETY GOAL PAPER AND STATUS**
- o - MAY 1989, SCHEDULED COMMISSION BRIEFING ON SEVERE ACCIDENT RESEARCH PLAN**

**FIGURE 1**  
**SEVERE ACCIDENT PROGRAM - SCHEMATIC**



## **INDIVIDUAL PLANT EXAMINATIONS (IPE) PROGRAM**

- o - COMMISSION BRIEFED ON THE IPE PROGRAM AUGUST 5, 1988 AND APPROVED ISSUANCE OF THE IPE GENERIC LETTER IN OCTOBER 1988 (SECY-88-205).**
- o - GENERIC LETTER 88-20 REQUESTING THE IPE's ISSUED IN NOVEMBER 1988.**
- o - NUREG-1335, "INDIVIDUAL PLANT EXAMINATION: SUBMITTAL GUIDANCE" ISSUED AS A DRAFT FOR COMMENT IN JANUARY 1989.**
- o - IPE WORKSHOP HELD FEBRUARY 28 - MARCH 2, 1989 IN FORT WORTH, TEXAS.**
  - ATTENDED BY OVER 300 REPRESENTATIVES FROM UTILITIES, VENDORS, CONSULTANTS AND FOREIGN COUNTRIES.**
  - HIGHLY SUCCESSFUL MEETING; MET THE OBJECTIVES OF EXPLAINING/DISCUSSING THE IPE PROCESS; RECEIVED COMMENTS AND QUESTIONS ON STAFF'S IPE GUIDANCE AND OTHER SEVERE ACCIDENT RELATED PROGRAMS**

## **INDIVIDUAL PLANT EXAMINATIONS (IPE) PROGRAM (CON'T)**

- o - STAFF IS CURRENTLY REVIEWING THE COMMENTS AND QUESTIONS RECEIVED. DETAILED WRITTEN RESPONSES WILL BE PROVIDED, AND NUREG-1335 WILL BE REVISED ACCORDINGLY AND REISSUED BY JUNE 1989**
- o - UTILITIES TO PROVIDE INITIAL SUBMITTALS INDICATING PLANS AND SCHEDULES FOR THEIR IPES WITHIN 60 DAYS OF ISSUANCE OF NUREG-1335.**
- o - THE ACCIDENT MANAGEMENT PROGRAM IS BEING INTEGRATED WITH THE IPE PROCESS CONSISTENT WITH COMMISSION DIRECTION.**

## **CONTAINMENT IMPROVEMENT PROGRAM (CPI)**

- o - STAFF PRESENTED CPI PROGRAM RECOMMENDATIONS FOR PLANTS WITH MARK I CONTAINMENTS TO THE COMMISSION ON JANUARY 26, 1989 (SECY-89-017).**
  - RECOMMENDED IMPROVEMENTS INCLUDE 1) HARDENED VENT, 2) ALTERNATE WATER SUPPLY TO CONTAINMENT AND VESSEL, 3) ADS ENHANCEMENTS, AND 4) IMPLEMENTATION OF REVISION 4 OF THE BWROG EPGs.**
  - STAFF RECOMMENDED IMPLEMENTATION USING PLANT-SPECIFIC BACKFITS**
- o - COMMISSION MET WITH THE ACRS ON FEBRUARY 27, 1989 TO DISCUSS ACRS COMMENTS ON THE MARK I CPI PROGRAM RECOMMENDATIONS.**

## **CONTAINMENT IMPROVEMENT PROGRAM (CPI) (CON'T)**

- o - CPI PROGRAM FOR OTHER CONTAINMENT TYPES ARE IN PROGRESS, MAKING USE OF THE LATEST RESULTS FROM THE NUREG-1150 PROGRAM AND SEVERE ACCIDENT RESEARCH.**
  - BWR MARK II AND ICE CONDENSER CONTAINMENT STUDIES HAVE BEEN UNDERWAY SINCE THE BEGINNING OF THE FISCAL YEAR.**
  - MARK III AND LARGE DRY CONTAINMENT EFFORTS ARE CURRENTLY STARTING.**
  - TARGET TO PROVIDE INITIAL CONCLUSIONS CONCERNING ALL CONTAINMENT TYPES BY THE END OF THE CALENDAR YEAR.**



## **INDIVIDUAL PLANT EXAMINATIONS FOR EXTERNAL EVENTS (IPEEE)**

- o - INDIVIDUAL PLANT EXAMINATIONS FOR EXTERNAL EVENTS (IPEEE) WERE NOT REQUESTED IN THE INITIAL IPE GENERIC LETTER IN ORDER TO MINIMIZE THE BURDEN ON UTILITIES. SPECIFICALLY, THE STAFF IS:**
  - DETERMINING WHICH EXTERNAL EVENTS SHOULD BE INCLUDED IN THE EXAMINATION AND WHICH CAN BE EXCLUDED**
  - DEVELOPING SIMPLIFIED METHODS OF PERFORMING THE EXAMINATIONS, AND**
  - INTEGRATING OTHER REGULATORY ACTIVITIES INVOLVING EXTERNAL EVENTS WITH THE IPEEE.**

## **INDIVIDUAL PLANT EXAMINATIONS FOR EXTERNAL EVENTS (CON'T)**

- o - EXTERNAL EVENTS STEERING GROUP (EESG) FORMED IN DECEMBER 1987 TO MAKE RECOMMENDATIONS FOR THE IPEEE. THREE SUBCOMMITTEES FORMED (SEISMIC, FIRES, OTHERS) TO HELP DEFINE DETAILED TASKS NEEDED TO SUPPORT RECOMMENDATIONS.**
- o - WORK PLANS DEVELOPED BY THE SUBCOMMITTEES HAVE BEEN APPROVED BY THE EESG AND ARE UNDERWAY.**
- o - WORK IS SCHEDULED TO BE COMPLETED BY SEPTEMBER 1989, WITH RECOMMENDATIONS FOR IPEEE'S TO THE COMMISSION IN DECEMBER 1989.**

## **ACCIDENT MANAGEMENT**

- o - STAFF PLANS FOR A/M REGULATORY AND RESEARCH PROGRAM (SECY-89-012) PRESENTED TO COMMISSION ON JANUARY 24, 1989.**
- o - STAFF RECEIVED SRM ON 3/1/89, REQUIRING THE FOLLOWING:**
  - REQUIREMENT 1: FULLY INTEGRATE A/M WITH THE IPE PROCESS**
  - RESPONSE: CONTINUING COORDINATION MEETINGS HAVE BEEN ESTABLISHED. A/M PLANS WERE PRESENTED AT THE RECENT IPE WORKSHOP.**
  - REQUIREMENT 2: PROVIDE LESSONS LEARNED TO INDUSTRY**
  - RESPONSE: RESEARCH EXCHANGE MEETING WAS HELD WITH NUMARC/EPRI. INFORMATION ON SEVERE ACCIDENT PROCEDURES WILL BE PROVIDED IN FORTHCOMING GENERIC LETTERS**

## **ACCIDENT MANAGEMENT (CON'T)**

- REQUIREMENT 3: WORK WITH NUMARC TO DEFINE A/M SCOPE
- RESPONSE: SCHEDULE FOR COOPERATIVE FRAMEWORK AND SCOPE DEVELOPMENT PROPOSED AND DISCUSSED WITH NUMARC/EPRI. DIALOGUE IS CONTINUING
- REQUIREMENT 4: INCORPORATE COMMISSION DIRECTIVES IN FIVE YEAR PLAN (FYP)
- RESPONSE: STAFF WILL DO SO IN NEXT FYP
- o - NEW PROGRAMS ON A/M PROCEDURES AND FRAMEWORK HAVE BEGUN
- o - STAFF IS PREPARING RESPONSE TO SRM

## **THE SEVERE ACCIDENT RESEARCH PLAN (SARP)**

- o SECY-88-147, "INTEGRATION PLAN FOR CLOSURE OF SEVERE ACCIDENT ISSUE," MAY 1988, IDENTIFIED THE MAJOR AREAS WHERE SARP PROVIDES INPUT AND SUPPORT TO THE OTHER ELEMENTS OF THE SEVERE ACCIDENT PROGRAM:**
  - 1. TECHNICAL BASE FOR ASSESSING CONTAINMENT PERFORMANCE OVER THE RANGE OF RISK-SIGNIFICANT EVENTS**
  - 2. CAPABILITY TO EVALUATE THE EFFICACY OF GENERIC CONTAINMENT PERFORMANCE IMPROVEMENTS**
  - 3. UNDERSTANDING THE RANGE OF PHENOMENA EXHIBITED BY SEVERE ACCIDENTS, INCLUDING THE IMPACTS OF GENERIC ACCIDENT MANAGEMENT PROCEDURES**
  - 4. REDUCING UNCERTAINTY IN ESTIMATES OF RISK**

**THE SEVERE ACCIDENT RESEARCH PLAN (SARP)**  
**(CONTINUED)**

- o - SARP RESTRUCTURED/REVISED TO FOCUS ON:**
  - NEAR-TERM RESEARCH NECESSARY FOR REGULATORY DECISIONS**
  - LONGER TERM CONFIRMATORY AND THE DEVELOPMENT OF BROADLY BASED SEVERE ACCIDENT RESEARCH INFORMATION**
- o - REVISED PLAN REVIEWED BY MAJOR COMMISSION OFFICES, EXPERTS AT NATIONAL LABORATORIES AND UNIVERSITIES, EPRI, ACRS; ACRS IN LETTER TO CHAIRMAN DATED MARCH 15, 1989, SUPPORTIVE OF STAFF'S APPROACH**
- o - STAFF TO BRIEF COMMISSION ON REVISED SARP ON MAY 2, 1989**

## **NUREG-1150 STATUS**

### **STATUS:**

- o - ACCIDENT FREQUENCY ANALYSES FOR INTERNAL EVENTS COMPLETED (REPORTED TO COMMISSION IN SECY-89-058)**
- o - ANALYSES OF INTERNAL EVENTS RISK, EXTERNAL EVENTS ACCIDENT FREQUENCY AND CONTAINMENT PERFORMANCE UNDERWAY**
- o - NUREG-1150 DUE TO EDO APRIL 17, 1989, INCLUDING TREATMENT OF SEISMIC EVENTS**

### **USES:**

- o - USES IDENTIFIED IN SECY-88-147**
- o - SUBJECT OF CONTINUING DIALOGUE WITH ACRS**

### **PEER REVIEW:**

- o - STATUS (PRELIMINARY CHARTER, MEMBERSHIP) DISCUSSED IN MARCH 14, 1989 MEMORANDUM TO COMMISSION**

# **SEVERE ACCIDENT IMPLEMENTATION FOR FUTURE PLANTS**

## **ADVANCED NON-LWRS**

- o - SECY-88-203 ISSUED ON 7/15/88**
- o - ON HOLD, AWAITING RATIONALE ON DOE DECISION BASE FOR CONTAINMENTS**

## **LIGHT WATER REACTORS**

- o - SECY-88-248 ISSUED ON 9/6/88**
- o - WITHDRAWN ON 12/28/88 & UNDER REVISION**
- o - REVIEW EACH DESIGN**
- o - DETERMINE NECESSARY FEATURES**
- o - ABWR REVIEW RESULTS**
- o - ASSESS NEED FOR RULEMAKING**