

NUCLEAR REGULATORY COMMISSION

ORIGINAL

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
SUBCOMMITTEE ON SAFETY CRITERIA AND PHILOSOPHY

In the Matter of:

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
SUBCOMMITTEE ON SAFETY CRITERIA AND PHILOSOPHY

Nuclear Regulatory Commission  
Room 762  
1717 H Street, N. W.  
Washington, D. C.

Wednesday, August 6, 1980

The Subcommittee on Safety Philosophy and Criteria  
met, pursuant to notice, at 1:05 p.m.

MEMBERS PRESENT:

- DAVID OKPENT, Presiding
- JESSIE EBERSOLE

DESIGNATED FEDERAL REPRESENTATIVE:

- RICHARD SAVIO

ALSO PRESENT:

- W. Kane
- G. SEGE

\* \* \*

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

1  
2 MR. OKRENT: The meeting will now come to order.

3 This is a meeting of the Advisory Committee on  
4 Reactor Safeguards, Subcommittee on Safety Philosophy and  
5 Criteria.

6 I am David Okrent, the Subcommittee Chairman. The  
7 other ACRS member present today is Mr. Jessie Ebersole.

8 The purpose of this meeting is to discuss the  
9 development of requirements for near-term construction  
10 plants, or NTCP plants and to hear a presentation by the NRC  
11 Office of Policy Evaluation on proposed work plan for  
12 developing safety goals.

13 The meeting is being conducted in accordance with  
14 the provisions of the Federal Advisory Committee Act, the  
15 government and the Sunshine Act.

16 Dr. Richard Savio is the designated federal  
17 employee for the meeting.

18 The rules for participation in today's meeting  
19 have been announced as part of the notice for this meeting  
20 previously published in the Federal Register on July 22,  
21 1980. A transcript of the meeting is being kept and will be  
22 made available as stated in the Federal Register notice.

23 It is requested that each speaker first identify  
24 himself and speak with sufficient clarity and volume so that  
25 he can be readily heard.

1           We have received a written statement from offshore  
2 power systems. Copies of the statement have been  
3 distributed to the subcommittee and will be included in the  
4 record of the meeting.

5           We will now proceed with the meeting and I call  
6 upon Mr. William Kane of the NRC staff.

7           MR. KANE: Thank you, Professor Okrent. Do you  
8 mind if I sit.

9           MR. OKRENT: As you wish.

10          MR. KANE: I would like to give a brief status  
11 report of where we stand on this program.

12          First, I am with the Division of Licensing in the  
13 Office of Nuclear Reactor Regulations. I have been involved  
14 in this program since the outset.

15          As you know, on March 17th of this year an NRR  
16 task force was formed to propose TMI related requirements  
17 for the near-term construction permit in manufacturing  
18 license applications. We used the action plan as the basis  
19 for this.

20          In March and April of this year we held meeting  
21 with the near-term construction permit applicants, of which  
22 there are six and the ML applicant.

23          On April 4th we developed our initial set of  
24 proposed requirements. As you may recall, we broke down the  
25 action plan items into five categories.

1           The first one was not applicable, things that just  
2 were not applicable to CP plants for one of a number of  
3 reasons.

4           The second category were areas where we felt that  
5 the applicants could simply provide commitments to do  
6 something in the operating license stage.

7           The third category was areas where studies would  
8 be developed even after the construction permits were issued  
9 in order to make modifications that would be implemented in  
10 reviewing the operating license stage.

11           The fourth category were requirements where we  
12 felt we may need some explanation of just how they were  
13 going to go about meeting the action plan. This would be a  
14 general level of information and not equivalent to that  
15 which was normally provided at the construction permit stage.

16           Then the last category were those things that we  
17 felt we had to have a full amount of detail on in order to  
18 give the construction permit.

19           On April 9th we met with your TMI-2 Implication  
20 Subcommittee and we received feedback on our proposal.

21           On April 22nd we made revisions to these  
22 requirements. One of the notable revisions I think was in a  
23 reliability engineering area where we used a number of the  
24 comments that you had made at the meeting.

25           On May 2nd we met with the full committee. At

1 that time the near-term construction permit applicants had  
2 indicated they had a number of problems with our proposal  
3 and had proposed to meet with your subcommittee again, I  
4 believe it was in June or July, to provide alternates to the  
5 staff proposal. As you will recall, they had engaged two  
6 consultants to develop these proposals.

7           On May 6th you issued an ACRS letter in which you  
8 indicated that you had developed a subcommittee to work with  
9 the staff and with the applicants as these requirements were  
10 to be developed.

11           On July 15th the manufacturing license applicant  
12 submitted responses to the proposed requirements that we had  
13 developed back in April. I think you may have a copy of  
14 that.

15           On July 23rd we eventually issued a paper to the  
16 Commission outlining our specific proposal. Originally we  
17 had intended to go forward to them with the complete package  
18 of information to get their approval. This proposal was  
19 modified in July.

20           Our approach now is to issue our requirements for  
21 review and comment by the public. After the receipt of  
22 public comments we would then go back to the Commission for  
23 approval of the requirements for the construction permits  
24 and for the manufacturing license application.

25           On August 1st of this year the Commission approved

1 that staff proposal.

2           Now, as far as the future activities are  
3 concerned, probably next week we will issue a Federal  
4 Register notice inviting comments on the proposed  
5 requirements. I believe you have a copy of the July 23rd  
6 Commission paper and the Federal Register notice that we  
7 plan to issue is Enclosure 4 I believe to that package.

8           MR. OKRENT: Yes. I received that last night. I  
9 don't know when Dr. Savio got it. I am not sure whether I  
10 have or have not seen the applicant's submission in July  
11 that you mentioned.

12           MR. KANE: The applicant has not made a submittal  
13 to us as of this date.

14           MR. OKRENT: What was it you mentioned that he had  
15 done in July?

16           MR. KANE: Well, as you recall, at the ACRS  
17 meeting, the full committee meeting, they told us that they  
18 had a problem with a number of areas, the principal one  
19 being the degraded core cooling area and reliability  
20 engineering. I believe those were the two major ones. Also  
21 citing.

22           What they claimed to have done was to engage two  
23 consultants, Saul Levy and Levine from NUS, to look into  
24 developing proposals, alternate proposals to that which had  
25 been developed by the staff in these areas. These were to

1 culminate, as I understood it, in reports which would be  
2 submitted to the staff for review and to the ACRS and then  
3 would be the subject of an ACRS meeting to be held about a  
4 month thereafter.

5           As I understand it, these reports have been  
6 developed but they are still under review by the utilities  
7 and I know of no immediate plans for them to submit those  
8 reports.

9           MR. OKRENT: I thought you said they had submitted  
10 something commenting on your proposal. Perhaps I  
11 misunderstood what you said.

12           MR. KANE: We held several meetings with the  
13 applicants back in March and April at the time we were  
14 putting together our requirements. We did receive some  
15 feedback from them, but we have not received a package of  
16 comments, formal comments or alternate proposals to the ones  
17 developed by us.

18           MR. OKRENT: When you talk about a package of  
19 requirements, or whatever it is, from the staff, this  
20 proposal as described in SECY 83-48, this is not identical  
21 with what you were talking about in March and April, is it?

22           MR. KANE: No, it is not.

23           The Federal Register notice will indicate that  
24 there is a NUREG document 0718 which outlines in more  
25 detail, or in complete detail our proposal. The NUREG  
document will have in it a discussion of the program



1 reports, how the requirements were developed and will  
2 include each of the action plan items and assign a specific  
3 category to it, as I mentioned, the 1 through 5.

4           Then there will be a supplemental description for  
5 each of the action plan items that require the delivery of  
6 information to us other than a commitment to explain exactly  
7 what is required to be submitted and the level of detail  
8 associated with that submittal. This NUREG document will be  
9 published next week simultaneously with the issuance of the  
10 Federal Register notice.

11           The next activity that we think is important is we  
12 would like to meet again with the ACRS, with your  
13 subcommittee and eventually with the full committee parallel  
14 with the public comment period which is 45 days to receive  
15 the ACRS feedback from your review of these requirements.

16           Finally in October we would expect to consider all  
17 of the comments, including those of ACRS, and make any  
18 revisions to the requirements that need to be made, meet  
19 with the Commission perhaps the same month, or November,  
20 with a November 1980 being a likely date for Commission  
21 approval of the requirements.

22           That is where we have been and what we plan to do.

23           MR. OKRENT: Is there some reason why this was  
24 brought up to the Commission the week before the ACRS  
25 meeting instead of the week after? I am just sort of

1 curious.

2 MR. KANE: It just happened to work out that way.  
3 This proposal had been in the mill since after we met with  
4 ACRS. It was changed slightly in July. It was expedited as  
5 best we could, and it just happened to come out on the 23rd  
6 of July. We had met with the committee, both your  
7 subcommittee and with the full committee, and we had  
8 received some feedback from you. We had indicated at that  
9 meeting that our next step was to go to the Commission with  
10 this proposal and to get their reaction to it.

11 As I said, the proposal had been changed from  
12 rather than going to the Commission for their approval of  
13 these requirements to go to the Commission and request their  
14 approval to issue these requirements for public comment.

15 MR. OKRENT: My recollection of the proposal that  
16 you have discussed with the ACRS subcommittee and full  
17 committee back in April or May, whichever it was, was that  
18 it didn't deal with any of what were called the policy  
19 questions like reliability engineering or degraded core  
20 cooling. Is my memory wrong?

21 MR. KANE: I believe it did. I believe the  
22 question was whether the policy that we had developed was  
23 consistent with your own views. Well, with the exception of  
24 reliability engineering. I think I indicated at the outset  
25 that as a result of our April meeting with your subcommittee

1 we had indicated to that subcommittee that based on your  
2 comments that we felt that the action plan should require,  
3 or that we should require of the construction permit  
4 applicants an expansion of the work in the reliability  
5 engineering area. So we have modified our requirements to  
6 hopefully satisfy the comments that you made at that meeting.

7           Now, as you recall, on degraded core, we had  
8 talked in terms of asking the applicants to demonstrate  
9 before they got a construction permit that they could do  
10 certain things in the area of hydrogen control, in the area  
11 of melted cores and the filtered containment venting. That  
12 was in the proposal I think which Harold Denton discussed  
13 with you at the full committee meeting.

14           Now, in the Commission paper you will find those  
15 two areas addressed directly. They were discussed with the  
16 Commission. We have specific proposals that we are making  
17 in those two areas and that we are asking for public  
18 comments on.

19           MR. OKRENT: I guess my memory must be faulty. I  
20 will have to try to refresh it by looking at the minutes and  
21 some of the other things. I didn't think you were proposing  
22 then to do more than to apply the action plan like you were  
23 doing it for NTOLs. I agree these items are in the action  
24 plan, but they are in in a very general way. My memory is  
25 probably wrong.

1           MR. KANE: Let me correct what may be a  
2 misimpression. We are not applying the action plan in the  
3 same way as we are doing for the near-team. We are using  
4 the action plan as the basis for establishing requirements  
5 for construction permit applicants. In some cases an action  
6 plan may simply defer staff activity for some time, like  
7 fiscal '82. In many of those instances we have actually  
8 developed requirements based on the action plan to apply to  
9 construction permit applicants to get some work done in  
10 parallel with the staff's activities. That is what will be  
11 described in this NUREG document that we will be issuing  
12 next week.

13           MR. OKRENT: What would you propose then from your  
14 point of view as a good schedule for ACPS review?

15           MR. KANE: Speaking only for the staff proposal  
16 and not for the applicants?

17           MR. OKRENT: Yes.

18           MR. KANE: The NUREG document will be out at the  
19 latest the middle of this month. That would be in parallel  
20 with the Federal Register notice. Now, the Federal Register  
21 notice calls for public comments within 45 days of issuance  
22 of that notice which would mean that all the public comments  
23 would be back in about October 1st.

24           It would seem to me that a subcommittee meeting in  
25 late September or early October followed by a full committee

1 meeting in October would be appropriate. We would then take  
2 the next month essentially to factor in all of the comments  
3 received from the public, including your own, and then  
4 revise our proposal with Commission approval in November.

5 MR. OKRENT: Would we have received the comments  
6 from the public by the beginning of October?

7 MR. KANE: We can certainly make them available to  
8 you. I think there will be sort of a schedule problem  
9 because I think most of the comments will be coming in  
10 toward the end of the comment period. You may not have them  
11 all, but we can certainly make available to you all that we  
12 have at that point in time.

13 MR. OKRENT: Do you know in fact what the date of  
14 the Federal Register notice is what the 45-day ---

15 MR. KANE: No, I do not.

16 MR. OKRENT: You don't know. All right. Maybe we  
17 better keep a little bit tentative on that since it may  
18 relevant for the committee as well as the staff to know what  
19 the public, including the NTCP utilities, and others have to  
20 say. We can ask Dr. Savio to try to keep abreast as to what  
21 are the actual timing points for different things to occur  
22 and, if necessary, then shift a month or whatever.

23 MR. KANE: Yes. It may turn out that a November  
24 ACRS would be appropriate.

25 MR. OKRENT: It may be.

1           In connection with trying to schedule this  
2 meeting, we have been a little bit frustrated because we had  
3 first thought we might have the NTCP utilities tell us what  
4 they thought, but that is something they are not ready to do.

5           I thought we weren't going to have anything from  
6 the staff, that all they were going to tell us sort of was  
7 something similar to what we heard in April. In fact, that  
8 is different. You have represented us with something you  
9 have already sent to the Commission which outlines the  
10 position.

11           Then I asked if we could hear from appropriate  
12 personnel and the staff concerning what you might call how  
13 they are developing a philosophical approach to this kind of  
14 question, to design Indian Point review, to future  
15 construction permits, and I was told people weren't  
16 available for that.

17           So it has been a little bit confusing situation.  
18 I will put it that way. I hope that we can have appropriate  
19 discussions at future subcommittee meetings and that the  
20 staff, if necessary, cancels other activities if that is  
21 what it takes.

22           Could I ask one or two specific questions.

23           MR. KANE: Sure.

24           MR. OKRENT: I haven't had much time to look at  
25 the SECY 83-57 or the SECY 83-48. In the SECY 83-48 with

1 regard to degraded core cooling on page 3 it says "CP and ML  
2 applicants should describe the degree to which their designs  
3 conform to the proposed interim rule."

4           Now, could you tell me which proposed interim rule  
5 do you mean?

6           MR. KANE: The one that is to be issued shortly.  
7 I am told perhaps next week.

8           MR. OKRENT: Do we know what is in it?

9           MR. KANE: Well, it is still being modified. As  
10 of this week I am told that it will be issued next week. I  
11 think the nature of the interim rule was to put into effect  
12 many of the requirements that had already been imposed on  
13 operating plants that are described in the action plan. In  
14 addition, to address the inerting question for the Mark I  
15 and II and ice condenser plants and also the Mark III plant.

16           MR. OKRENT: But so far I haven't seen anything in  
17 previous documents, issued documents by the staff that  
18 discusses more than Mark I's and II's. So if there is some  
19 other document would you tell me what it is?

20           MR. KANE: When it is issued it will be called the  
21 proposed -- it is a Commission paper and the subject will  
22 be proposed interim amendments to 10 CFR part 50 relating to  
23 hydrogen control and certain degraded core considerations.  
24 It will address the Mark I and II plants, it will address  
25 the ice condenser plants and it will also address the Mark

1 II plants. Well, in fact, all containers.

2 MR. OKRENT: When you say address, the staff had  
3 some specific recommendations previously for Mark I's and  
4 II's. Does it have some specific positions on ice  
5 condensers or Mark III?

6 MR. KANE: Yes, it does.

7 MR. OKRENT: That are different than what was  
8 accepted in the past?

9 MR. KANE: The current version I am looking at  
10 calls for inerting the Mark I and II and for not inerting  
11 the ice condenser plant and for doing studies by a date  
12 certain on the Mark III plant. I caution you that is what I  
13 am reading in the current draft.

14 MR. OKRENT: Fair enough.

15 Now, it says, again on page 3, "Applicant should  
16 also provide reasonable assurance to the extent practicable  
17 and take into account the present state of the art of this  
18 technology that issuance of CP's and ML's will not foreclose  
19 or preclude the modification facilities to accommodate  
20 potential requirements that may result from the rule-making  
21 proceedings. These potential requirements include such  
22 features as filter vent containment and molten core  
23 retention and hydrogen control systems."

24 Then it goes on to say "Prior to issuance of a CP  
25 or ML applicants will also be required to submit their



1 evaluation of the additional features both preventative and  
2 mitigative they propose to include at their facilities that  
3 have the potential for significant risk reduction."

4 I don't understand that statement because an  
5 applicant could come in and say "Well, we don't propose to  
6 include anything additional," and I think they would then  
7 have met this statement. Was that your interpretation?

8 MR. KANE: Well, that is not an acceptable  
9 response.

10 MR. OKRENT: Well, what would constitute an  
11 acceptable response?

12 MR. KANE: That is a little bit difficult to  
13 answer, but let me tell you what is involved. One of the  
14 problems that the applicants have proposed to us is the  
15 problem of the melted core and the whole idea of the core  
16 catcher or whatever to handle a melted core.

17 They have proposed to us that they would like to  
18 have available as an option the possibility of doing studies  
19 to show that they can reduce the probability of core melt by  
20 a factor of something, whatever that may be. They would  
21 like to have that option available to them up front if they  
22 can demonstrate to us that they have made a significant  
23 improvement in the plan as an alternative to making a design  
24 accommodation for a core ladle. We haven't as yet put any  
25 numbers on what that might be, for example, a factor of 10.

1 If he could demonstrate a factor of 10 that might be an  
2 acceptable alternative, but we really haven't settled on any  
3 numbers at this point.

4 MR. OKRENT: You know, at first reading one could  
5 get the impression they were asking for something specific,  
6 but on a second reading it is a very carefully worded thing  
7 that doesn't ask for anything specifically.

8 MR. KANE: The original proposal was as described  
9 above. It was to show us how the design had the inherent  
10 flexibility to handle these possible requirements that may  
11 call out a rule-making. That was the original proposal, but  
12 we have in it left the flexibility for applicants who can  
13 demonstrate a substantial improvement to their plant. It  
14 actually forecloses some of these possible designs.

15 MR. EBERSOLE: Mr. Kane.

16 MR. KANE: Yes.

17 MR. EBERSOLE: Did the applicant in attempting to  
18 do this attempt to sidestep the hydrogen generation problem  
19 by declaring he is not going to let the core melt?

20 MR. KANE: That is the main problem.

21 MR. EBERSOLE: That is his main objective, I take  
22 it.

23 MR. KANE: That is right.

24 MR. EBERSOLE: There is another phase of this, I  
25 think, and that is consider a melted core from the primary

1 loop but congealing it with a water cooling system within  
2 the containment so you don't have a containment penetration  
3 problem. But that leaves the residual of the hydrogen  
4 generation and the consequence of that. Have the applicants  
5 taken that view as a possible route?

6 MR. KANE: Well, as I say, we haven't received the  
7 specific proposal yet outlining exactly what they want to  
8 do. As I understand it, their studies have shown that they  
9 are willing to make specific changes to provide  
10 accommodation to handle the hydrogen and to provide  
11 accommodation for the filter venting containment. The  
12 primary problem seems to be with the incorporation of a core  
13 ladle or core catcher.

14 MR. EBERSOLE: I should have thought hydrogen  
15 would have been also a major problem as a by-product of the  
16 core melt.

17 MR. OKRENT: You do have a subject called the  
18 liability engineering. I had assumed that the thrust of  
19 that section was to see whether there were steps that they  
20 could take that would reduce the probability of serious  
21 damage to the core and that that was covered under item 3.  
22 I didn't realize that it was covered under item 2.

23 MR. KANE: It wasn't when you saw the proposal  
24 before. It is now. Under reliability engineering I think  
25 we have gone at that in a different way. As you will

1 recall, the auxiliary feedwater system studies ---

2           MR. OKRENT: What I am getting at is if I just  
3 read what you have written under item 2 under the heading  
4 "Degraded Core Rulemaking" I would have assumed you were  
5 only talking about things that related to degraded cores.  
6 It is a little bit awkward to have to ask questions to find  
7 out what an important sentence means.

8           MR. EBERSOLE: I thought that was all mitigative.

9           MR. OKRENT: So did I.

10          MR. EBERSOLE: In going down to item 3, liability  
11 engineering, I thought that had embodied all of the terrible  
12 packaging in 660 in this assorted list of nuts and bolts and  
13 major considerations and picture studies and physical  
14 experimentation that is enclosure two.

15                 I have great difficulty, by the way, in  
16 packaging enclosure 2 into any reasonable integral  
17 packages. In thinking to do I have to look at the bulk of  
18 it as coming under liability engineering if it involves  
19 engineering improvements to, for instance, reduce the  
20 potential for core melt. You will notice in those four  
21 items there is no engineering improvements at all anywhere  
22 in the prevent context unless it is in item 3. I mean, it  
23 is a by-product of doing their liability engineering study,  
24 isn't it? Or it would be a by-product if the study doesn't  
25 come out well.

1 MR. KANE: Let's see how I can repackage this.  
2 Degraded core rule-making relates to a specific action plan  
3 item.

4 MR. EBERSOLE: Well, it is presumptive of having a  
5 degraded core to begin with.

6 MR. KANE: That is right. The whole thrust of  
7 degraded core rule-making I believe in the action plan, as  
8 you say, is mitigative.

9 MR. EBERSOLE: Yes.

10 MR. KANE: What I am saying is that for the  
11 construction permit applicants there is an option available  
12 to them to satisfy that action plan for now. For gaining  
13 the CP they may develop a combination of preventive  
14 mitigative fixes that would be acceptable to us.

15 MR. EBERSOLE: Well, if they have to go so far as  
16 to put mitigative features in for a melted core they have  
17 gone pretty far.

18 MR. KANE: Well, I guess that is the point. They  
19 do not want to put in mitigative features for a melted  
20 core. They want to go at that standpoint preventively.

21 MR. EBERSOLE: Well, is the basis for their  
22 argument not to have to do this going to be under item 3,  
23 liability engineering, and the things they are going to do  
24 is an outgrowth of that?

25 MR. KANE: No. They have no objection to doing

1 all the things in item 3.

2 MR. EBERSOLE: That confuses me. I thought that  
3 was all mitigative.

4 MR. KANE: It is.

5 MR. EBERSOLE: Item 3 begins with a degraded core.

6 MR. KANE: Two and three are tied together, but I  
7 think you could do item 3 without doing an integrated  
8 probabilistic study. When you go to satisfy the last  
9 paragraph of item 2 I think you have to be able to  
10 demonstrate that you have identified all of the dominate  
11 sequences, that you are in fact making these preventive and  
12 mitigative fixes and that you are achieving a certain  
13 reduction in core melt probability.

14 MR. EBERSOLE: Let me see if I can understand  
15 better. As I look at these four major topics, one is citing  
16 and we can part that. Degraded core rulemaking is  
17 presumptive of a degraded core and we have failed in our  
18 mission to prevent it. Liability engineering is a whole  
19 host of studies that embody virtually all of this  
20 complicated and detailed list from soup to nuts over here.

21 MR. OKRENT: Some of which are intended to prevent  
22 an accident from occurring and some of which are intended to  
23 prevent the accident from leading to a degraded core.

24 MR. EBERSOLE: Right. If I take all that I have  
25 to look at item 3 as having embodied all the things

1 associated with this vast list of little bits and pieces  
2 right to whole philosophies. This is a very random list.  
3 It has no unified characterization at all. It jumps from  
4 product ease to major installations in a very random  
5 pattern.

6 I wish somebody would sit down and break it up  
7 into cohesive packages that we could talk about rather than  
8 wonder whether one minute piece of it is embodied in a major  
9 topic somewhere else in that same list. You can't tell what  
10 it is. It is impossible to read that list and read it in  
11 any integrated sense because I can take any one of a dozen  
12 general topics and imagine that another dozen details are  
13 embodied within those.

14 MR. KANE: Well, I think that is part of the way  
15 we approached this. We used the action plan. These are all  
16 items taken from the action plan.

17 MR. EBERSOLE: Well, that was the character of the  
18 action plan which is still a problem.

19 MR. KANE: That is right.

20 MR. OKRENT: In connection with item 3 on page 3  
21 of your SECY 83-48 after going through this listing of  
22 various systems on which liability analysis should be  
23 performed it says "CP and ML applicant should provide  
24 sufficient information to describe the nature of the  
25 studies, how they are to be conducted, the completion dates

1 and the program to assure that the results of such studies  
2 are factored into the final designs."

3           Could you tell me what it is that the staff thinks  
4 is the right timing in construction for completion of such  
5 studies and what the staff things are the criteria by which  
6 these applicants should decide whether or not changes should  
7 be made after they have done such studies?

8           MR. KANE: Well, I think what we are asking for is  
9 similar to what we did in the auxiliary feedwater system  
10 liability studies. We are asking them to use these  
11 techniques that were used in the AFW studies, to go back and  
12 see if they can't make improvements that will take into  
13 account the potential for human error problems, common  
14 causes, single-point vulnerabilities in a way of upgrading  
15 the systems.

16           I know that in fact we have on the operating  
17 plants using these techniques uncovered many areas that have  
18 enhanced the overall reliability of the auxiliary feedwater  
19 system. I think we are doing that now on the operating  
20 license applications and I think the thrust of this activity  
21 should be to look at other systems in the same way that we  
22 looked at the auxiliary feedwater system.

23           MR. OKRENT: Now, when a plant is built or nearly  
24 built your flexibility to make changes without major  
25 disruption is clearly much less than for a plant that may



1 have been designed but for which there is actually no  
2 construction.

3 Are you proposing to have the same criteria used  
4 in deciding whether or not a change should be made for NTCPS  
5 as you are for operating plants, or that there should be  
6 some modified criterion of judgment and, if so, what?

7 MR. KANE: I think it would be a modified  
8 judgment. I think there is more flexibility. Obviously  
9 there is more flexibility in the construction permit  
10 application. I think these studies could be undertaken and  
11 completed, not necessarily before the CP, we are not asking  
12 that that be done, but the thrust of this saying what can  
13 you do, how soon can you do it, and can you do it in a way  
14 that you can make changes to that system and you won't  
15 impact the overall schedule?

16 MR. OKRENT: I don't know what the term "impact  
17 the overall schedule" mean these days and in what context  
18 the NRC thinks it should be factored into this decision. I  
19 see many things impact the overall schedule for plants. I  
20 see plants in the middle of construction delayed for one,  
21 two or three years and so forth. I see plants delayed for  
22 longer periods after they have CPs and so forth.

23 How does the NRC factor this question of impacting  
24 the schedule into its decision-making?

25 MR. KANE: Perhaps I misspoke. We want the

1 studies done, all of these studies. We want all these  
2 systems examined and we want them examined early. It is up  
3 to the utility to get the studies done and to show us how  
4 these changes can be made and factored into the final design  
5 of the plant.

6 We are not suggesting that you show us a  
7 completion date which is here and a study which will take  
8 this long and say, well, you can't complete the study in  
9 time so we are not going to do that one. We are not  
10 suggesting that that is a way out.

11 MR. CKRENT: I have no idea from reading this what  
12 kind of a timing in fact you think is the proper one, and of  
13 course I don't know whether that timing can be met. I can't  
14 tell from this, if I were the utility, what level of  
15 reliability or safety or whatever it is you think they  
16 should be looking for. Should they still stay with the  
17 single single-failure criterion? If not, in what way should  
18 they deviate from it? Should they look at what the Germans  
19 require and consider whether they should do that on their  
20 plants even if they have already examined it and don't find  
21 any obvious weak points? What is it that is the measure at  
22 least of good enough if you can do it? In other words, it  
23 may be that there are some things that you would say are  
24 good enough but they may say we really can't do it because  
25 we would have to make the containment building 25 percent

1 larger and it would be completely different, or something,  
2 and they may be able to convince you.

3           Right now it seems to me ill-defined unless one  
4 just says, well, we will do whatever we were going to do on  
5 the operating plans which I thought you said was not what  
6 the intent is.

7           MR. KANE: We are not doing this on the operating  
8 plans. Again, our criteria reliability goals are not  
9 established, no more than they were for the auxiliary  
10 feedwater system on an individual system.

11           MR. CKRENT: What I am trying to do is indicate  
12 some areas that I hope when we have a subcommittee meeting  
13 the staff will be prepared to present further thoughts on  
14 the matter. Let me put it that way. Also I hope that all  
15 of the NTCP utilities will also be prepared to present their  
16 individual thoughts since they may not have a single thought  
17 because I think that would be useful. Then hopefully those  
18 other people who have either previously or at that time  
19 proposed that they would like to would comment on the thing.

20           Let me just make one other brief note. At the  
21 last subcommittee meeting we talked about some items that  
22 might conceivably relate to NTCP plants like single-failure  
23 criteria and so forth.

24           I would like to suggest that you look at the  
25 transcript, toward the end of the transcript, where I went

1 through some specific items. I don't know whether we should  
2 consider that necessarily a complete list, but they were  
3 indicative of some kinds of things that one might at least  
4 think about which are perhaps partly covered by your  
5 liability engineering but not necessarily the same.

6 I would think if it is not mentioned there, it  
7 would be relevant to hear what the seismic design basis is,  
8 what is thought to be the seismic contribution to risk from  
9 these plants, how well it is known, if they are less than  
10 0.2G, for example, is there merit in considering at this  
11 stage a change, and this sort of thing.

12 We will try to schedule the subcommittee at an  
13 appropriate time, and please keep Dr. Savio posted on your  
14 best estimate of timing so we can not delay things  
15 unnecessarily. In other words, if we can fit it in in the  
16 right way we will try very much.

17 MR. KANE: Well, I think the issuance of the  
18 Federal Register notice will be the event that trigger the  
19 remaining schedule.

20 MR. OKBENT: I hope the NTCP people will tell us  
21 what their consultants recommended and whether they agree  
22 with their consultants or not. I think we would be  
23 interested in learning what were their recommendations or  
24 suggestions or what-have-you since these are certainly  
25 experienced people in the business that they hired as

1 consultants and we would like to have the benefit of their  
2 thinking.

3 MR. KANE: We also would be interested.

4 MR. CKRENT: Anything thing else you want to pull  
5 out?

6 MR. EBERSOLE: You say you have not yet developed  
7 criteria for liability of such things as auxiliary feedwater  
8 systems, et cetera. It is typical of the industry to trail  
9 the regulatory process and then scream to high heaven when  
10 they are caught and have delays which cost them untold  
11 millions, or rather cost their customers, I should more  
12 accurately say, for picking up behind a regulatory  
13 requirement.

14 Do you see any evidence that industry in fact is  
15 going to take some substantive leads to improve or advance  
16 themselves improvements in plants not now required by the  
17 regulatory process?

18 MR. KANE: I have not seen any evidence of that.

19 MR. EBERSOLE: In short, you do not see any  
20 outward evidence that they are going to make some offerings  
21 of significant improvements in their liability engineering  
22 or anything else. They are still going to go through the  
23 trailing process as they always have.

24 MR. KANE: I had thought that these two studies  
25 may make some proposals in that area.

1 MR. EBERSOLE: As long as they maintain themselves  
2 in a trailing position then they are always going to have  
3 incremental costs due to regulatory improvements.

4 MR. KANE: That is correct.

5 MR. EBERSOLE: They could save millions by leading  
6 but the tendency is never to do that. I had thought perhaps  
7 the new era would be that they would advance some new  
8 criteria for safety and engineering improvements, among  
9 those including such things as integral shutdown systems,  
10 et cetera, those things which are ahead of the mitigative  
11 process of core ladles.

12 MR. OKRENT: I think we would be interested in  
13 hearing from the staff as well as the utilities what they  
14 think about, for example, dedicated shutdown heat removal  
15 systems or some of the German redundancy requirements, and  
16 so forth. In other words, it would be, I think, helpful to  
17 have some of these specific items discussed. Also how they  
18 expect to address this really complicated question of  
19 non-safety systems and control systems and their effect on  
20 safety and is the current situation and design okay.

21 Well, I think we are behind the schedule by quite  
22 a bit. We had better go on to the next item unless there  
23 are any other things now. If we have time later we can come  
24 back.

25 I think next is Mr. Sege who will talk about their

1 proposed work plan for developing quantitative safety  
2 criteria.

3 Thank you.

4 MR. KANE: Do you want me to stay here?

5 MR. OKRENT: It is up to you I think. It is not  
6 necessary.

7 You have the floor, Mr. Sege.

8 (Slide)

9 MR. SEGE: Thank you, Mr. Chairman.

10 The Commission has, as you know, requested OPE and  
11 OGC to prepare for the Commission's consideration a plan for  
12 developing a policy statement of what constitutes adequate  
13 safety. More generally it would be sort of safety goals the  
14 Commission wishes to pursue. That plan is due in a couple  
15 of days.

16 The next phase of it is, by Commission request, a  
17 preliminary safety policy statement for Commission  
18 consideration and public comment. It will be due to the  
19 Commission in December.

20 The preparation of that draft statement has been  
21 assigned to OPE to develop in conjunction with the  
22 utilization of inputs from the various other staff  
23 activities as well as the ACRS advice which is expected to  
24 be received in October.

25 The status of the plan itself is that it is in a  
draft stage. It is in the process of internal review,

1 particularly within OGC and OPE and we expect to put it to  
2 bed in a couple of days.

3           The proposed objectives and scope of the plan are  
4 to develop an explicit articulation of policy with respect  
5 to fundamental issues of public health and safety and  
6 whatever protection the Commission believes is adequate.

7           In terms of scope, we expect that the articulation  
8 to be developed will include some general approach to  
9 Commission acceptability and some policy statement  
10 concerning safety cost tradeoffs, and, to the extent that it  
11 is practical, to articulate these quantitative safety goals  
12 statements with respect to safety improvement goals and I  
13 think we would almost certainly expect to include some sort  
14 of standard for review of past actions in single item new  
15 rules and improved practices. The work is going to  
16 concentrate primarily on reactors, although not exclusively.

17           (Slide)

18           The method of approach that we are proposing means  
19 that in the course of review of the paper there may well be  
20 changes in what I am reporting now. We would, however,  
21 appreciate any thoughts that the subcommittee might care to  
22 share with us concerning the general structure of the plan,  
23 not the specific details but the general structure itself  
24 (inaudible).

25           The emphases of the method of approach are to  
utilize the results of other activities which have been



1 ongoing for some time. That of course notable includes the  
2 ACRS advice expected within two months.

3           Then we will take into account the viewpoints of  
4 groups with an interest at stake and considered views of  
5 groups such as AIF, EPRI, others in industry, critics of the  
6 nuclear industry and others.

7           Then the performance of background and studies.  
8 That would, to a quite limited extent, add to and round out  
9 where necessary the work that is already in progress  
10 particularly with respect to past practices of NRC and its  
11 predecessor agency, practices of other agencies, approaches  
12 to safety goals in other industrial countries and theories  
13 and facts of risk acceptance.

14           We expect to have workshops for discussion among  
15 invited knowledgeable persons of various viewpoints and from  
16 the standpoint of the various disciplines that are germane  
17 to the subject.

18           We expect to have a vigorous solicitation and  
19 consideration of public comments at various stages of the  
20 process.

21           As I mentioned, we plan to submit a preliminary  
22 staff paper for Commission consideration in December to be  
23 followed by a second staff paper which the plan schedules  
24 for August. There will of course be intermediate  
25 milestones, but this series of two papers is the series of

1 ommission submittals.

2           In terms of dynamics of the project, we plan to  
3 develop a broad range of approaches that have been developed  
4 and suggested and that have significant advocacies. First,  
5 without trying to narrow down too early, but by December we  
6 expect to have gone a long way in a narrowing process to  
7 help identify for the Commission a small number of options  
8 that reasonably represent the range of alternatives  
9 presented.

10           Our program plan involves opportunities at various  
11 stages for Commission guidance as the work progresses.

12           MR. OKRENT: If you could leave that on for a  
13 minute. How do you have in mind soliciting comments from  
14 nuclear critic groups, that is your item 2, and also I guess  
15 what I would call third party groups?

16           MR. SEGE: Maybe the best way to answer that would  
17 be for me to take the schedule and chart out of order and  
18 talk about schedule first and show you various places where  
19 that sort of situation occurs.

20           MR. OKRENT: Do it in however way you were  
21 planning, but if you could pick that up and also indicate  
22 where you would try to get Congressional input if you were  
23 going to.

24           MR. SEGE: Certainly. Maybe I should cover the  
25 task descriptions first and then get to that point and then

1 we will keep the order in which the handouts have presented  
2 the information.

3 MR. OKRENT: Fine.

4 (Slide)

5 MR. SEGE: The principal tasks of the program are  
6 listed on this slide. I listed the liaison activity first  
7 because of the significance that we attribute to the work  
8 that is already in progress. A number of the additional  
9 studies will make only limited additions to it. I don't  
10 want to develop that because the subcommittee is well  
11 familiar with the various activity in progress.

12 Then we planned a series of background studies in  
13 the five categories listed.

14 With respect to the statutes and practices with  
15 respect to these statutes there has been an analysis  
16 prepared by the general counsel's office who was principally  
17 responsible for that paper last October that analyzes what  
18 the law requires and how that requirement has been  
19 interpreted in regulations and decisions in the past by NRC  
20 and its predecessor agencies. Of course, as we are all  
21 aware, the law is not definitive enough to satisfy the  
22 present Commission, but definitive enough without further  
23 articulation by the Commission. That is not the basis for  
24 for the actions that the Commission has now set in motion in  
25 this regard.

1           We plan to do some more in that area. We expect  
2 to have an historian look over what interpretation has been  
3 given to the safety goals, how the safety goals have been  
4 applied and how that interpretation has developed over the  
5 decades of nuclear regulation.

6           MR. OKRENT: If I can offer a comment there. If  
7 he is going to look at history it might be interesting for  
8 him to look at what the staff's thinking was at the  
9 beginning of the 1970's concerning the probability of a  
10 serious accident and what their thinking is at the end of  
11 the 1970's and count the orders of magnitude.

12           MR. SEGE: The next task that I have listed there  
13 is a very brief review of the statutes and practices of  
14 other agencies such as the production reactors and  
15 (inaudible) parts of DOE, NASA, the Food and Drug  
16 Administration, EPA, the Consumer Products Safety  
17 Commission, FAA and perhaps one or two others. It will be a  
18 matter of selecting a limited number of agencies whose  
19 statutes and practices may perhaps hold some lesson for us  
20 to make a brief study and try to discern to what extent we  
21 can learn from them, if at all.

22           MR. ENGERSOLE: May I ask, where in there, if any  
23 place, is there a study of the relative risks in electrical  
24 energy generation and the association with the need for  
25 that? Is it included in that batch some place?

1           MR. SEGE: Yes. We have that covered in item "B"  
2 I will come to it in just a few moments.

3           MR. OKRENT: Excuse me. Under item B I would  
4 encourage you to try to figure out EPA's practices, what is  
5 the magnitude of the risks that EPA is trying to regulate  
6 and get some kind of a ball-park handle on that. I think,  
7 although vague, they don't deal with large accidents. They  
8 do deal with large amounts of things.

9           MR. SEGE: One of the other subcommittees I  
10 believe of ACRS under the same chairman has done some  
11 looking into the approaches of other industrial countries  
12 with the same laws in the nuclear area and our research  
13 people have done something in that area. We expect to have  
14 some summary report in an attempt to see to what extent  
15 those practices hold any lessons for the United States.

16           The social acceptance of risks is a task in which  
17 we expect to learn something of the way risks are accepted  
18 or the extent to which there is aversion to risks in other  
19 sorts of endeavors. This is where the alternative means of  
20 energy generation would come in versus nuclear studies, but  
21 not only alternative means of energy generation but also  
22 other sorts of endeavors in which people are exposed to risk  
23 such as transportation, tobacco, alcohol, consumer products,  
24 industry, construction, dams, sports and natural hazards.  
25 We may not do all of that. It would be a matter of looking

1 at these candidate contexts and selecting some that might  
2 hold meaning.

3           But closer to home it comes to alternatives to  
4 nuclear generation of electricity. We would clearly want to  
5 take cognizance of what is actually happening and what sort  
6 of alternatives exist, the acceptance of risks, the nature  
7 of the risk as well as its magnitude and consequences and  
8 consideration of economics and benefits.

9           In the task we concentrate not on what is actually  
10 happening in terms of the facts of risk acceptance in  
11 different contexts, but rather the theories (inaudible) and  
12 acceptance, including considerations such as relation to  
13 other risks, whether the exposure is voluntary or  
14 involuntary, the nature of the hazard, the specificity of  
15 the victim, the number of persons at risk, the relation to  
16 benefits generally and uncertainty as to the nature and  
17 magnitude of the risk.

18           There is a considerably amount of work along these  
19 lines, that is the progress of the research with sponsorship  
20 notably through the Brookhaven (inaudible) research contract  
21 (inaudible). We expect to utilize that work as much as  
22 possible. That is still running further to a limited extent.

23           The next group of tasks is the policy development  
24 itself. Here we expect to develop some sort of working  
25 hypotheses first about how we judge the adequacy or the

1 desirability of a particular type of safety core statement,  
2 the quality in the sort of approaches that are possible.

3           Then in December there is a preliminary policy  
4 paper in which a limited number of approaches, together with  
5 decision criteria and rationale that supports the particular  
6 options presented to the Commission would be presented  
7 before the Commission for consideration.

8           From here after with some iterations, advice from  
9 the ACRS, workshops, public comment and well as Commission  
10 guidance and completion of additional studies we will be  
11 proceeding to a policy paper for further Commission action.

12           The next task is workshops, as I mentioned. We  
13 are thinking in terms of two workshops, one that would  
14 concentrate on the decision criteria approaches and the  
15 second that would discuss one tentatively proposed approach  
16 if possible or perhaps a very limited number of alternatives  
17 in preparation for the policy paper that is going to be the  
18 eventual product of this work, of course, or lay foundations  
19 for particular efforts beyond that.

20           (Slide.)

21           The overall schedule of the project looks  
22 something like this. The management of the work is going to  
23 be handled or guided by an interoffice steering group in  
24 which we expect to have the various offices who have a  
25 contribution to make to be represented. That includes

1 Research, NRR, Standards, NMSS as well as OGC and OPE. We  
2 also also hope that the ACRS will assign a member to  
3 participate in the steering group.

4           The steering group will have broadly two  
5 functions. One is to apply general guidance to the work.  
6 The second is to act as a focal point for channeling of work  
7 requests and contributions to and from the organizations  
8 that are represented on the steering group.

9           The initial set of Commission inputs we envisage  
10 as a series of structured interviews with each of the  
11 Commissioners to get the benefit of that preliminary focus  
12 on the subject that will be used in guiding the sort of  
13 questions that we raise and the sort of investigations that  
14 we make.

15           Then to answer Chairman Okrent's question, or to  
16 begin to answer Chairman Okrent's question about the  
17 participation of the various public that are interested,  
18 quite early in the program we expect to hold an exploratory  
19 meeting on approaches and decision criteria with  
20 representatives of recognized and developed viewpoints of  
21 certainly the NRC, industry and the public interest groups.

22           That would be followed by completion of three  
23 items of staff work, a working paper on decision criteria  
24 for choosing among alternative possible approaches to safety  
25 core formulation, development of detailed plans and



1 schedules for the various background studies and completion  
2 of a working paper on the alternative frameworks that would  
3 then be used as a basis for narrowing into the relatively  
4 few options that would be presented to the Commission later.

5           Finally, the preliminary policy paper will be  
6 submitted to the Commission by the date described to us by  
7 the Commission which is September 29. After the  
8 Commission's release of that paper, not approval of the  
9 paper but approval for release, that paper will be sent out  
10 for public comment, with an indication for public comment.  
11 The two workshops will deal with the results of that paper.  
12 The second workshop will deal also with the results of the  
13 first workshop.

14           Incidentally, the plan itself is going to be  
15 released for public comment after Commission approval for  
16 release so that will allow an additional opportunity for  
17 public inputs. At all these stages of public release we  
18 expect our Congressional Affairs Office to solicit inputs  
19 from the Congress and committees. We expect to have general  
20 contacts with Commission staff by committee staffs that is  
21 desired by the Congress as appropriate to the stage of the  
22 work.

23           We expect to have started completion dates for the  
24 various background studies, but we do want to see them all  
25 completed at some reasonable time before the submission of

1 the eventual policy paper to the Commission. That doesn't  
2 mean that there will not be occasion and need for further  
3 studies later as the policy statement is made in the coming  
4 years to be further refined and improved.

5           We are suggesting a one-year overall time cycle  
6 for this effort to the point where something is presented to  
7 the Commission for action. We are of course aware that  
8 there has been legislation introduced that would call for  
9 the Commission to promulgate a safety code after an  
10 opportunity for a hearing by the end of next June. We  
11 thought it was premature at this point to rely on the  
12 specifics of that legislation, or the proposed legislation,  
13 including the specifics as to the schedule. However, should  
14 such legislation pass, we would of course want to adjust the  
15 schedule in such a way as to be responsive to whatever  
16 provisions actually have developed in the law.

17           This completes the prepared parts of my remarks,  
18 Mr. Chairman. I will be available for questions. I see a  
19 representative of General Counsel's Office is present.

20 (Inaudible.)

21           (Laughter.)

22           MR. OKRENT: If I could pursue a little bit the  
23 question I raised earlier. We have tried in the past and  
24 again recently to see if we could get input from people like  
25 the head of the Office of Science and Technology or the

1 Chairman of the Council on Environmental Quality or from  
2 Senators or Congressmen who are active in this area without  
3 success I think to this date unless something has developed  
4 in the last day or two while I was traveling, but I didn't  
5 hear from Mr. Quikschrive who handles that part of the  
6 effort.

7           It seems to me it would be potentially of  
8 considerable interest to see what people like this think, as  
9 well as I suppose what I would call a fairly considerable  
10 number of Governors who actually end up being in a position  
11 of considerable responsibility as we have seen in various  
12 ways with regard to safety, not only nuclear plant safety  
13 but certainly nuclear plant safety and things related to it.

14           I don't know whether it is possible to get this  
15 input, but it would seem to me to be useful. In a sense  
16 certainly the Senators and Congressmen and Governors are the  
17 representatives of the public. To me they are the most  
18 representative members of the public aside from the  
19 President himself, more so than either public interest  
20 groups or people who say they are neutral, you know.

21           If you can think of a mechanism of getting such  
22 input I would encourage you to do it. Let me put it that  
23 way.

24           MR. SEGE: I appreciate the suggestion. There are  
25 mechanisms for getting such inputs which have some limited

1 or great value depending on circumstances. I should have  
2 mentioned that we are giving thought to some additional  
3 public meetings besides the ones that appeared on the  
4 schedule slide.

5           We may very well add to even the master schedule a  
6 provision for a public meeting sometime around the workshop  
7 time when members of the public, including spokesmen for  
8 various State Governors, would have an opportunity to voice  
9 views as distinguished from public presence at meetings that  
10 we are intending to have with participation by invited  
11 discussants. In those cases the members of the public may  
12 well be given some opportunity to express views at some  
13 point in the proceedings, but not to actively participate.

14           I am also acquainted with steps in that direction  
15 on another project some years ago, the nuclear energy site  
16 survey, in which workshops were arranged for representatives  
17 of state and local governments. Those representatives were  
18 occasionally in a position to speak for the heads of their  
19 states.

20           MR. ENGERSOLE: May I ask a question. Back when I  
21 used to work for TVA there was a sort of principle which was  
22 almost never mentioned but which existed. It was called the  
23 principle of individual initiative which was supposed to  
24 sort have the theses in it that everybody did his best  
25 toward a common goal from the janitor to the chairman of the

1 board, and he acted in that way in the absence of any  
2 leadership to the contrary or with the assistance thereof.

3           Your effort represents an effort of about a year,  
4 doesn't it, before there is a policy?

5           MR. SEGE: Yes, that is correct.

6           MR. EBERSOLE: Things will be going on in that  
7 year. On momentum or on the basis of the existence of  
8 perhaps a unstated policy of some sort do you intend to  
9 state what appears to be the current policy and the basis  
10 for actions in the interim period before you get your policy  
11 out, because things are not going to be standing still in  
12 that year?

13           MR. SEGE: I understand what you are saying. We  
14 expect to approach the subject with what I hope is a  
15 reasonable balance of both (inaudible) and intellectual  
16 modesty. There are wide divergencies of views as to how  
17 much success is possible on what time scale with respect to  
18 formulation of all-embrasive safety goals that would govern  
19 all safety decisions in safety goals that are laboriously  
20 conceived as governing some types of safety decisions or at  
21 least providing some limited guidance to those decisions.

22           We expect to present to the Commission options for  
23 clear-cut and decisive action in those areas where it seems  
24 to us that the issue is ripe for such action, but not for  
25 decisions which are too (inaudible). I may be talking in

1  
2 riddles (Inaudible).

3 MR. EBERSOLE: I was really asking about the  
4 interim period of about a year.

5 MR. SEGE: By December perhaps there will be some  
6 items of policy where options can be presented to the  
7 Commission in such a way that decisions are possible. I  
8 expect those to be rather limited. In the meantime, of  
9 course, the decisions will be made about retroactive  
10 application of standards or grandfathering. Decisions will  
11 be made on the way costs and benefits are taken into account  
12 in safety decisions with or without articulating the  
13 standard applied, just like they have been in the past.

14 MR. EBERSOLE: Well, one could synthesize a policy  
15 from what you are doing now, I guess.

16 MR. SEGE: Perhaps. Whether it would cohere into  
17 something that is recognizable as a fashion to uphold, that  
18 is a very different question, and it is also a question of  
19 whether an attempt at systematic articulation is going to be  
20 precise enough to be helpful or simplified enough to  
21 constrain decisions that might more reasonably be made  
22 without an artificial simplification articulation.

23 I don't want to sound too pessimistic on that. I  
24 am trying to walk a middle course between the very strongly  
25 felt need to systematize and rationalize decision-making by

1 explicit articulation of policy and the obvious  
2 complications with which such attempts are surrounded and  
3 the care that is necessary to have good statements when  
4 possible but avoid making bad ones in the interest of being  
5 able to check off when we have not articulated that much  
6 (inaudible.)

7           I am reasonably confident that we should be able  
8 to do something better than we have done in the past on  
9 safety cost trends on retroactive application of  
10 regulations. Perhaps on some aspects of dealing with  
11 uncertainty, as for example in the proposed citing rule  
12 where there is one particular response proposed to  
13 uncertainties that could be responded to by isolating citing  
14 or whatever else there is.

15           There may be some isolated areas in which one can  
16 do a somewhat more complete job than in the overall issue.  
17 But even in the overall issue if it not possible to have an  
18 articulation which is such that regulations and case  
19 decisions flow from it by a rigid Aristotelian (inaudible)  
20 logic, even if it is not possible to do that, it may be  
21 possible to articulate codes in ways that nevertheless will  
22 be helpful in systematic guidelines.  
23 I don't know how much can be achieved in one year. We will  
24 try hard to achieve a lot.

25           MR. EBERSOLE: Thank you.

1 MR. OKRENT: I don't have any other questions or  
2 comments myself at this time.

3 Do you have any, Jessie?

4 MR. EBERSOLE: No. I guess I am mentally trying  
5 to synthesize what I will have as a policy a year from now,  
6 and then I am saying to myself, what will we do with it.  
7 Can we in fact interpret it and implement it and will it be  
8 of that character?

9 MR. SEGE: It is not going to be useful unless it  
10 is of some large or at least little help in making rules, in  
11 making (inaudible) standards and in making case decisions.  
12 If it is stated in terms such that the interpretation in  
13 terms of what will be required of applicant to do in steel  
14 and concrete and (inaudible) operation, if it is couched in  
15 terms that cannot be at least to some extent reasonably  
16 interpreted in such terms, it is not going to be a very good  
17 goals statement. We want to have something that would meet  
18 the criterion of operation use (inaudible) with some degree  
19 of clarity and interpretability.

20 MR. EBERSOLE: I am aware of the eternal battle  
21 between being completely nebulous and completely  
22 prescriptive and where do you define the line.

23 MR. SEGE: Yes. Well, we will be struggling with  
24 that for a year. We expect to be contacting the ACBS and  
25 perhaps the committee can be of help to us (inaudible.)



1           MR. EBERSOLE: I guess to the extent that energy  
2 might be responding in that interval the tendency would be  
3 to become more and more prescriptive. Industry in  
4 responding to the current safety need, if it will respond,  
5 it reduces the prospect of prescriptiveness. If it does  
6 not, then it invites prescriptiveness if it intends to keep  
7 building these plants. Every time you approach  
8 prescriptiveness there is a hue and cry that is what you are  
9 doing, but when one goes back to generalities then you are  
10 more often than not don't get a very good job against the  
11 broad base of the general criteria.

12           MR. SEGE: Predictability is very useful for  
13 industry. Of course, predictability necessarily excludes  
14 something but it is predictable what is going to be excluded.

15           MR. OKRENT: We were earlier in the subcommittee  
16 meeting in connection with the licensing staff and NTCPS  
17 talking about a matter that represents a policy issue and  
18 might or might not appear in some formulation of safety  
19 policy or safety goals. It related to what the staff was  
20 saying in SECY 83-48 on page 3 with regard to what they were  
21 going to ask the NTCP applicants to do in the area of  
22 degraded core rule-making. In fact, it ended up with a  
23 question of needing to ask them to explain the words before  
24 you really understood.

25           Apparently in the area of degraded core

1 rule-making they currently envisage that an acceptable  
2 approach would be for an applicant to come in and say we  
3 have already achieved a plant whose risk is less than your  
4 average plant with regard to the risk of let's say, a  
5 degraded core or by adding some features to what they had  
6 proposed. They will have gotten it down to some risk level  
7 below the average plant or whatever it is, and that they  
8 anticipate that this may be an acceptable approach for the  
9 NTCPs.

10           Now, that raises a kind of policy question. Do  
11 you continue as in the past where I would say with regard to  
12 degraded cores and melted cores the regulatory approach is  
13 to prevent these, only perhaps try to do it better, but  
14 still prevent, or do you say we are going to try to prevent  
15 these and do it better as we know how, but we will also  
16 assume that as of now we can't be sure that the level  
17 achieved in this regard is adequate.

18           It may prove to be so in the future, but there is  
19 little reason or whatever to know you have enough confidence  
20 and enough knowledge at this point to do that, so we will  
21 also take a second step and provide some level of protection  
22 with regard to degraded cores and melted cores. Then, of  
23 course, that brings in site and how many people there are  
24 around then and features to deal with degraded cores in some  
25 combination.

1           Now, that is a kind of policy question that in  
2 fact you can think about and arrive at a decision without  
3 having numerical criteria. You can also do it in terms of  
4 some numerical framework, depending on how you choose your  
5 numbers. If I were to take a rather acceptable risk to the  
6 individual at a not too high a confidence level and say  
7 however this is met then it could be met by a combination of  
8 ways.

9           On the other hand, if one takes a lower risk to  
10 the individual and says you want to know this with a high  
11 degree of confidence, then you might be forced to use both  
12 design approaches, not the one or the other, because neither  
13 one would by itself get you the necessary confidence.

14           So what I am saying is that you can arrive at  
15 either a position which has the same general policy in terms  
16 of numbers or without them. Right now it is my impression  
17 the staff doesn't know what the policy is. The  
18 Commissioners as far as I can tell at least in anything that  
19 I have read haven't told them what the policy perhaps should  
20 be in general terms.

21           I think in a sense maybe Mr. Ebersole was saying  
22 there are certain kinds of policy things that one can think  
23 about and even arrive at without specific quantitative  
24 safety goals or frameworks to put them in and so forth.

25           MR. EBERSOLE: In fact, one can synthesize an

1 existing policy, deduce it from what we are doing or have  
2 done. Then having done that examine it for good and bad  
3 points and see what a new one will look like against it.

4 MR. OKRENT: Thank you for providing us with this  
5 description of what you are going to do. I guess Dr. Savio  
6 will make sure the ACRS is somehow notified that you have  
7 invited them to supply a member be a participant.

8 MR. SEGE: We are about to recommend to the  
9 Commission. If the Commission approves our plan then the  
10 Chairman of the ACRS would be approached on behalf of the  
11 Commission.

12 MR. OKRENT: Thank you for correcting me.

13 I think we would appreciate receiving as early as  
14 practical background studies or whatever information you  
15 develop along the way since it might help our thinking as  
16 well.

17 I think with regard to Friday at the moment, if we  
18 handed out this four-page reproduction of your slides the  
19 members could pretty much see what is planned and I suspect  
20 might fill that need. What do you think?

21 MR. SEGE: There is some difficulty with that, Mr.  
22 Chairman. This is in a state of flux and I don't know to  
23 what extent this handout will still be in line with current  
24 thinking on Friday. We are very close to submitting a paper  
25 to the Commission. If that is agreeable to the subcommittee

1 and the committee, I would feel a lot better if the  
2 committee would wait I guess a few days for the mail to  
3 reach them and receive the plan as submitted to the  
4 Commission and then react to something that is current and  
5 at least at that time somewhat (inaudible.)

6 MR. OKRENT: So we could tell them what is in the  
7 works and say that the details will be forthcoming very  
8 soon. We could outline it generally, what we heard today;  
9 is that what you are saying?

10 MR. SEGE: Yes, that would be in order and I trust  
11 you will report to the committee the caveats that I brought  
12 before you. You are seeing parts of a draft that is in the  
13 final stage of review. It is moving but there will be items  
14 that will undergo change before it is submitted to the  
15 Commission.

16 MR. OKRENT: Okay. Your estimate again for when  
17 you might submit this to the Commission was ---

18 MR. SEGE: About Monday.

19 MR. OKRENT: About Monday. Fine. Thank you very  
20 much.

21 MR. SEGE: Thank you very much, Mr. Chairman.

22 MR. OKRENT: Is there any further business that we  
23 have?

24 Dr. Savio?

25 MR. SAVIO: No. If you would note that we

1 received that oral statement form OPS and is it going to be  
2 in the transcript?

3 MR. OKRENT: I thought that you had noted already  
4 that we had received an oral statement from OPS. In any  
5 event, it is duly noted.

6 With that I will adjourn the meeting.

7 (Whereupon, at 2:50 p.m., the subcommittee  
8 adjourned.)

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AUTHENTICATION

This is to certify that the attached proceedings before  
the Occupational Safety and Health Review Commission in  
the matter of:      ACRS/SAFETY PHILOS. AND CRITERIA

Docket Number \_\_\_\_\_

Place of Proceeding      Washington, D. C.

Date of Proceeding      August 6, 1980

were held as herein appears, and that this is the original  
transcript thereof for the file of the Commission.

*Mary P. Linn*

Signature of Reporter

SCHEDULE FOR AUGUST 6, 1980  
SAFETY PHILOSOPHY AND CRITERIA MEETING

1:00 - 1:30 (1) STATUS REPORT ON THE DEVELOPMENT OF REQUIREMENTS  
FOR NTCP PLANTS - 30 MINUTES (NRC AND NTCP  
OWNERS GROUP)

1:30 - 2:15 (2) PRESENTATION ON PROPOSED WORK PLAN FOR  
DEVELOPING SAFETY GOALS - 45 MINUTES (NRC-OPE)

OFFSHORE POWER SYSTEMS HAS SUBMITTED THE ATTACHED WRITTEN STATEMENT.



Don R. Savio  
ACRS Staff

STATEMENT BY OFFSHORE POWER SYSTEMS TO ADVISORY COMMITTEE  
OF REACTOR SAFEGUARDS SUBCOMMITTEE ON SAFETY CRITERIA AND PHILOSOPHY

AUGUST 6, 1980

Subject: Status of Offshore Power Systems' Responses to TMI-2 Action  
Plan Items and Completion of Manufacturing License Review

The purpose of this statement is to summarize the current status of the Offshore Power Systems (OPS) Manufacturing License application and provide the subcommittee an update regarding OPS response to TMI-2 Action Plan.

The NRC Staff has issued an SER and three Supplements, and they have been reviewed by ACRS. The need for one final SER Supplement following Staff review of the OPS' responses to the TMI Action Plan, NUREG-0660, is anticipated. The public hearings are complete except for TMI matters. All existing contentions have been heard and partial findings have been filed by both OPS and the NRC Staff. With the exception of review of TMI matters, the Floating Nuclear Plant (FNP) licensing process is essentially complete.

With respect to TMI-2 related action items, OPS met with the NRC Staff on April 30 to discuss items in the draft action plan and to reach agreement with the Staff regarding which of the items would need to be addressed prior to issuance of the Manufacturing License and the level of information detail that would be required for those items for which responses were necessary. The outcome of this meeting was agreement between OPS and the NRC Staff regarding both the applicability of the action items and the extent of information necessary to support issuance of a Manufacturing License. OPS has prepared responses to the applicable action items (in accordance with the agreement with the NRC Staff) and these responses were submitted to NRC as a topical report on July 15, 1980. Copies of this topical report have been provided to the ACRS. The only item not addressed in the topical report is the degraded core rulemaking (Item II.B.8 of NUREG-0660). We will provide responses to this item as soon as possible following publication of the proposed interim rule by NRC. It is worthwhile to note that the FNP has already undergone substantial review with regard to

degraded core conditions by both the NRC Staff and the ACRS and that a refractory ladle for delaying melt-through of a molten core has been incorporated into the plant design. The inherent flexibility in the FNP design for incorporating design features to cope with degraded core conditions was demonstrated by the addition of the core ladle to the design. This flexibility and the attention already given to degraded accidents provides reasonable assurance of our ability to incorporate future design requirements.

On August 1, the Commission approved for publication for public comment a policy statement regarding pending Construction Permit and Manufacturing License applications. This policy would require Applicants address applicable requirements from NUREG-0660 and also require additional measures or commitments in selected areas. As identified above, applicable requirements from NUREG-0660 have been addressed by OPS, submitted to NRC and are awaiting Staff review. Two of the four other selected areas identified by the Commission are applicable to the Manufacturing License review, they being Degraded Core Rulemaking and Reliability Engineering. Reliability Engineering was addressed in our responses to NUREG-0660 and further detail will be provided if required by the Staff. Degraded core rulemaking was discussed above and further information will be provided to NRC as soon as possible after publication of the interim rule.

In conclusion, OPS has provided all the necessary information needed to permit rapid completion of the review of our application except possibly for information with respect to degraded core rulemaking. Such information will be provided as soon as possible after publication of the proposed interim rule. We urge the Staff and ACRS to complete this review as expeditiously as possible.

DRAFT  
8/5/80

PROPOSED PLAN FOR DEVELOPING A SAFETY GOAL

OBJECTIVE

To develop an explicit articulation of policy with respect to the fundamental issues of public health and safety and the level of protection the Commission believes is adequate.

SCOPE

The policy articulation to be developed will include some general approach to risk acceptability and safety-cost tradeoffs, and, to the extent that these reasonably lend themselves to articulation, quantitative safety goals, safety improvement goals, and standards for review of past actions in light of new rules and improved practices.

The work will deal primary -- but not exclusively -- with reactors.

## METHOD OF APPROACH

- Utilization of results and interim results of ongoing NRC efforts (ACRS, RES, NRR).
- Consideration (and, as appropriate, solicitation) of inputs from outside groups with considered views (AIF, EPRI, other industry groups; nuclear-critic groups).
- Performance of background studies (past AEC/NRC practices, practices of other agencies, approaches in other industrial countries, theories and facts of risk acceptance).
- Workshops, for discussion among knowledgeable persons of varied viewpoints.
- Solicitation and consideration of public comments.
- A series of staff papers for Commission consideration at critical stages of policy analysis.
- Reception and development of a broad range of alternatives before narrowing to a limited number of significant options (and ultimately perhaps a single recommended approach).
- Opportunities for Commission guidance as the work progresses.

## TASKS

### I. LIAISON

ACRS, RES, NRR, industry, public interest groups, NSF/NAS, foreign

### II. BACKGROUND STUDIES

A. Nuclear Regulatory Statutes and Practices

B. Statutes and Practices of other Agencies

C. Approaches of Other Industrialized Countries to Safety Goals

D. Social Acceptance of Risks

E. Theories of Risk Acceptance

### III. POLICY DEVELOPMENT

A. Criteria

B. Frameworks

C. Preliminary Policy Paper

D. Policy Paper

### IV. WORKSHOPS

A. Workshop on Frameworks and Philosophies of Approach

B. Workshop on Proposed Approach

### V. MANAGEMENT

PROGRAM MILESTONES

<u>Task No.</u>	<u>Event</u>	<u>Date</u>
V	Establish Inter-Office Steering Group	9/8(a)
III.A	Complete Commissioner interviews	9/19
I	Hold exploratory meeting on Approaches with NRC/Industry/Public Interest Groups	10/22
III.A	Complete working paper on Criteria	10/31
II	Submit information paper on detailed plans and schedule for Background Studies	10/31(b)
III.B	Complete working paper on Alternative Frameworks	11/24
III.C	Submit PRELIMINARY POLICY PAPER	12/29(c)
IV.A	Hold Workshop on Frameworks	2/17
III.C	Receive public comment on Preliminary Policy Paper	3/16
II	Complete Background Studies	4/30
III.D	Complete preliminary draft of Proposed Approach	5/20
IV.B	Hold Workshop on Proposed Approach	6/23
III.D	Submit POLICY PAPER	8/7(c)

(a) Or two-week after Commission approval of plan.

(b) Some background studies may be initiated before that date.

(c) Issue for public comment 10 days later, after Commission approval for release.

PAST ACTIVITIES

- MARCH 17, 1980 - NRR TASK FORCE FORMED TO PROPOSE TMI-RELATED REQUIREMENTS FOR NTCP AND ML APPLICATIONS
- MARCH/APRIL 1980 - MEETINGS WITH NTCP AND ML APPLICANTS
- APRIL 4, 1980 - INITIAL SET OF PROPOSED REQUIREMENTS
- APRIL 9, 1980 - MEETING WITH TMI-2 IMPLICATIONS SUBCOMMITTEE
- APRIL 22, 1980 - REVISION TO PROPOSED REQUIREMENTS
- MAY 2, 1980 - FULL COMMITTEE MEETING
- MAY 6, 1980 - ACRS LETTER
- JULY 15, 1980 - ML APPLICANT SUBMITTED RESPONSES TO PROPOSED REQUIREMENTS
- JULY 23, 1980 - STAFF ISSUED PROPOSAL TO COMMISSION TO ISSUE PROPOSED REQUIREMENTS FOR PUBLIC COMMENT
- AUGUST 1, 1980 - COMMISSION APPROVAL OF STAFF PROPOSAL

FUTURE ACTIVITIES

- AUGUST 1980 - ISSUE FEDERAL REGISTER NOTICE INVITING COMMENTS ON PROPOSED REQUIREMENTS
- AUGUST 1980 - ISSUE NUREG-0718 WHICH CONTAINS THE PROPOSED REQUIREMENTS
- SEPTEMBER/OCTOBER 1980 - ACRS MEETINGS
- OCTOBER 1980 - CONSIDER COMMENTS, REVISE REQUIREMENTS
- OCTOBER 1980 - MEET WITH COMMISSION
- NOVEMBER 1980 - COMMISSION APPROVAL OF REQUIREMENTS