

ACRST-1411

**ORIGINAL**  
UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the matter of:

ADIVSORY COMMITTEE ON REACTOR SAFEGUARDS

The Ad Hoc Subcommittee Meeting on the  
State of Nuclear Power Safety

Docket No.

Location: Washington, D. C.  
Date: Friday, May 31, 1985

Pages: 1 - 33

**ACRS OFFICE COPY**

Do Not Remove from ACRS Office

ANN RILEY & ASSOCIATES  
Court Reporters  
1625 I St., N.W.  
Suite 921  
Washington, D.C. 20006  
(202) 293-3950

TROY  
0/1  
OF 16 TO B WHITE

8506040474 850531  
PDR ACRS  
T-1411 PDR

1 UNITED STATES OF AMERICA  
2 NUCLEAR REGULATORY COMMISSION

3  
4 ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

5  
6 THE AD HOC SUBCOMMITTEE MEETING  
7 ON THE STATE OF NUCLEAR POWER SAFETY

8  
9 Room 1046

10 1717 H Street, N.W.

11 Washington, D. C.

12 Friday, May 31, 1985

13 The AD HOC Subcommittee on The State of Nuclear  
14 Power Safety for the NRC of the Advisory Committee on Reactor  
15 Safeguards convened, pursuant to notice, at 8:45 a.m., William  
16 Keer, Chairman of the Subcommittee, presiding.

17 PRESENT:

18 William Kerr, Chairman

19 Harold W. Lewis, Member

20 Glenn A. Reed, Member

21 ALSO PRESENT:

22 Anthony J. Cappucci, Jr., (DFE)

23

24

25

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

DR. KERR: Good morning. The meeting will now come to order.

This is a meeting of the Advisory Committee on Reactor Safeguards Ad Hoc Subcommittee on State of Nuclear Power Safety. This is the second meeting of the subcommittee. It follows an effort to collect from members of the committee, safety concerns which will form part of our discussion today. You should have a listing of those, as has been prepared by Mr. Cappucci, I think probably a copy of the memorandum, from various members of the committee.

I am Bill Kerr, Subcommittee Chairman. The other ACRS Members in attendance are Dr. Lewis and Mr. Reed.

The purpose of this meeting is to discuss important safety issues identified by ACRS Members at the request of the SONPS Chairman.

Anthony Cappucci is the cognizant ACRS Staff Member for this meeting.

The rules for participation in today's meeting have been announced as part of the notice of this meeting previously published in the Federal Register on Friday, May 10, 1985.

A transcript of the meeting is being kept and will be made available as stated in the Federal Register Notice.

1           We have received no written comments from members of  
2           the public. We have received no requests for time to make  
3           oral statements from the members of the public.

4           We will proceed with the meeting.

5           This is going to be a relatively unstructured  
6           meeting. So, let me make some suggestions, and you can follow  
7           with additional ones.

8           I'm not sure that I know exactly how to judge the  
9           state of nuclear power safety, and I would be interested in  
10          hearing from you, and seeing if we can at least take some  
11          start toward deciding on the criteria that we are going to use  
12          or formulate, and judging the state of nuclear power safety.

13          I presume that is the state of nuclear power safety  
14          in the U.S.

15          Do we have some starting point, or should we try to  
16          put one together, or should we not try to put too much  
17          emphasis on definitions and charge ahead?

18          What is your view?

19          MR. REED: Like a big brown trout in Munich, I rise  
20          to the bait.

21          All three of us just came back from this  
22          French-German trip, and I have logged my impressions, and they  
23          go something like this:

24          That the health -- and I use the word health of  
25          nuclear power and its safety -- in France and Germany

1 certainly you feel that there is more health, that something  
2 is more vibrant, that something is better. And I think that I  
3 could see in their structuring and what they do, some of the  
4 reasons for a more healthy scene and probably a more safe  
5 scene because of health.

6 I guess if you are in healthy condition, you can  
7 walk right down the road without stumbling, and therefore you  
8 are more safe.

9 So, what can we draw from what we saw there, and how  
10 does it apply to what I think is some health problems here in  
11 the USA?

12 I think we could all agree on one right away, that  
13 the people seem less involved in -- those involved in the  
14 effort seem less harassed, burdened and more motivated. Could  
15 we agree on that?

16 DR. KERR: I don't know we are necessarily here to  
17 get agreement today. Why don't you go ahead. It is an  
18 observation.

19 MR. REED: All right.

20 I think another thing that we ought to do is, they  
21 are convinced that what they are doing from a design point of  
22 view is pretty good.

23 In the meantime, we seem to think we have a lot of  
24 problems. I think we do have one or two design problems.

25 They seem to standardize and so something about it,



1 they make hard conclusions. I think they make good, wise  
2 decisions, and they move forward.

3 We don't conclude and move forward with hard  
4 decisions on some design vulnerabilities which I think we  
5 ought to, and I have suggested in the past, such as an  
6 alternative for decay heat removal on some PWRs. And, let's  
7 say such as doing something on a higher priority basis with  
8 respect to BWR pipe cracking.

9 Another thing I think they have a tremendous  
10 advantage over us is regulatory structuring in an interface  
11 with the utilities.

12 We are very much behind and very adversarial and  
13 very poorly structured as far as our nuclear regulatory  
14 situation is concerned. And I think we ought to be more like  
15 the FAA and the NTSB in our structure.

16 So, that is three things to start people talking.

17 DR. KERR: The three things, if I understand them,  
18 are that you think the health and safety in France and Germany  
19 are better than what you observe here; that there is less  
20 harassment of operations people back at the regulatory agency;  
21 and that standardization has made them able to deal with  
22 common problems somewhat better than we are able to deal with  
23 them.

24 MR. REED: At least those thoughts are in there.

25 DR. KERR: Hal?

1 DR. LEWIS: I guess I am slightly nervous about  
2 our making the kind of list that we have in front of us, which  
3 has, you know, 30 issues rated in priority order. It isn't as  
4 good as the NRC Staff did after TMI when they had 200 things  
5 rated in priority order.

6 I hope that the outcome of this subcommittee  
7 recommendation to the full full committee won't be an ordered  
8 list of resilient items.

9 Tony looks very unhappy about what I'm saying.

10 MR. CAPPUCCI: The list -- those numbers are not  
11 prioritizing anything. They are just putting -- making  
12 general categories. They are saying like human factors is a  
13 general category, and those issues with that number one just  
14 fall in that general category. There is no intent to  
15 prioritize anything.

16 DR. LEWIS: Thank you.

17 The only thing worse than a long prioritized list is  
18 a long unprioritized list. So, you have made the point very  
19 effectively.

20 I hope that our activity won't be devoted to that,  
21 because in a certain sense it is the job of the NRC, not the  
22 ACRS, to make the priority list for the specific technical  
23 items that they are dealing with, and we can certainly be  
24 helpful and critical and suggestive and so forth, but I don't  
25 think we should do the staff work.

1           So then the question is, what should this  
2       subcommittee do?

3           I guess my view has been that what the subcommittee  
4       should do is try to make a statement which we have so far  
5       avoided, about whether nuclear safety in the United States is  
6       in great shape, poor shape, spectacular shape, needs  
7       improvement, whether we are nervous. I don't know quite how  
8       one wants to phrase such things.

9           But I would like to see us bite the bullet, or  
10      whatever analogy seems to work, and say something that is  
11      reasonably concise in that regard. I doubt that we could get  
12      a collegial view for the full committee about such a thing.  
13      But, I think it would be worth a try, because without that  
14      don't know quite how hard to work.

15           The problem that I have had with NRC is the lack of  
16      a regulatory philosophy within NRC, not a lack of lists of  
17      technical things to work on. Those lists exist. But, there is  
18      no regulatory philosophy. And deep underneath, that suggests  
19      that the question of how hard one has to work at improving  
20      reactor safety or whether one has to work at it all, really  
21      hasn't been resolved within the agency. I don't see how it  
22      can.

23           I see the deep problems of NRC as problems of  
24      ossification. That is, of slowness, of bureaucracy,  
25      ponderousness, of inability to ever close out an issue. For



1 example -- I know I am talking too much -- but an example that  
2 crossed my desk, in the pile of mail that I found this week  
3 was the piping, Historical Seismic Piping Report.

4 And the Historical Seismic Piping Report discovers,  
5 to no one's surprise, that earthquakes occur, the piping that  
6 survives is flexible piping, and the piping that breaks is  
7 rigid piping.

8 Now, many people have been saying that to NRC for a  
9 long, long time. But, there is a very ponderous program in  
10 place to discuss how one can license the flexibility of piping  
11 and how one can go into the slightly inelastic domain with  
12 piping.

13 The fact is, the evidence is there that the current  
14 regulations, which are for extraordinarily rigid piping for  
15 licensability reasons, is not the way to make the piping safe  
16 from earthquakes. Everyone has known this, but nothing has  
17 happened about it. Now there is a historical review that  
18 verifies something everyone has known, and still nothing will  
19 happen about it.

20 That is where I see the problems. Not in making a  
21 list, the difficulty of addressing issues in terms of their  
22 relevance to safety, rather than their amenability to  
23 regulation.

24 I know it is hard to quantify that comment. But, if  
25 we come up with anything in that direction, I think it will

1 probably be better than another ordered list, or an unordered  
2 list.

3 MR. REED: This is not too much different, than if  
4 you go to root cause, I think, than my third point, that  
5 regulatory structuring has a problem.

6 Hal is saying, well, it ought to lean on less paper  
7 and more understanding it, more wise and this kind of thing.  
8 I think that is what it is saying. I think there is a problem  
9 with regulatory structure, too. I agree with you.

10 I might point out something in this issue, in  
11 our considerations today. I think we ought to keep in our  
12 minds this recent Commission release, that it is likely that  
13 we will have one more major TMI type accident between now and  
14 the year 2000. Now, that is a release.

15 It seems to me if we are going to assess the state  
16 of nuclear power safety, we have to reflect on that and decide  
17 what steps along the art of the possible, what concrete things  
18 can back that prediction down.

19 DR. LEWIS: Glenn, I wouldn't take the number .5  
20 that the Commission supplied to Mr. Markey all that  
21 seriously. You saw how it was calculated. It differs by a  
22 factor of 3 from the ACRS estimate of essentially the same  
23 thing.

24 Both numbers have enormous uncertainties associated  
25 with it. In both cases -- I hate to say it -- people used the

1 median where they should have used the mean, and it made a big  
2 difference. I wouldn't take the quantitative number  
3 seriously.

4 But, on the general question of whether there will  
5 be another major accident, I agree with the general statement  
6 that there will be. I go around giving speeches to that  
7 effect.

8 The Kemeny Commission complained that within the  
9 industry and within the NRC there is a mindset that somehow  
10 large accident was impossible. And it is still visible in  
11 large segments of the community.

12 So, it is important, not in the sense of making a  
13 large list. But, it is important to think of what the most  
14 likely sources of such an accident are and to see what we are  
15 doing about them. Everyone knows my candidate. My candidate  
16 is a systems interaction induced by a control system failure,  
17 which I think NRC is really not handling very well.

18 We have had plenty of precursors to such a thing, so  
19 that when we say that we ought to learn from operating  
20 experience, this is a prime candidate. We have seen it  
21 happen. We have never come close to a major accident, but we  
22 have seen unpredicted systems interactions occur through  
23 control system failures. And on my list that is one of the  
24 things that we are not doing very well with.

25 MR. REED: I agree with you, and a control system --

1 I am going to lay it right out here. A control system failure  
2 on a B&W plant -- and I will say it is level control system  
3 failure on a B&W plant -- can lead to perhaps another Three  
4 Mile Island. All right.

5 Now, what are we going to recommend? What is a  
6 stop, or what is a cure, or what is something? A hard  
7 decision. What is a cure to take care of that?

8 In my opinion, it is blowdown off the top of the  
9 candy cane.

10 DR. LEWIS: We are being very helpful to you, aren't  
11 we, Mr. Subcommittee Chairman.

12 DR. KERR: Yes. You are, in the sense that if the  
13 NRC looked at us, I think they could make some of the same  
14 criticisms.

15 DR. LEWIS: I agree with that.

16 DR. KERR: I don't disagree, for example, that we  
17 ought to make some statement that means something. And that  
18 is the statement, in my view, we are convinced that the state  
19 of nuclear power safety is great, that would say something.  
20 And that somebody would immediately ask, well, why do you  
21 think that? And we could be coy and say, that is because we  
22 are a wise, prestigious, ossified group. But, that wouldn't  
23 be very convincing.

24 DR. LEWIS: The ossified wouldn't, but the  
25 prestigious surely would.

1 DR. KERR: So, I think one of the things we ought to  
2 try to think about is, in what form should a statement be?

3 Is it simply going to be a paragraph or so that said  
4 we have looked at this carefully and we are convinced that  
5 things are lousy, they are in good shape, they are in good  
6 shape but they could be improved, they are great. And, I  
7 think we are trying to produce something that will be useful  
8 to somebody. It may be useful to the NRC since we are  
9 supposed to be advisory to it, and I think should therefore  
10 given sort of a first consideration.

11 Now, as far as the lists are concerned, we both have  
12 had experience with groups like this in our professional  
13 careers, and the reason, as far as I am concerned, you  
14 circulate a memo asking for comments is because if you don't  
15 and you go ahead and do something, people will say, but you  
16 didn't ask me.

17 Now, we have asked "me" and here is what we got. We  
18 have taken care of that problem. And what we do with the list  
19 is up to us. But that is the principal purpose as far as I am  
20 concerned of that first effort.

21 We have asked people. Now, it seems to me, we ought  
22 to look at least at the memos, because it is possible that  
23 there is some seed of wisdom somewhere in one of those memos.

24 The oppressive thing to me about them was that there  
25 was no general agreement on one specific problem, or two



1 specific problems that we ought to get cracking on right  
2 away. Because if it was there, I missed that. That either  
3 means that there is no problem so outstanding that everybody  
4 immediately identifies it. Or, that we are not very  
5 perceptive. Or, none of the above.

6 DR. LEWIS: I don't have any trouble with what you  
7 just said, Bill. In a certain sense when you say that we are  
8 wise, prestigious and ossified, maybe I would buy one of those  
9 three in the last analysis.

10 MR. REED: I would like to point out for the record  
11 that I don't understand two of the words. I have used the  
12 word "wise" before. Just for the record.

13 DR. KERR: The effort, when you use words like in  
14 is to use words that people either don't understand, or that  
15 are suitably ambiguous.

16 DR. LEWIS: In a certain sense, the Commission has  
17 been more forthright than we have on the question of whether  
18 things are okay or dreadful, because -- and I blush to admit  
19 that I have forgotten which policy statement it is, but there  
20 was some policy statement that appeared in the last year or so  
21 in which the Commission said -- is it the Severe Accident  
22 Policy Statement?

23 DR. KERR: Yes.

24 DR. LEWIS: -- that in our view the current  
25 generation of reactors are adequately safe. And, it is our

1 purpose in the future to use that as a base and not to go on  
2 trying to improve them.

3 That was a fairly direct statement without really  
4 much support. And it got a lot of criticism.

5 DR. KERR: Well, to our credit or shame, I would  
6 remind you that the ACRS is on record as having endorsed that  
7 statement, and the Commission is not. The Commission has not  
8 yet adopted that statement. So, whatever --

9 DR. LEWIS: I was going to go on and say I seem to  
10 even recall the ACRS endorsing that comment, but I didn't know  
11 the Commission had not yet.

12 DR. KERR: I think I am right. The Commission has  
13 not yet adopted formally the policy statement on severe  
14 accidents.

15 MR. CAPPUCCI: No, not that I know of.

16 VOICE: They scheduled it yesterday, and they  
17 postponed it.

18 DR. LEWIS: But in any case we have endorsed that.  
19 So, presumably we had some basis for believing that to be  
20 true.

21 I blush once again to say I have forgotten what we  
22 gave as a justification. But, I think a thing like that is in  
23 the correct direction if it is done in a not offhand way,  
24 because it provides -- and this was the reason why it was in  
25 the proposed severe policy statement -- it provides a basis

1 for a regulatory philosophy, without which you can't function,  
2 without which you tilt at every windmill on the road, instead  
3 of the ones that happen to be beating -- let me not push the  
4 analogy too far. So, it is in that sense.

5 We always say that this business is full of  
6 uncertainty. We can't change that, but, you know, we don't  
7 have to -- everything we do in life is based on uncertainty  
8 and we still have to make our best effort to guide the  
9 regulatory process, not to prevent accidents, but to reduce  
10 their probability to a tolerable level.

11 And that probability which is tolerable, may or may  
12 not include a reasonable projection for another TMI type  
13 accident before the end of this century. There is nothing  
14 magic about the end of the century either.

15 So, I have not been a great supporter of the effort  
16 to set quantitative safety goals by the Commission, because I  
17 think it has not been done well. It has been done with a kind  
18 of specious regulatory philosophy. But, safety goals set in  
19 a somewhat less rigid form based on wisdom, would be helpful.

20 MR. REED: Let me ask about our general plan of  
21 action.

22 The purpose of this ad hoc committee, I guess, is  
23 the state of nuclear power safety. And, I don't know that it  
24 is supposed to exclude any foreign impressions, or whatever we  
25 draw from that, or import.

1           It seems to me somewhere, an ad hoc committee is  
2   supposed to exist for a time, and then disappear, right? So,  
3   we ought to have an action plan related to our steps or phases  
4   where we are going, and what we are going to do.

5           One of the things I think we have to do, in  
6   concluding this committee, is we have to address that hard  
7   issue of the state of safety, and whether we agree with what  
8   has been published recently or not. I do not know.

9           Another thing is -- you made mention that we didn't  
10   get any agreement on the priority lists that were submitted.

11          Well, maybe that is because we don't have enough  
12   input. Now, we are planning to bring guests in to talk, and  
13   maybe we can get input from those guests. I think we should  
14   not ignore the French-German, what I thought was some input.  
15   And so, we need all this input to see if we can come to  
16   prioritizing or picking out something that might be a key to  
17   improvement of nuclear power safety.

18          I thought that I detected a key from the German  
19   comments -- of course, that again is limited to one position  
20   -- but, I detected a key from their one B&W plant response,  
21   that perhaps they felt a primary blowdown was important to  
22   BWRs, some BWRs.

23          DR. LEWIS: I agree with Glenn that we have to know  
24   where we are going before we can tell the rest of the world  
25   where it ought to be going.

1           And I believe, if my memory is correct, that this  
2       subcommittee was set up in response to the suggestion, however  
3       foolish it may have been, that ACRS ought to produce an annual  
4       or biennial short letter that describes the state of nuclear  
5       power safety. A kind of "state-of-the-union letter." I have  
6       always believed that that would be a good idea, and still  
7       think so.

8           And, if we could direct ourselves towards making  
9       one input towards a regulatory philosophy for the agency, and  
10      indeed for ourselves and also an object that would be useful  
11      as a public document, that tries to lay as succinctly as  
12      President does for the whole United States each year -- rather  
13      more succinctly I hope -- a statement that we think accidents  
14      are very probable, improbable, that everything is just great,  
15      or that NRC ought to be abolished, as one of my good  
16      antinuclear friends believes NRC should be abolished, because  
17      -- well, without giving reasons. But, something that does not  
18      contain a plan for action, but simply a state of mind, a  
19      document reflecting a view about where we are.

20           If we could do that in a meaningful and thoughtful  
21      way, I think it would be a real contribution. I don't know if  
22      we can.

23           DR. KERR: Well, something of the kind to which you  
24      refer would say, I assume, if one uses what we have got as  
25      input so far, we see no major crisis in the immediate future.



1 But, there are certain areas that we think deserve further  
2 consideration, and here they are, and here is why we think  
3 they deserve further consideration.

4 DR. LEWIS: Bill, if we could make that first  
5 statement, if we had a collegial view on that first statement,  
6 I think it would be a very useful thing to put into the  
7 record.

8 DR. KERR: What I was saying was, that I would draw  
9 a conclusion either that there are about 30 major issues from  
10 this list, or that there isn't any one that everybody would  
11 immediately pick out and say here is what we will be working  
12 on tomorrow. I didn't see that sort of thing from the list.

13 DR. LEWIS: That's right. That didn't appear from  
14 the list.

15 DR. KERR: The list is incomplete, because I think  
16 we have responses from what, six members of the sixteen  
17 possible.

18 DR. LEWIS: There was certainly nothing that came  
19 in, and I haven't heard from anyone even in private  
20 conversations, a statement to the effect that I would be  
21 comfortable about the present state of reactor safety, were it  
22 not for the dreadful failure record of the widget on the  
23 doojigger. Nobody has said that kind of thing to me either  
24 privately or publicly.

25 And if that is a collegial view that there is really

1 no outstanding issue, technical or organizational issue, that  
2 greatly impairs our visceral comfort about the current state  
3 of reactor safety, if that were a true statement, it would be  
4 a remarkable one.

5 DR. KERR: I would be surprised if we could develop  
6 such a collegial view. Because I think if we then asked each  
7 individual, then the individual might pick out some things, or  
8 one thing that to that individual looked as if it were  
9 extremely important. And yet, it hasn't come out as being of  
10 the same importance to two or three people with the limited  
11 input that we have had so far.

12 So, the difficulty is -- or a difficulty is to get  
13 some sort of agreement that either there is no single  
14 outstanding issue that is of overriding importance, or select  
15 one or two that are.

16 DR. LEWIS: I tried to phrase what I said in such a  
17 way as to avoid this question of importance. Because to each  
18 individual there is one, or are two or three or whatever the  
19 small number is, issues that are most important. Otherwise  
20 you go crazy.

21 I tried to phrase it by saying -- let me do it by  
22 the converse and kind of repeat myself.

23 No one says, were it not for this issue I would be  
24 comfortable about reactor safety. If one were to write the  
25 converse of that, and even so to say nonetheless, we think the

1 things that come closest to being in that category are such  
2 and such, that is a different statement from saying that I  
3 believe such and such is an important question.

4 I don't know if there is any collegiality on it or  
5 not, a consensus on a comment of that sort.

6 MR. REED: Well, I, obviously, was not very  
7 convincing in my paper given in France and Germany, to my  
8 fellow ACRS people. But, I have to think that what I have in  
9 the record with respect to decay heat removal reliability,  
10 sort of says that for my opinion, I agree with Dr. Kerr, if  
11 you polled the members you would get almost every member to  
12 say that he had one thing that was very important, he  
13 considered, that was urgent with respect to pursuing in the  
14 interest of nuclear reactor safety.

15 I think the record shows what my feeling is.

16 DR. KERR: Let me try to approach what I think is at  
17 least part of this question, from a slightly different  
18 perspective.

19 In some sort of ideal world, one might expect that  
20 after a certain interval, one might reach a point at which one  
21 would say, things are okay now, we don't have to do any more,  
22 except at least keep people alert, make certain that  
23 maintenance is well done, and that a present level is  
24 maintained.

25 I see no evidence that we are close to that yet.

1 Are we? Should we expect to be able to reach that state at  
2 which we now say things are safe enough?

3 Or, is it the nature of organizations and technology  
4 and people that in this business one will never reach this  
5 state at which things are safe enough, and that the  
6 operational significance of that at least is that one  
7 continues to try to improve them?

8 MR. REED: Ours is a nation of critics. And, even  
9 in bodies like our own, we are critics of each other's  
10 positions.

11 We just came from Germany where there are not many  
12 critics with respect to unified common feeling, at least to  
13 the outside.

14 So, we live in a nation of critics. Everybody is a  
15 critic. I wish we had more performers, more workers and less  
16 critics. But, that isn't the way. Our society apparently can  
17 afford all its critics. So, I don't think you are going to  
18 achieve this idea you are talking about, safe enough plateau.

19 I do think we should do better.

20 DR. KERR: Let me try to explain a bit better than I  
21 did, what I had in mind. Let me take the automobile industry  
22 since I live close to some of it.

23 We certainly don't claim operating automobiles is a  
24 very safe endeavor. And yet, although we have our National  
25 Highway Safety Transportation Board, or whatever the correct

1 string of titles is, I don't see it as saying the design of  
2 automobiles needs to be changed drastically.

3 What it does mostly is to look for things that  
4 develop after the automobile has been put on the street and to  
5 say, aha, the brakes in car X are a safety problem. But,  
6 doesn't say we need to redesign all the brakes on all  
7 automobiles. It just says, experience indicates that this  
8 particular set is causing problems. Or, that another widget  
9 is causing overheating in the engine or something of this  
10 sort.

11 In a sense, therefore, it seems to me we have  
12 accepted the current state of automobile safety as adequate.  
13 That doesn't mean we don't do anything about specific models  
14 of automobiles, or if a problem turns up, we don't try to fix  
15 it. But, we don't have a great national concern, at least  
16 from my point of view, about the safety of automobiles, even  
17 though we know that the operation is not very safe.

18 Now, you are right, we have a nation of critics.  
19 There are people who criticize automobile safety and other  
20 facets of automobiles, but there is not any groundswell of  
21 opposition to automobiles because they are unsafe.

22 Is it likely that we will reach the same state with  
23 reactors? Should we expect that?

24 MR. REED: You have interested me so much with this  
25 automobile comparison, because I use the same thing.



1           It is a very nice thing to talk about because  
2   automobiles, in my opinion, in the last ten years in the  
3   United States of America have reached what I call optimum.  
4   They are optimum. You have got little things, always have  
5   little things.

6           But, the engine is in the front, the drive train is  
7   in the front, the weight mass is located essentially in the  
8   front. It's stability, capacity, so on and so forth --

9           But, let's go back a few years. There were  
10   automobiles that had not matured to what I call the optimum  
11   general design. One was the Corvair. It was an unstable  
12   automobile. It would turn around at any time. I used to  
13   drive one.

14           DR. LEWIS: I disagree with you, but we can discuss  
15   cars on somebody else's time.

16           MR. REED: I think we are all beyond the Corvair,  
17   with the engine and everything in the rear, to putting the  
18   engine and everything in the front. And now we have reached  
19   general design, optimum plateau.

20           But, how many years did it take? Let's say it  
21   happened ten years ago, the realization, it took seventy  
22   years.

23           All the critics want nuclear to reach optimum  
24   instantaneously, because there is always those people who  
25   don't see the potential or any advantages, so they want

1 instantaneous achievement of the optimum.

2 I am willing to accept that is not going to happen.  
3 I would like to give nuclear fifty years. It is a pretty  
4 complicated thing, anyway. How many years has it had? Well,  
5 it has had thirty from beginning to now.

6 I think part of our job is to push it on to this  
7 optimum that you have drawn as a parallel of the automobile  
8 industry.

9 Now, I happen to have some feelings that we have  
10 both people pushers that we have to make structured people  
11 and a few parts, a few locations of maybe say whether the  
12 engine is in the rear or the engine is in the front.

13 DR. LEWIS: I'm not so sure -- I don't know whether  
14 the analogy with automobiles in general is good or bad. But,  
15 it is true that ACRS has a public record for each reactor that  
16 is out there, as saying that it can be operated without undue  
17 risk to the health and safety of the public.

18 We are on record as saying that. We, and our  
19 predecessors, going back into the mists of time.

20 I'm not sure whether we could get a collegial  
21 comment out of the committee saying that about the assemblage  
22 of reactors, although we say it about each one. It would be  
23 an interesting exercise to see if we can.

24 But, what I have in mind is, is an effort to do  
25 that. And, if we can't get it, to find out why. Because that

1 is not a statement that there are not important issues  
2 remaining. It isn't a statement that there will never again  
3 be another accident. It is just a statement that reactor can  
4 be operated without undue risk.

5 Obviously, it begs the question what risk is due the  
6 public. You mentioned General Motors. I had a correspondence  
7 with a good friend who works there, not long ago. And I wrote  
8 a letter and put a PS on it and said, by the way, how safe is  
9 safe enough?

10 And he answered -- and I have to apologize to the  
11 transcript, but I have to be accurate in my reporting -- he  
12 said safe enough is safe enough when people stop bitching.

13 And, in a certain sense, that is your comment about  
14 the automobile. There are violent critics of the automobile  
15 industry just as there are violent critics of the nuclear  
16 industry, who contend that automobiles are not safe  
17 enough. And, in fact, from time they get the upper hand when  
18 something happens.

19 But certainly it is true, that by and large we have  
20 accepted 40- or 50,000 deaths per year from automobiles, in  
21 return for the benefits they provide. I think we wouldn't  
22 accept it if there were not benefits.

23 You speak about the French. People overseas make  
24 jokes about how in love Americans are with their cars. But,  
25 the fact is when given the chance, they also fell in love with

1     their cars. There is something that makes for an affair  
2     there, and it is not just utility, it provides other benefits  
3     that people have written humorous articles about.

4             But those are the things that made us somehow accept  
5     the death toll for cars.

6             So, there is a social issue as everyone knows, in  
7     terms of what is acceptable. We are not the ones to make  
8     those social judgments. In a certain sense, the comment "when  
9     people stop bitching" is the correct comment. It sort of  
10    measures the fact that society has accepted whatever risk  
11    there is.

12            The nuclear case is really different in many ways  
13    because nobody in the public knows what the risk is. You  
14    know, many polls have shown that. It is because the risk is  
15    configured as very rare, very damaging accidents. Whereas in  
16    cars, you can do the statistics, you know -- and they are  
17    always done wrong. People always quote how many people get  
18    killed on the Memorial Day weekend, and it turns out because  
19    it is usually a three-day weekend, it turns out to be 50  
20    percent more than are killed on the normal weekend.

21            The rate really doesn't go up very much, but there  
22    is a lot of publicity about it.

23            In the nuclear case it is even worse, because there  
24    hasn't been a lethal accident, and yet the risk is there.

25            So, it is harder for the public to make the

1 reasonable judgment, and that is why we do have an obligation  
2 to try to do it, presumably being wiser than that. But in the  
3 end what we have to do is produce something for -- or I think  
4 we have to produce a reasonably forthright comment in order to  
5 elicit a societal reaction to it, which may be favorable or  
6 unfavorable, that measures whether the society is willing to  
7 accept the risk of reactors. I think society is.

8           We have a small number of -- really a small number  
9 -- of extremely active and articulate antinuclear people who  
10 would never be satisfied. But, I don't think that is the  
11 measure of whether the technology is acceptable. The measure  
12 is whether the broad mass of the public or the Congress accept  
13 it.

14           I think it would be useful for ACRS to make a  
15 reasonably understandable comment that would then be used to  
16 elicit a response from the people to whom we are responsible.  
17 I don't know how to do it.

18           DR. KERR: In our effort to assess the state of  
19 nuclear power safety, how much of an ingredient should  
20 acceptability, our perception of acceptability, enter that  
21 assessment?

22           DR. LEWIS: I personally think it is essential. I  
23 know people always say that that is not our job. But, unless  
24 you have a measure of that as an ingredient to what you  
25 do, you are running wild. There is no way of knowing how to



1 do it.

2 I'm one of the few people who believes it was a  
3 terrible mistake to break up the AEC into NRC and ERDA,  
4 because I believe it is possible to regulate while promoting.

5 I know that is an offensive statement to some  
6 people, but the FAA, which has the dual responsibility of  
7 regulating aviation and of promoting civil aviation, has at  
8 least within the same housing, the responsibility to consider  
9 the effect of what it does on the health of the industry.

10 The critics of the nuclear business say that NRC  
11 should not consider the health of the industry at all, it  
12 should just regulate away. And that is so open ended that it  
13 makes it impossible to have a corporate philosophy, which  
14 the thing I see missing in NRC.

15 But that is not the job of this subcommittee, I  
16 don't think. Maybe it is.

17 DR. KERR: Well, from our deliberations so far, I  
18 would conclude that we propose to the committee at some point  
19 a letter which would say something like the following:

20 We have looked at our previous letters and have  
21 concluded from the closing sentence, that the committee is  
22 convinced that each operating reactor out there can be  
23 operated without undue risk to the health and safety of the  
24 public. And that therefore, for this time, reactors are  
25 appropriately safe.

1           However, we think improvements can be made without  
2 excessive expenditures of resources. Here are some.

3           DR. LEWIS: I think one could try such a thing.  
4 But, if I were your opponent, I would instantly point out that  
5 the letters say that the reactor can be operated without undue  
6 risk to the health and safety of the public at the time that  
7 it was written. And, such a letter was, of course, written  
8 for TMI Unit 2 by ACRS, and events --

9           DR. KERR: One, I think, would have to argue that  
10 TMI-2, up to now, has been operating without undue risk to the  
11 health and safety of the public, if one took that approach.

12          DR. LEWIS: Yes. I think it would be interesting to  
13 try out such a sentence on ACRS.

14          MR. REED: Let me add a phrase to the sentence and  
15 say, without undue risk -- and your proof is in the TMI-2  
16 thing -- without undue risk to the health and safety of the  
17 public, but not without financial risk to the owners.

18          DR. LEWIS: I would be reluctant to ask ACRS to say  
19 it. My concern about the ponderousness, rigidity and all  
20 those things I said earlier of NRC really don't have to do  
21 with the financial damage to the utilities who own the  
22 reactors. I am not a stockholder in any reactor or anything  
23 like that, but with the fact that it makes the NRC really not  
24 direct its efforts in support of safety.

25          People have said -- I know I have often said that

1 NRC has as its function, regulation, almost independently --  
2 or sees its function as regulation almost independently of  
3 safety, and it is very inadequate in relating what it does to  
4 the assurance of safety of reactors.

5 That is a philosophical comment that I could  
6 document with examples. I gave piping as an example.

7 Now, it is true that all the snubbers and supports  
8 that were the subject of so much controversy at Diablo Canyon  
9 cost PG&E, and inferentially the rate payers of California,  
10 bundle of money. But, that is in a sense secondary, in my  
11 view.

12 What I fear is that if there is an earthquake there,  
13 we will discover just as historical experience shows, that all  
14 those damn snubbers and rigidifying to make the plant  
15 analyzable, will make it more vulnerable to earthquake. It is  
16 that kind of philosophical issue that --

17 MR. REED: Let me make a point. When I said that  
18 phrase "financial risk to the owners," we must recognize from  
19 financial risk comes an indirect threat to safety of  
20 operation.

21 Now, how does it come about? Well, it comes about  
22 because if a utility's finances are jeopardized, then their  
23 ability to attract or hold appropriate personnel, or to  
24 function to do other things that they should do, that is also  
25 jeopardized.

1           So, there is an indirect safety threat to a  
2   financial risk.

3           DR. KERR: The only disagreement I would have is  
4   that I would think it is rather direct.

5           I agree with you. I think this is important. We  
6   can't separate the two.

7           MR. REED: But it is not a direct threat to public  
8   health and safety, with the containment redundancies and other  
9   things that exist.

10          I'm not satisfied that we should not better  
11   financially protect the core from melt.

12          DR. KERR: From what you said, Hal, I would expect  
13   that after the preamble in this letter, the principal emphasis  
14   in the rest of the report, might be on suggested changes of  
15   the way in which the NRC operates, including its philosophy.

16          DR. LEWIS: I believe that is actually more  
17   important than the list of technical issues, because I don't  
18   believe that NRC operates in such a way as to do the best job  
19   with this vast pool of skilled, experienced and educated  
20   people to assure the safety of the reactor.

21          And it is not just the emphasis on regulation. Even  
22   at the Commission level, people have been talking for years  
23   about the extraordinary legalistic rigidity of the ex parte  
24   rules and the separation of powers rule, which are well within  
25   the power of NRC to change within the law. And, nothing ever

1 happens.

2 Is it conceivable, for example, that a Commission  
3 with the responsibility for the safety of nuclear reactors,  
4 when an issue really comes to a head, the first thing it does  
5 is to erect a barrier between itself and its staff, who are  
6 the repository of all the technical information about the  
7 subject at hand?

8 It makes on the face of it, no sense at all. And,  
9 it is not even required by law, in my view, as a documented  
10 amateur lawyer.

11 There are a lot of things like that.

12 DR. KERR: Glenn, I am not sure that you would go  
13 along with that as a first priority.

14 MR. REED: I guess the first priority -- I guess I  
15 was sort of drifting off in a thought here -- is that your  
16 suggestion is structuring, regulatory structuring. Is that  
17 it? Or, motivation? Or interfacing?

18 DR. KERR: Concerns about the way in which the NRC  
19 operates to do good, structured --

20 MR. REED: I protected myself, you see, by making  
21 many lists, and coming up number one on the latest list --  
22 and I had to think long and hard -- I put motivation of  
23 licensing skilled personnel in the workplace.

24 Well, that really directly relates to how well  
25 the NRC is organized to efficiently, and without undue



1       adversarialism, do its job. So, it is number one on my list,  
2       I guess, although it is said differently.

3               DR. KERR: Why don't we, since we have been carrying  
4       on this strenuous discussion for about an hour, take a  
5       ten-minute break.

6               (Recess)

7               (Whereupon, at 9:40 a.m., the recorded session of  
8       the conference was concluded.)

9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

1 CERTIFICATE OF OFFICIAL REPORTER

2  
3  
4  
5 This is to certify that the attached proceedings  
6 before the United States Nuclear Regulatory Commission in the  
7 matter of: Advisory Committee on Reactor Safeguards  
8

9 Name of Proceeding: The Ad Hoc Subcommittee Meeting on the  
10 State of Nuclear Power Safety

11 Docket No.:


12 Place: Washington, D. C.

13 Date: Friday, May 31, 1985  
14

15 were held as herein appears and that this is the original  
16 transcript thereof for the file of the United States Nuclear  
17 Regulatory Commission.  
18

19 (Signature)

20 (Typed Name of Reporter)

  
Mimie Meltzer

21  
22  
23 Ann Riley & Associates, Ltd.  
24  
25