

TRANSCRIPT OF PROCEEDINGS

PRESIDENT'S COMMISSION ON THE ACCIDENT AT THREE MILE ISLAND

COMMISSION HEARING

Date: Saturday, September 29, 1979

Place: Washington, D.C.

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1 PRESIDENT'S COMMISSION ON THE ACCIDENT AT THREE MILE ISLAND

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3 COMMISSION HEARING

4 Saturday,
5 September 29, 1979

6 2100 M Street, N.W.
7 Washington, D.C. 20037

8 The hearing was convened pursuant to notice at 9:00 a.m.,
9 John G. Kemeny, Chairman, presiding.

10 PARTICIPANTS:

11 John G. Kemeny
12 President
13 Dartmouth College

14 Patrick E. Haggerty
15 Retired President
16 Texas Instruments

17 Carolyn Lewis
18 Associate Professor of Journalism
19 Graduate School of Journalism
20 Columbia University

21 Paul E. Marks
22 Vice President
23 Health Sciences
24 Columbia University

25 Cora B. Marrett
Associate Professor of Sociology
University of Wisconsin

Harry McPherson
Attorney

Russell Peterson
President, Audubon Society

Thomas Pigford
Professor and Chairman
Department of Nuclear Engineering
University of California at Berkeley

Theodore Taylor
Professor of Aerospace and Mechanical Science
Princeton University

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PARTICIPANTS (Continued)

Anne Trunk
Resident of Middletoen, Pennsylvania

STAFF:

Vince Johnson

Stanley Gorinson

Kevin Kane

Barbara Jorgenson

Lloyd Corwin

Ron Eytchison

David Rubin

Maura Bluestone

Leonard Jaffe

Win Rockwell

P R O C E E D I N G S

9-29-79
Tape 1

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CHAIRMAN KEMENY: Will the meeting please come to order. This is the second series of meetings of the President's Commission on the accident at Three Mile Island to deal with the topic of agreeing with our findings and recommendations. And, again, this series of meetings will be recorded verbatim so that the verbatim transcript may be released at the time after we have reported to the President of the United States.

We are gathered here for several days and our task is very clear. We have to do everything possible to agree on what the official findings should be and what recommendations we wish to make to the President of the United States. We have tried to give you some background documents and I would like to ask you how you would like to proceed.

Ted.

COMMISSIONER TAYLOR: I would like to make a proposal. Having read your overview and having found that it was substantive and covered the major aspects of the accident and I believe most of what we were asked by the President to do, I suggest we start with that, rather than the detailed findings. Because I think it is very important to find out if there are major issues between us. Because I am getting very worried about the fact that we have only three weeks really to come down on the final form of what we are going to submit to the President. If there are major issues, I think we should

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1 know them today. So, that is a suggestion. Now, we could
2 probably find this, too, find out if there are major issues
3 by going through the findings, but there is a tone that you
4 set in your overview that, I think, is important for us to
5 discuss and find out whether we generally agree with it or
6 not.

7 CHAIRMAN KEMENY: How do you feel about that sugges-
8 tion?

9 COMMISSIONER PIGFORD: I would like to -- before we
10 move in that direction -- just learn from you what is expected
11 to be accomplished during the days we are here. It does effect,
12 I think, maybe what we might do today. For example, I am con-
13 cerned that as of our last meeting, there were several staff
14 reports still not completed and most of those I haven't yet
15 seen. I believe we may be getting the cart before the horse
16 in that sense.

17 CHAIRMAN KEMENY: May I remind you on what we agreed
18 at the last meeting as far as staff reports go. The agreement
19 was that the priority now had to go on findings recommendations
20 in Volume and we promised to send you the staff reports well
21 in advance of the meeting of the 15th and 16th. And that was
22 going to be the meeting at which we are going to try to see
23 whether the staff reports are satisfactory or not and we prom-
24 ised to mail them all to you well in advance of that.

25 COMMISSIONER HAGGERTY: The only real problem with

1 that is whether there are findings. I doubt that there are.
2 I would like to come back to Ted's suggestion, because I think
3 basically it is a good one. But, I think, Tom, I think we
4 need to understand what the total sequences are going to be
5 right along with it. Some of the staff reports have not even
6 been seen and not completed. Are there going to be any things
7 there -- there can hardly be anything major there. I can't
8 think a major issue, but there still might be --

9 CHAIRMAN KEMENY: The only one I know of is, that
10 falls in that category, is the "what if" issue and we are
11 ready to give you a verbal briefing on that today, I believe.
12 Is that not right, Vince?

13 MR. JOHNSON: I think so.

14 CHAIRMAN KEMENY: They have asked Bill Scranton to
15 be ready. They finished research on that yesterday and,
16 therefore, Bill Scranton has been asked if at all possible to
17 be here later today to report to you on what came out of the
18 what if. That is the only one I know where there are substan-
19 tive issues of substance.

20 COMMISSIONER HAGGERTY: Then I would like to make
21 just another remark on Ted's. I think if we can get our heads
22 around what the total sequence is going to be and what the
23 issues are that remain, such as the what if scenario, I, too,
24 sort of feel that it would be productive to talk about your
25 chapter. I have the following comments. I don't find the

1 tone objectionable. It raises two significant questions,
2 though. One is, all right, so you say all of these things;
3 what do you do about it.

4 CHAIRMAN KEMENY: Yes. The point is that I don't
5 know that the Commission agrees on recommendations.

6 COMMISSIONER HAGGERTY: I understand that. But it
7 does and can effect -- I mean, when one says that you don't
8 find the general tone objectionable, you can't really know
9 what the significance of that is until you know how do you
10 get from here to there. That is number one. The second is
11 that it may be -- one can come down on either side on a so-
12 called "chairman's chapter". If we can get enough agreement
13 on that general kind of tone, we would be better off not to
14 have a chairman's chapter and have it as a commissioner's
15 chapter.

16 CHAIRMAN KEMENY: I quite agree with you on that,
17 Pat. I mean, I wrote it at this time this way so it shouldn't
18 even temporarily be identified as yours, since we didn't have
19 consensus. But if we should get consensus on that, nothing
20 would please me more than if that were a Commission overview
21 rather than a chairman's overview. Let me assure you of that.

22 COMMISSIONER HAGGERTY: Then the last comment that
23 I had -- and, of course, I saw this stuff last night, so I
24 don't know what I have missed. I have a feeling that regard-
25 less where it appears, even if there are 200 findings -- I

1 don't care whether there are 200 -- I mean, I would rather
2 eliminate the 15 that there is any mushiness about and have
3 185. I think there is great virtue in the list of things and
4 not having to pile through that stack of documents that is
5 going to make up Volume 2 or only narrative in Volume 1 to get
6 the detailed essence of what the summary chapter is based on.
7 I mean, I think that there is a considerable virtue in our
8 original approach of brief finding statements. I see what
9 your dilemma in looking at the ones --

10 CHAIRMAN KEMENY: Have you had a chance to look at
11 the --

12 COMMISSIONER HAGGERTY: Those that were delivered to
13 the hotel last night, I have looked at.

14 CHAIRMAN KEMENY: Yes. There are 54 findings in
15 here so what we tried to do was try at least to go part way in
16 that direction, tried to balance out the areas.

17 COMMISSIONER: Well, I have a suspicion that maybe
18 there is a hundred. Maybe by the time you really get done,
19 you would satisfy what I am saying that instead of 54, there
20 were 100.

21 CHAIRMAN KEMENY: Tom.

22 COMMISSIONER PIGFORD: John, I just add one more
23 caveat. I think the approach towards your document -- I mean,
24 discussing it is fine, but I do want to point out that when
25 one discusses this -- because these are kind of general sort

1 of statements -- their meaning, at least to the reader, is
2 going to be a little vague until the reader then sees the
3 supporting part. And, so, if we haven't agreed on the support-
4 ing part, it is very difficult to determine if we agree on
5 this. So, eventually, it is going to rest, finally -- do we
6 agree on the supporting material. My own view on the support-
7 ing material, it has not been discussed here enough. For
8 example, I have not heard a discussion, for example, of the
9 whole document on the NRC here. If find also missing much
10 more in terms of technical staff reports than just the what if.
11 So, I am a little less comfortable of our status of our know-
12 ledge and of our development of the supporting evidence than
13 I think has been presented so far.

14 COMMISSIONER HAGGERTY: Well, really, that is sort
15 of the same thing I was saying. I doubt that there are major
16 issues in those missing items. But I do think how your docu-
17 ment is read depends on that you have agreed on a hundred
18 findings and what they mean or 200 findings or whatever they
19 are and then the further supposition that all of the background
20 stuff has been digested into some kind of form that enough
21 people have had a chance to read. Because it is true that
22 the summary statement and how you feel about it, if there are
23 colorations in the back-up data and if one is looking at it
24 this way and one is looking at it that way, we could be agree-
25 ing on the cover chapter and not on the content.

1 COMMISSIONER LEWIS: John, I wanted to strongly ob-
2 ject to the tone of the document. I think it reflects, frank-
3 ly, a failure on your part to really test the feelings of this
4 Commission. I think the presumption that we all agree that
5 the answer to our energy problems is to press on with nuclear
6 power is not based on any discussion that we have had within
7 this Commission. We haven't discussed some of the basic
8 issues here and we are suddenly presented with this document,
9 which, I know, is not the final one. But, to me, it does not
10 reflect, I know, my feelings and the feelings and the feelings
11 of some of my colleagues on this Commission. It bothers me a
12 great deal that there should even be considered a chairman's
13 overview. I hope that this is not the kind of thing that is
14 going to end up in our final report. I think that the final
15 report should have an opening chapter, which is the Commission's
16 overview and not a chairman's overview. Because I do think
17 there are 12 of us on this Commission and not just a chairman.
18 So, I want to go on the record as saying that this thing
19 really bothered me. There were presumptions of attitudes and
20 approaches toward nuclear power that certainly do not reflect
21 any discussions that we have had here, because we have never
22 really discussed many of these issues. And I really hope that
23 in these few days, we are going to have a chance to talk about
24 them. I hope we are going to decide what the parameters are
25 of our recommendations. We have never even discussed, as a

1 commission, what the parameters were of our investigation; now,
2 we are kind of stuck with whatever we did. But I think we
3 ought to say, you know, these are things that we do not feel
4 that it is proper for us to deal with and I think that those
5 things must be said at the beginning of our report, so the
6 public does not believe, if we decide to change the NRC, that
7 it is based on the presumption that nuclear power is the
8 answer to our energy needs. The tone of this is a presumption
9 that that is the way the Commission feels and until we have a
10 chance to discuss it to decide whether or not we want to make
11 this part of a report, I don't -- I just found this -- I was
12 really shocked by it. It appalled. It certainly did not re-
13 flect the feelings that I have sensed in this Commission or
14 at least among some of the members of the Commission. I think
15 what we ought to do is decide what it is that we can recommend
16 and cannot recommend; what are the things that are outside of
17 the parameters as we, 12 members of the Commission, not just
18 the chairman see it and then go on record as saying we did not
19 feel it was within our mandate to deal with this question.
20 And I think that when the report comes out, the public ought
21 to know that we did not -- this was something that we did not
22 intend to deal with. And they should know clearly that what-
23 ever judgments or recommendations we have made are based on
24 the presumption that we have to push on or the presumption or
25 some political decision. In other words, I have not had a

1 chance as a Commissioner to participate in any of those dis-
2 cussions. We have been really pushed into a position that is
3 going to bother me a great deal.

4 COMMISSIONER TAYLOR: I think Carolyn has demonstra-
5 ted very well the reason why we ought to look at the overview
6 and find out where there are strong differences, the feeling
7 about the specific thing about tone.

8 Just one parenthetic comment and that -- apparently,
9 we read this in slightly different ways in that, I guess, I
10 didn't find a presumption --

11 COMMISSIONER HAGGERTY: I didn't either. I was go-
12 ing to write a paragraph in which it was just the opposite.

13 COMMISSIONER TAYLOR: But I think that is the kind
14 of thing that we should get ironed out and that is my reason
15 for making --

16 CHAIRMAN KEMENY: May I just have the privilege to
17 read one paragraph into the record to clear the chairman's
18 reputation. Clearly, at the moment, I do not know what the
19 Commission's consensus will be; therefore, this draft will
20 require substantial rewriting after our five-day meeting. My
21 purpose here was to flush out and try to help give you some-
22 thing you can tear apart. But, in a sense, to force you to
23 try to discuss some of the major issues.

24 COMMISSIONER HAGGERTY: May I read another one?

25 CHAIRMAN KEMENY: Yes.

1 COMMISSIONER HAGGERTY: It says that to arrive at
2 our recommendations we have taken the following position. It
3 is very close to what you asked for, Carolyn. Nuclear power
4 is an important component today in providing electricity with-
5 in the United States and in other parts of the world and some
6 are counting on it to provide even more electric power in the
7 future. Therefore, the improvement of the safety of existing
8 and planned nuclear plants is a crucial issue. It is this
9 issue that our report addresses. While all of us hope that
10 significant efforts will be devoted to the exploration of al-
11 ternate sources of energy, this did not give us an excuse for
12 avoiding the charge given to the Commission by the President
13 of the United States.

14 COMMISSIONER LEWIS: Well, that is exactly the pre-
15 sumption that I am questioning because I think that we have
16 not discussed ever in this commission as far as I have been
17 here whether that narrow scope is the only scope within our
18 parameters. And that is what I am saying; if we decide as a
19 total commission that that is so, then I think that should be
20 out front. But you are saying that the one thing we should
21 be dealing with is the safety and everything else is outside
22 and then I have sensed right from the beginning that there
23 has been an attempt to narrow the scope of this investigation
24 and narrow the possibility of the kinds of recommendations that
25 we could make. Now, that I see in this report. What I am

1 trying to say is that I would like us to have a chance to dis-
2 cuss that and if we so decide, fine. I think it should be a
3 decision of the entire Commission. I want to also say that
4 the kinds of the things that bothered me -- when I started my
5 role as chairman, I assumed that my major -- this is also from
6 the report -- I assumed that the major issue would be the
7 safety of equipment at nuclear power plants. This belief was
8 shared by a number of my fellow commissioners. Now, that may
9 have been and it was obvious to me that that was the chairman's
10 concept, but it certainly wasn't mine when I came on this
11 Commission and, as you know, I have been pushing very hard
12 right from the start to say that that is not the issue. And
13 so, you know, I find that the chairman had this narrow view
14 is certainly not something that I would want to trumpet to the
15 rest of the world, because a lot of us felt right from the
16 start that the problems were at the NRC and they were much
17 deeper. There is an attempt here to make us all part of your
18 view, John, and this really disturbs me. I think this is the
19 time to discuss what the rest of us feel this Commission ought
20 to be doing.

21 CHAIRMAN KEMENY: I quite agree with you. That was
22 the sole purpose of this is to find out what the Commission
23 really feels on the deep issues.

24 COMMISSIONER LEWIS: Well, then, could we -- may I
25 suggest -- I am not trying to be -- I am being argumentative

1 and let's say I am -- at some point this morning we decide
2 what the parameters. What are the things that we feel we
3 cannot put in this report because we feel that it is outside
4 our mandate, so that is on the table and it is a decision
5 with a vote by all of the Commissioners and then we know that
6 we have, all of us, decided on. And that is really what my
7 request is to you.

8 CHAIRMAN KEMENY: Okay. Russ.

9 COMMISSIONER PETERSON: I think it is important
10 that we very promptly take a look at the overview of our study.
11 I share Carolyn's concern; however, I just received my copy of
12 the overview and I haven't read it yet. I would hope we would
13 have a chance to read it before we discussed it. Maybe we
14 could find an opportunity to have a half-hour recess sometime
15 this morning for some of us to read it.

16 CHAIRMAN KEMENY: That would be fine with me.

17 COMMISSIONER TAYLOR: How about now, essentially.

18 CHAIRMAN KEMENY: I would be happy to -- I know one
19 more Commissioner is coming.

20 COMMISSIONER MARRETT: I just want to go back, I
21 think, it was to Tom's question of how we lay out everything
22 we have to do over the next five days because that decides, in
23 part, when we take a recess or whatever. We know we have to
24 get through the findings. We know we have to talk in some
25 way about how the whole thing gets introduced, whether it is

1 in the format of an overview or whatever and I need to have
2 some kind of clarity of, I guess, what the whole agenda looks
3 like in order to make some decisions now about what is an
4 appropriate time to do this.

5 CHAIRMAN KEMENY: Yes. Paul.

6 COMMISSIONER MARKS: Well, I guess I share some of
7 the views that have been expressed. Number one, I would like
8 some clarification as to how we are going to review the find-
9 ings. I feel, I think, as Pat has said, that right now, hav-
10 ing had an opportunity to quickly read through most but not
11 all of the documents provided us last night in terms of find-
12 ings, that there are some substantive issues in the findings
13 which need further discussion. There are also some areas
14 where, I believe, we have had findings which are not summarized
15 yet. And that may in part be because the staff reports have
16 not yet been completed. So, the first thing is that I do feel
17 that we have to have some understanding of how we are going
18 to approach the findings because I feel right now quite strong-
19 ly that the Volume 1 should include a list of the findings and
20 whether it is 50 findings or a hundred findings or all 200
21 odd findings, it is something that I think we ought to discuss
22 as a commission. But right now I feel that it would be inap-
23 propriate to try and mold those findings into a narrative be-
24 cause I think that they will lose the force of the findings,
25 perhaps, and we also then would be faced with the further

1 complication of having to review that narrative in detail to
2 make sure that it is both comprehensive and accurate. I also
3 feel, as I think Pat has indicated, that having a list of the
4 findings is probably going to be one of the most important
5 contributions the Commission has made because the work of the
6 Commission in terms of developing those findings is probably
7 our most rigorous effort, certainly, to date. So, that leaves
8 me with the question again of just trying to get some under-
9 standing at this juncture of how we are going to approach this.

10 On the second point, I share the view that it would
11 be certainly desirable to have a Commission overview and I
12 recognize, you know, that your effort here is to give us a
13 paper for discussion.

14 The third thing I just want to say is that I have
15 worked on some specific recommendations with the idea that it
16 provides a basis for discussion, a paper, which also includes
17 what in my view are some important areas related to the future
18 of nuclear energy in this country, which the Commission has
19 not had an opportunity to go into, but which I feel we -- I
20 would like to have the Commission consider as to how we expli-
21 citly indicate in our report that these are concerns and how
22 far we want to go. I have this short document that I would
23 like to distribute to the other Commissioners and when they
24 have time they can read it and come back to consideration of
25 what I have tried to put together. These are recommendations

1 which, as you know, I have had a chance to discuss with deta
2 only with one other Commissioner; namely, Harry McPherson.
3 So, with your permission, I would like to distribute those
4 now.

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1 CHAIRMAN KEMENY: Let me suggest what I had hoped we
 2 might accomplish in the five days. I mean basically we have to
 3 do three things: Agree on some very major issues on how the
 4 Commission stands, it will be difficult to make detailed recom-
 5 mendations until we know how we stand on some overwhelming
 6 issues. Secondly, agree on the strategy and if possible the
 7 details of what we identify specifically as findings and what
 8 goes into the text, and I had hoped to suggest midway through
 9 late tomorrow afternoon to take a break where people can have
 10 a chance to read and reflect, and we hope to have by that time
 11 at least draft chapters of very detailed outlines so you can
 12 get some feeling of what might be in the rest of Volume I. Some-
 13 how out of this five-day meeting we have to come out with
 14 knowing where we do or do not have consensus of overwhelming
 15 issues, what we want to do about findings, and at least agree
 16 on the draft of our recommendations. That is why we called a
 17 five-day meeting. I mean that is the major purpose.

18 So, for example, I would suggest that when we have
 19 to break all of us read your draft recommendations or anybody
 20 else's draft recommendations. I have intentionally not drafted
 21 any, hoping that it would come from the rest of the Commission.
 22 And that we then spend the last two and a half days trying to
 23 pin down our recommendations.

24 COMMISSIONER TAYLOR: I would just like to add one
 25 point. I think there are a couple of areas that we have not

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1 covered at all that we should reserve time for. I would like
2 to suggest tomorrow, or possibly today, if Bill Scranton is
3 set up to do this, the "what if" situations need to be presented
4 to the Commission, both in written and some kind of summary
5 form. I suspect that at some point we really need some infor-
6 mation about certain characteristics, present characteristics,
7 of the nuclear industry.

8 I have prepared a tabular summary of that which, I
9 think, may or may not turn out to be very important when we come
10 to recommendations. If it turns out that we are seemingly
11 heading in the direction of saying something about licensing,
12 and I suspect we will, then I think it is important to have some
13 of these numbers in mind. I would hope we would get both of
14 these information items and any others that other Commissioners
15 think are important before the end of tomorrow.

16 COMMISSIONER PETERSON: Mr. Chairman?

17 CHAIRMAN KEMENY: Yes.

18 COMMISSIONER PETERSON: One additional comment. I
19 hope the Chairman will discipline us for the next five days so
20 that we don't spend a large percentage of our time on the de-
21 tails which we have discussed at great length as to who turned
22 what valve, when, whether four-tenths or six-tenths, or seven-
23 tenths of fatality might result, so that we can step back and
24 look at the big picture, the major conclusions that we are
25 compint up with. Otherwise we will waste our time and won't

1 have the time available to look at the important things we need
2 to conclude. So I hope we don't go back and dig into details
3 of these staff reports at this juncture.

4 One other thing, we need to find some time to discuss
5 briefly, I hope, this large number of letters that were sent
6 in to you in response to our request for advice from organi-
7 zations and individuals around the country.

8 CHAIRMAN KEMENY: Yes. I was hoping that your Com-
9 mittee would at some point give us a summary of that. That
10 would be extremely useful for us.

11 COMMISSIONER PETERSON: I have prepared a summary my-
12 self of those letters to facilitate reviewing them. I would
13 like to have the Committee meet and I will get together with
14 them and find a time when we can do so and maybe tomorrow we
15 can make a report to the whole Commission.

16 CHAIRMAN KEMENY: Yes. Commissioner Pigford?

17 COMMISSIONER PIGFORD: May I ask, at the last meeting
18 there were task groups of different Commissioners to follow
19 certain staff reports. Is there any continued responsibility
20 on those?

21 CHAIRMAN KEMEY: We have compiled, of course, a list
22 of all those reports that are supposed to be published and the
23 heads of task forces have a responsibility to make sure that
24 all those things are completed and they are mailed to you. I
25 think our deadline for mailing comes in a week to ten days from

1 now to have staff reports mailed to you, so that you have ample
2 time to read it before the 15th and 16th. Tom, the crucial
3 decision at the end of the last meeting on timing -- and I am
4 not sure you were here at that moment -- was the following, that
5 we have to have Volume I finished and in a form that can be
6 presented to the President of the United States and the public
7 on October 25th. Therefore, for the staff reports it would be
8 satisfactory to have them ready to go to the printer on October
9 25th and come out afterwards. Therefore, we felt that the Com-
10 mission could use the October 15th and 16th meeting to give its
11 final instructions on staff reports. On the other hand, as far
12 as Volume I goes, we really have to move on a faster timetable,
13 that is, we hope at least that the basic principles of Volume I,
14 which are the Commission's own report, have got to be agreed on
15 in these five days.

16 COMMISSIONER TAYLOR: Is there a date for the final
17 release or publication of part I? In other words, what is the
18 last time at which any changes can be made?

19 CHAIRMAN KEMENY: It has to go to the printer on the
20 19th. Is that correct?

21 MS. JORGENSON: Camera ready copies are to be deli-
22 vered to the printer on the 19th.

23 COMMISSIONER TAYLOR: How soon before then would you
24 say is realistically the last time that any changes can be
25 made?

1 MS. JORGENSEN: We would have to have effective sign-
2 off at the meeting on the 15th and 16th.

3 COMMISSIONER TAYLOR: Okay.

4 CHAIRMAN KEMENY: And we hope that on the 15th and 16th
5 only relatively minor changes are made in that. This is why I
6 asked you to try to reserve one extra day on the 9th for one
7 more look to see if there major changes that have to be made.

8 COMMISSIONER TAYLOR: Are we talking 15 or 16 days to
9 complete the report to the President? From now?

10 CHAIRMAN KEMENY: Yes. We have a somewhat longer
11 period for completing the staff reports.

12 COMMISSIONER MARKS: I still don't have a feeling
13 then on how we are going to go over the list of findings. In
14 other words, if the decision is made that a list of findings
15 as we have them now but worked over in some fashion is to be in-
16 cluded in Volume I, I would think that we would have to get on
17 to reviewing those findings during these five days. And the
18 question then is maybe the Subcommittee should take the variou
19 documents relative to their activity, as a first approach and
20 come to an agreement that they represent our best final effort,
21 before coming back to the whole Commission.

22 CHAIRMAN KEMENY: Yes.

23 COMMISSIONER MARKS: I would like to make a suggestion
24 on timing, just as a point of departure for a schedule, and
25 that is to spend today on the basic issues, possibly with an

1 hour or so, if Bill Scranton is available, to hear that report,
 2 just whenever that is convenient, to spend tomorrow and half
 3 of Monday, that is Monday morning, on review of the findings as
 4 we would propose to list them in part I. Then spend Monday
 5 afternoon and Tuesday on recommendations.

6 Now, I think that if we then leave Wednesday for what-
 7 ever may turn out to be important to us, that -- I find just by
 8 counting pages that that doesn't seem to me to be an unreasonable
 9 thing to do, that is a day and a half allocated to the findings
 10 in the form in which we got them either last night or this
 11 morning, I think is a lot of time.

12 CHAIRMAN KEMENY: May I tell you incidentally on the
 13 findings as to how this latest version was arrived at, just so
 14 you know historically how it happened? We have spent three
 15 very intensive days going through the very long and detailed
 16 list and we tried in each area to pul. out those that seemed
 17 major findings, that is, those that should be pulled out and
 18 so identified, as opposed to those things that are better
 19 covered in a place where you can write two or three paragraphs
 20 on it, or you may have to write three or four pages to ex-
 21 plain the different finding which presumably will be in the
 22 text of a particular chapter.

23 Stan Gorinson and I did the first draft and we had
 24 Barbara and Vince help us go over it. Then we checked each
 25 area out with the task force leaders in that area to try to

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1 make sure we didn't make any major goofs or any mistakes in
2 judgments. So this does represent the input of a great deal of
3 staff work on it. That does not mean that they are right. So
4 what do you think of that suggestion, to try to spend today on
5 the major issues plus briefings on things we haven't heard of
6 yet and then turn to findings and conclusions, then save a large
7 block of time for arriving at our recommendations? I do hope
8 that at some point tomorrow we can take a break. First of all,
9 the NRC Subcommittee needs a break. They have a group of dis-
10 tinguished consultants coming in who will be working all day
11 tomorrow and the NRC Subcommittee hope to meet with them to
12 bring back to you from that some ideas which we could convey
13 to you. Bruce Babbitt and Harold Bruff have been working on
14 this for some period of weeks to arrange that. That might
15 also be a convenient time for Commissioners to read the draft
16 chapters which we hope to have for you. Do we have draft
17 chapters?

18 MS. JORGENSEN: We will have some draft chapters. We
19 will have something in every area.

20 CHAIRMAN KEMENY: You will have something in every
21 area which may give you a feeling of a more detailed presen-
22 tation of some of the subjects.

23 COMMISSIONER HAGGERTY: Also could we have a night
24 quitting time ground rule? I don't care what it is, whether it
25 is seven o'clock or eight o'clock, or any other time but I have

1 a couple of meetings that I have to set up. I can set them up
2 at midnight but there is no point in doing that --

3 CHAIRMAN KEMENY: No. We were hoping that we may nor-
4 mally quit -- with a five-day meeting that we may normally quit
5 at 6:00 p.m. and use the evenings in whatever way the Commis-
6 sioners may find it most useful to do.

7 COMMISSIONER PETERSON: Does that mean that we are
8 going to quit at 6:00 p.m.?

9 CHAIRMAN KEMENY: I hope so.

10 COMMISSIONER PETERSON: Then we can make our plans.

11 COMMISSIONER TAYLOR: At least for the first several
12 days.

13 CHAIRMAN KEMENY: At least for the first several days.

14 COMMISSIONER TAYLOR: If we can break at 6:00 no
15 matter what then that guarantees we have time to think and read
16 by ourselves.

17 CHAIRMAN KEMENY: Yes, because I am worried that in
18 these five days you do have time to read and think and talk
19 because I think this is crucial if this is going to be a fruit-
20 ful process.

21 Well, would you like to start raising what you might
22 think are some of the major issues we need to discuss?

23 COMMISSIONER HAGGERTY: Well, you know, I thought we
24 had agreed more than Carolyn thinks we have on limits but I
25 think some discussion on limits -- we, obviously, have not

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1 talked about alternative sources of energy. There are a lot of
2 things we haven't talked about. If we have to get those clear
3 again, let us get them clear again.

4 COMMISSIONER PIGFORD: I want to interject one more
5 question. In looking over your draft, also these new findings,
6 I know I am going to have to rely in part on discussion with
7 the staff. So is it possible for -- does the staff have copies
8 of these so they can look them over and I can then have a basis
9 for getting their advice?

10 CHAIRMAN KEMENY: You mean the findings and conclu-
11 sions?

12 COMMISSIONER PIGFORD: Whatever material we have, for
13 example, your overview even.

14 CHAIRMAN KEMENY: Yes. I did not dare share the over-
15 view broadly with staff precisely because I knew that we have
16 never discussed some of the major issues in here but certainly
17 in findings and conclusions we have gone over with the staff
18 the areas -- each has gone over their own area, whether at the
19 moment they physically have a copy in their hands I doubt. But
20 we have extra copies available.

21 COMMISSIONER TAYLOR: Well, does that mean that they
22 will be distributed to at least some of the staff?

23 CHAIRMAN KEMENY: If you wish it to, we would be
24 happy to do so.

25 COMMISSIONER TAYLOR: Is that what you were asking

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1 for?

2 COMMISSIONER PIGFORD: I would like for the techni-
3 cal staff to have that part of the overview that reflects upon
4 the technical investigation because I may need some advice.

5 CHAIRMAN KEMENY: I would be happy to have them have
6 a copy of the whole overview.

7 COMMISSIONER LEWIS: Can I presume that the overview
8 is what you think the whole report should start with? I mean
9 obviously changed, but is this what the purpose of this docu-
10 ment is?

11 CHAIRMAN KEMENY: Yes. Remember a suggestion came
12 out that we should start with an overview chapter. And I want
13 to echo what Pat said earlier, if we can get enough agreement
14 on what should be in here nothing would delight me more if it
15 is a Commission overview rather than a Chairman's overview. Let
16 me absolutely stipulate that.

17 COMMISSIONER LEWIS: Let me make a very strong sug-
18 gestion that I think that the opening chapter of our report
19 should set the Three Mile Island accident into its historical
20 and social setting. I think that this thing of saying, gee,
21 the President of the United States tapped us on the shoulder
22 is just too much gee whiz for me. I think that the reason that
23 we have our Commission is that this was a serious event, that
24 it frightened a lot of people in Middletown. I mean there is
25 no reference to that in this overview that we have. So that

1 we have a sense of why we are here, why this is important, what
2 are some of the basic issues that are being challenged by the
3 accident at Three Mile Island, the whole future of technology,
4 for example, the fact that people are afraid of it. I think
5 these things must be in that overview chapter so that we have
6 a sense of what is the significance of all this money and time
7 and effort that has been spent. So to me that is one of the
8 great things that was lacking in this. It is just at such an
9 ordinary level here, just a little accident that happened, and
10 gee whiz, now we are going to fix it. I don't really think
11 that is adequate. I think this requires the kind of writing
12 that sets it in its historical background.

13 Number two, I feel very strongly that, as I said
14 earlier, that the opening chapter should say -- and this is
15 right at the beginning, not a sort of a little addendum at the
16 end -- what it is that we attempted to do and what it is that
17 we attempted not to do. The fact is we did not go into the
18 waste disposal question. I think we should say in our over-
19 view chapter, and maybe it will be one of our recommendations,
20 this was not part of our mandate but it must be explored. We
21 can say that we have not explored the question of alternative
22 sources of energy. We felt that it was outside our mandate but
23 perhaps in our discussions we would like to recommend that
24 somebody do it and do it pretty fast.

25 In other words, I think that I would like to have a

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1 sense of the grounding on which we make our recommendations. I
 2 am afraid that the presumption will be that we will decide,
 3 whatever we decide to do for example with the NRC, that the
 4 presumption will be that we, as a Commission, feel that this is
 5 a fine way to go ahead and solve the nation's energy problems.
 6 You see, I don't want to be part of that John because I am not
 7 sure that that is the answer. And I think a lot of us have
 8 not had a chance to discuss that. So that the tone that we set
 9 right from the beginning is to me extremely important because
 10 that is what people are going to read. You know, a) the histo-
 11 rical thing and b) saying what we will and will not do and that
 12 what we do recommend is based on, for example, I mean we all
 13 know that to press on with nuclear power is a political de-
 14 cision. Okay, it is not something that we can decide. The
 15 President may want to decide it or Congress. I think we ought
 16 to say that, that the decision of the future is going to be
 17 made on public opinion and political decisions. We did not
 18 feel that that was within our mandate, although I think it would
 19 be very nice to have some sort of feeling or sentiment here.
 20 But I really want to have a grounding in this overview chapter
 21 and a sense of the significance of what we are dealing with here
 22 rather than just going, leaping straight into the nuts and
 23 bolts of, you know, of the obvious things that we have come out
 24 with.

I would really welcome other people's feelings on

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1 that because this is what bothered me a great deal about your
2 paper.

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BRUNWOOD
TAPE 3

1 CHAIRMAN KEMENY: I think our paper is serving a
2 useful purpose in bringing out what some of the major issues
3 are because frankly I disagree with several of your statements,
4 and I thought I heard other opinions from several Commissioners
5 on some of these issues you have just spoken to. I don't
6 mean that the historical context should be set. You are quite
7 right on that, but for example, I have so far not heard any
8 large numbers of Commissioners suggesting that this
9 Commission was prepared to recommend the abolition of nuclear
10 power. That is within our mandate.

11 I mean if this Commission wished to recommend --
12 COMMISSIONER LEWIS: We have never discussed that
13 issue, John.

14 CHAIRMAN KEMENY: That is what I am trying to flush
15 out.

16 COMMISSIONER LEWIS: We have never dealt with it.

17 CHAIRMAN KEMENY: We got into it somewhat in the
18 attempt to discuss an overall conclusion.

19 Yes?

20 COMMISSIONER TAYLOR: On this matter of whether
21 we should take the position on, as you put it, the abolition
22 of nuclear power, I think that we have to make sure we say
23 why we did or did not take such a position.

24 Now, I have an opinion. It does not have to do
25 with whether we should press on with nuclear power or not,

1 which I would like to state. Some of it is fact. Some of,
2 it is opinion, and that is whatever happens in both the
3 United States and abroad there is an inescapable large
4 residue of workmanlike, careful work that has to be done to
5 tend nuclear power in whatever state it goes, ranging from an
6 immediate shutdown of all nuclear power plants in the world
7 through the most vigorous thing I can imagine is stopping
8 everything, trying to ban nuclear from human activities.

9 There is a complete and almost continuous spectrum
10 from that to saying, "Everything else is no good. We have
11 to press on with nuclear energy because coal is environmentally
12 a nightmare. Solar energy is going to cost too much," and so
13 on.

14 There is an almost complete spectrum between those
15 two. Now, the opinion, and I think that is more or less a
16 fact, the opinion is that I think we can serve everyone, if
17 this Commission is set up to serve which I really believe we
18 were, by having our findings and the relevant recommendations
19 applicable, whatever happens between these two extremes.

20 Now, I am not absolutely positive we can do that,
21 but I think if we can, if we can say, "Whatever happens there
22 is going to have to be some tending to nuclear energy," and
23 I think that is a fact, and however it is done we say that
24 with respect to nuclear power plants and what becomes of them,
25 even in the decommissioning process, we would -- this is now

1 a slight extension of what is in your overview, John, is that
2 whatever we propose be done, including decommissioning, if
3 that were necessary, is not likely to be done with the
4 assurance of safety that we demand without fundamental changes
5 in the nature of the industry which is going to have to tend
6 these things, whatever happens to them and the regulatory
7 process.

8 COMMISSIONER HAGGERTY: I tend to agree with Ted,
9 and I have got some opinions, too. Shadings are probably
10 different. I have one minor recommendation first. Why don't
11 we have a prologue that lists these limitations. It gets hard
12 to get into the Overview Chapter, but you could write a
13 prologue which says what we did and did not do, and just put
14 that then, and then that gets it out of the narrative, number
15 one.

16 Number two, I think that give all of this shading
17 of fact and the absolute inability of anybody except
18 emotionally at this moment to say what choices this society
19 is going to need in 1990 or 2000 about energy, any careless,
20 irresponsible statements about whether nuclear power is or
21 is not an essential component would be the height of
22 foolishness. We don't have to do it. You are saying that
23 same thing.

24 Now, I think that says that the narrowing that we
25 are putting -- in fact, now, I get to my opinion. I don't

1 think any person can look at the energy situation of this
2 country or of the whole blooming industrialized world except
3 the West and recognize there is a high probability, not a
4 certainty, a high probability that you are going to have to
5 use nuclear power for some significant portion of your energy
6 in the last decades of this century and the early decades of
7 the next, not a certainty. If everything went every other
8 way, you might not have to, but there are so many
9 uncertainties, not the least of which is the security of the
10 country, the dependence on the Middle East. You don't know
11 the sequence of events that we are going to face over the
12 next 10 or 20 or 30 years.

13 Therefore, one responsible course, whatever the
14 set of political decisions, and I think the constructive thing
15 that we do is to limit the boundaries to what we talked about
16 and come forth with things which are indeed, useful, no matter
17 what part of this spectrum the decision finally falls in, but
18 the responsible thing, anybody looking at this whole subject
19 matter, not just our piece of it, has to do is preserve the
20 option for the society.

21 We are where we are. We cannot go back to 1945 or
22 some other time. We are where we are. We have gotten
23 ourselves into the Middle East problem. Listen, the dangers
24 this country faces because of that are so much greater than
25 what we face from a. atomic energy accident that there is

1 hardly anything you could talk about, and furthermore the
2 likelihood of serious threats to the country from that are
3 infinitely greater, and the only responsible thing to do is
4 to see that the option is preserved.

5 I think it takes many more people, and a lot more
6 debating than we are capable of doing here to decided how
7 that is done safely.

8 COMMISSIONER LEWIS: I would like to go on record
9 as saying I disagree with Pat. I know we have problems with
10 the oil, but whether this is a necessary solution is not
11 something I, certainly, would agree with. I think there are
12 alternatives to this direction.

13 COMMISSIONER HAGGERTY: Carolyn, you don't know what
14 you are talking about.

15 COMMISSIONER LEWIS: Let us just say that you and
16 I will disagree. I think the energy future book by the
17 Harvard Business School is a perfect example of the fact that
18 there are alternatives, if we are willing to examine them.

19 COMMISSIONER HAGGERTY: You can read the same book
20 and come to the same conclusion I gave. They keep it as a
21 viable option.

22 COMMISSIONER LEWIS: I think you said that this is
23 going to be the answer to the --

24 COMMISSIONER HAGGERTY: I did not. I said, "A
25 responsible society had to preserve it as a viable option,

1 because you did not know what choice you had to make."

2 CHAIRMAN KEMENY: Paul?

3 COMMISSONER MARKS: I fundamentally agree with Pat,
4 and I think the context in which I would like to see our
5 report set is both a historical one and, also, identifying
6 what I consider as some of the fundamental questions. I
7 think a fundamental question facing the Commission is how to
8 deal with the uncertainties associated with the application
9 of nuclear science to the generation of energy, and issues
10 such as how much risk is acceptable, and I think that
11 something Ted said is something that should be in this over-
12 view which is that the application of nuclear science to
13 the generation of electricity is only part, and I don't know
14 quantitatively what part, but I suspect a very relatively
15 small part of the total application of nuclear science in our
16 society, and the underlying principles for going forth and
17 giving society this option in as safe a way as possible are
18 common to all the applications, and I think that that context
19 ought to , also, be established if we agree in our preface,
20 and I think one of the problems that we may be facing right
21 now in the immediate discussion are twofold. On the one hand,
22 not all of us, I think, have read your overview, and secondly,
23 without sounding too presumptuous, I would sort of -- you know,
24 I could read into the record what I have written here, but
25 I think that I have tried to deal with some of these questions,

1 and I wonder whether we could not take one-half hour now and
2 just read those of us who have not had a chance to thoroughly
3 read your overview, read that and ask people to read what I
4 have written here and see whether we can then focus on some
5 of these issues with regard to both the context and specific
6 directions of the overview.

7 CHAIRMAN KEMENY: Russ?

8 COMMISSIONER PETERSON: I agree that we need to
9 maintain a viable option to nuclear energy for some unknown
10 time, that none of us knows what the future will be like for
11 sure, but I come at this thing a little differently than Pat
12 did because I think the probability is very high that we
13 can develop within a few decades the alternate choice through
14 conservation and renewable resources, and the single biggest
15 obstacle to doing that is if we put all of our resources over
16 further in the nuclear option, and for us to come out with
17 a statement which implies that we can make nuclear fission
18 energy safe, I don't want to be a party to because I think
19 in my judgment it is a certainty there are going to be major
20 releases of radioactivity from accidents, and we ought to be
21 talking here in some depth about how the community could cope
22 with such things, instead of saying that even the what is
23 considered reassuring because it did not lead to any significant
24 number of deaths, such now it is essential for the prevention
25 of future serious accidents; I think we should make it clear

1 that there is nothing in this picture that says that we can
2 prevent catastrophic accidents in the future. We can reduce
3 the probability somewhat by actions we take, but as you no
4 doubt have concluded from my previous comments here, I have a
5 strong mind set that this is damned dangerous business, and it
6 is a threat to life in general, and when you have an alternate
7 road to go down, we ought to take it, and if we paint a
8 picture that we can now go ahead with nuclear as long as we
9 carry out Commission's recommendations, then I would be very
10 much opposed to that kind of a recommendation.

11 CHAIRMAN KEMENY: Tom?

12 COMMISSIONER PIGFORD: John, I think whether I agree
13 with Pat or Carol and Russ is really not very important
14 because I think we ought to get to Carolyn's first question,
15 how narrow is the area of our conclusions.

16 In my view I come to the same conclusion as Russ
17 does in one way. I would find it impossible to reach any
18 conclusion that nuclear power is safe. We have not investigated
19 that question.

20 I would find it impossible to -- we have only
21 investigated part of that question with regard to the Three
22 Mile Island accident, and it would be impossible for me to
23 join the broader issue.

24 It would be impossible for me to join what are
25 acceptable risks unless we have developed something, in effect.

1 I think a lot of studies, and we have many examples
2 of them that have been investigations that have been carried
3 out in recent years, some of them, which have done some good
4 work, and many of them have lost their integrity because in
5 writing the summary, and especially the overview they have
6 gone beyond the foundations or the basis for reaching
7 conclusions. In fact, there has even been some discussion
8 of some executive summary report of a famous reactor study,
9 safety study, whereas the safety study itself apparently
10 seems to have some validity, and yet the overview was not
11 well stated.

12 COMMISSIONER HAGGERTY: Not only that, the
13 criticisms of it subsequently of the overview were then
14 elaborated to say the opposite of what you just said about
15 the fundamental document.

16 COMMISSIONER PIGFORD: So, what I am getting at is
17 I believe that the only way for us to get there is to base
18 conclusions and recommendations on things that we can support
19 from this investigation. I am sorry that our investigation
20 has not gotten into broader issues, and Carolyn knows very well
21 I feel strongly about that, but it has not, and so we have
22 to deal with what we have or else do more investigation.

23 COMMISSIONER LEWIS: I think just to comment on it,
24 Tom, I think this is the point. The public is expecting
25 certain things from us, and I think this is why I am

1 disturbed. So, at least let them know right up front that
2 we either did not have time or we decided not to go that.
3 So, do not read into our final decisions -- do not extrapolate
4 certain ideas that we just did not intend, and that is really
5 the whole purpose of what I said.

6 CHAIRMAN KEMENY: I recognize that, and I will try
7 to suggest that we follow Paul's suggestion.

8 COMMISSIONER TAYLOR: I would like to make this
9 observation or this statement that I think we are not equipped
10 in what we have done to make any statement about whether or
11 not the nuclear energy for power should be preserved as a
12 viable option in the future. I, for one, am not convinced
13 that it is required, and I have done a great deal of work
14 that this Commission has not reviewed which has convinced me
15 of a certain position on that, not that we should shut it down,
16 but if somebody says to maintain our security economically
17 and militarily and so on we have to have nuclear power or keep
18 that option open even, then we have to raise a whole lot of
19 issues which we have not discussed here at all, and I think
20 if we do, we are going to have a split Commission.

21 COMMISSIONER HAGGERTY: We have not investigated,
22 Ted. I agree completely with you. I agree with the general
23 statement you made about scope. I think the thing has to be
24 narrow. I think that is why we said that it had to be narrow
25 in the first place, and you know --

1 COMMISSIONER LEWIS: I don't know who decided that,
2 Pat. I don't remember ever having a discussion of the scope
3 of our investigation.

4 COMMISSIONER TAYLOR: We did earlier on.

5 COMMISSIONER LEWIS: I must have missed it.

6 COMMISSIONER TAYLOR: I am not sure we all agreed to
7 it, but we did discuss it.

8 COMMISSIONER HAGGERTY: I think we probably did not.
9 I don't think we had enough discussions about the fundamental
10 questions throughout the entire thing up until our last
11 session. I think I said that often enough, but we certainly
12 talked about limitation.

13 CHAIRMAN KEMENY: Could I make a suggestion? Can
14 I ask, Paul, do you have enough copies for all of us?

15 COMMISSIONER MARKS: Yes.

16 CHAIRMAN KEMENY: May I suggest then that I am at
17 the moment going to declare a half hour recess, that you do
18 two things. Those of you who have not had a chance, read
19 my very rough draft of an overview and that we all read
20 Paul's paper and let me say I tried very hard in the overview
21 to put language in there specifically on the subject of
22 limitations. It may not be in the right place. Maybe it
23 should be up front, and try to suggest language that would
24 justify our coming out with some recommendations even though
25 our investigation was limited. If that language is not

1 appropriate, we should very much discuss that because that is
2 one of the key issues. What were the limitations of this
3 investigation, what it is we are not saying, and what is it,
4 nevertheless, that would justify us coming out with
5 recommendations, was to my mind a key issue, and it is one
6 of the main things I tried to work on in this particular
7 draft.

8 CHAIRMAN HAGGERTY: May I say one thing, because
9 there is another document that ought to be distributed which
10 I am not distributing one way or the other from a tome
11 ndpoint. You will probably recall that Floyd Lewis called
12 wanting to visit with some Commissioners ahead of our last
13 session. In the same sense in which you did with the
14 Congressman you suggested that perhaps it would be better
15 if you did not visit officially but that someof the
16 Commissioners might do so.

17 At that time I, at least, had the general impression
18 it was probably going to happen when we were together in the
19 four days. I got no calls from him, well, I guess Vince
20 called me ahead of that to say, would I put a couple together
21 to talk to them if they came. He called me up about a week
22 ago Friday and stopped in Dallas last Tuesday. All he did,
23 really, was summarize what the group pretty much already
24 knows, but I suggested that he put what he said in a letter.
25 He has done so. It, too, arrived last night. In fact, I have

1 done no more than glance at it. A quick look, I would say
2 that is all he has done, and it is substantially what he did,
3 but it should be -- I said I would see that that same summary
4 was submitted to all the Commissioners since I had the
5 impression that the principal thing he was concerned about
6 was that all of the Commissioners knew what the oversight
7 group and what the industry was doing.

8 I see nothing in here that we did not know, but
9 that is distinctly the impression I had from him that there
10 were many things going on. They had had interchanges with
11 the staff, but they were just uncertain as to how much of
12 it had come through to us.

13 CHAIRMAN KEMENY: We want to make sure that will be
14 distributed.

15 COMMISSIONER PETERSON: Mr. Chairman, one more
16 comment, please?

17 CHAIRMAN KEMENY: Yes, please?

18 COMMISSIONER PETERSON: I am anxious for the
19 Commission to seriously consider the recommended major findings
20 that I put in my letter to you as of September 21.

21 CHAIRMAN KEMENY: We have got the major problem
22 that none of us received that. Russ, at least as of yesterday
23 I had not seen a copy of yours. That was my big problem.

24 I have called my office in Hanover, too, and we
25 have checked.

1 COMMISSIONER PETERSON: It was sent here, to this
2 office.

3 MS. JORGENSEN: They have not been received.

4 COMMISSIONER PETERSON: How many got a copy?

5 COMMISSIONER HAGGERTY: I got a copy, but again I
6 got it on the same basis as one of the things that I think
7 it arrived yesterday as I was catching the airplane.

8 COMMISSIONER TAYLOR: I got it in ordinary mail.

9 COMMISSIONER MARKS: Do you have copies?

10 CHAIRMAN KEMENY: If you have copies, I would love
11 to distribute that. Russ, I have had a huge note for three
12 days since we talked, on my desk, "Look for Russ' major
13 findings."

14 COMMISSIONER PETERSON: I sent a copy to Stan
15 Dorinson, Vince Johnson and Barbara Jorgenson and Pat Young,
16 too.

17 CHAIRMAN KEMENY: I don't know why. I have checked
18 every single day, Russ, and we have not gotten that.

19 We will make copies of that and distribute them.
20 I meant to say that it is not that we ignored it. I have asked
21 every single morning since we have talked, and I have
22 called my Hanover office in case it went there, and we did not
23 get it.

24 So, I think it is a post office problem, Russ, and
25 we will certainly distribute that. Okay, so I suggest that

1 we have that copied right away, okay? And I will declare
2 a half hour recess. I urge you, if you have not read my
3 overview, I mean if you don't like parts of it, so be it, but
4 I think there are some important points in it that we have at
5 least for discussion purposes. Second, we read Paul's
6 document, and third, we will get copies before the half hour
7 is over of Russ' document.

8 COMMISSIONER TAYLOR: Is half an hour going to be
9 enough?

10 CHAIRMAN KEMENY: Okay, why don't we recess until
11 11 o'clock?

12 (Brief recess.)

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1 CHAIRMAN KEMENY: Will the Commission please come
2 back into session. During our intermission you had available
3 to you, in addition to my very rough draft overview, pieces by
4 Paul Marks, Carolyn Lewis and Russ Peterson, which I hope you
5 have had the chance to look at.

6 COMMISSIONER PIGFORD: I do not have a copy of
7 Carolyn's.

8 COMMISSIONER HAGGERTY: Here is another one, I have
9 got two.

10 CHAIRMAN KEMENY: Let me ask you how you would like
11 to proceed from this point.

12 COMMISSIONER TAYLOR: I would like to suggest going
13 -- sort of going quickly through page by page. You have got
14 -- at least the way you start, I would suggest having some
15 discussion of Carolyn's proposal, putting certain things up
16 front, and I strongly endorse her proposal. It would be a
17 lead-off. It says something about the historical and social
18 context and at the moment I do not know what, but something.

19 Second, what we attempted to do and what we have not
20 attempted to do, which you have already outlined toward the end
21 of the report. Something it states, what I have written in my
22 notes, and I am not sure whether this is responsive to Carolyn
23 or not, was the decision about whether or not to press on with
24 nuclear energy was not, in our view, up to the Commission to
25 determine whether we should press on or not with nuclear energy.

1 Now, I am not sure that that is paraphrased correctly.
2 I think that -- let me put it this way, if we do not agree that
3 we want to say that there was a consensus that this was not a
4 decision for the Commission to make about whether to press on
5 or not with nuclear energy, if we do not say that, then we have
6 to say -- I think we have to take a position on whether or not
7 to press on with nuclear energy. It is one or the other.

8 COMMISSIONER LEWIS: Well, couldn't we have a little
9 discussion on that? I mean it seems to me that is one of the
10 things we ought to decide and at least vote on, whether or not
11 we think that is within our mandate, because when we get to the
12 point of continuing licensing with the NRC, we are going to have
13 to make -- it seems to me that it is part of our frame, not in
14 the cosmic way press on, but should licensing continue. I think
15 it is within our mandate.

16 Now, maybe a lot of people feel it is not or think we
17 have not done enough work on it, but that is probably one of
18 the crucial questions before us, and I think we ought to decide
19 whether or not we feel we are equipped or we should deal with
20 it. If we decide not to, I think we ought to say why.

21 Because I do think that is what people are expecting
22 us to come out with, is this thing too dangerous to push on
23 with. Aside from what we decide to do with the existing reactors
24 and to fix it and to make it as safe as humanly possible, there
25 is this other question of, given what we now know --

1 CHAIRMAN KEMENY: Let me suggest now why don't you
2 state your position, Carolyn, and then we can discuss it.

3 COMMISSIONER LEWIS: All right. My feeling is --
4 first of all, I think you all know that I wish we had not gotten
5 into nuclear power in the first place. I think Elizabeth
6 Rolph's book has very clearly said that we just did this thing
7 because, like a mountain, it was there, and we decided here is
8 this great technology, gee whiz, let's build these things.
9 So, we did, and we did not look too closely at what the potential
10 problems were in the safety and the health and so on.

11 They got bigger and bigger and bigger and now we have
12 this problem of these huge, gigantic nuclear reactors that have
13 a lot of faults in them. Okay, we have them. My feeling is
14 that we have to continue with the ones that we have, because
15 we have already become hooked on them. I do not think we can
16 shut off a reactor in Chicago and remove 50 percent of the
17 electricity there. I just think that would be irresponsible.

18 Regretfully, I say that, but I recognize the reality.
19 To me the question is, then, whether or not, given what we have
20 learned, we should continue to build what -- the projected plan
21 is 200 nuclear reactors in this country. I do not feel that I
22 am prepared to say that we should.

23 I mean I am not saying that we should never do that.
24 Maybe somewhere down the road a piece they could figure out a
25 way to make these, but I do not want to see 200 nuclear reactors

1 in this country, and I think that that is my personal view
2 from what I have seen. I think, given human frailty, that you
3 are always going to have some guy who is going to let a
4 memorandum fall between the cracks. I think that is the way
5 humans behave. I think this is too dangerous a form of energy
6 to allow the failure of one or two human beings to result in
7 the consequences we know that are out there.

8 That is my feeling. I think it would be interesting
9 to hear what the other Commissioners feel about it.

10 CHAIRMAN KEMENY: What is your proposal? That present
11 reactors should be allowed, but that we not license any further
12 reactors?

13 COMMISSIONER LEWIS: Yes.

14 COMMISSIONER TAYLOR: Could I just -- I think for
15 the Commission it may be useful to quote some numbers that I
16 got day before yesterday from the Atomic Industrial Forum on
17 the present status of things, and I have no reason to believe
18 that these numbers are wrong.

19 The number of reactors now operating within one or
20 so is 72. The capacity is 52,000 megawatts, so the average
21 size is somewhat smaller than TMI, but a few are slightly
22 bigger and a fair number substantially smaller.

23 COMMISSIONER MARKS: What was that number?

24 COMMISSIONER TAYLOR: Seventy-two reactors, 52,000
25 megawatts capacity.

1 The number that now have construction permits -- that
2 does not necessarily mean those now under construction, but
3 I think approximately it does -- is 92. So it is a
4 significantly larger number than those that are now being
5 operated. The cumulative -- the total installed power of those
6 per reactor is somewhat bigger than TMI and corresponds to
7 101,000 megawatts, roughly 100 times the generating capacity
8 of TMI 2.

9 The number of reactors on order but not with a
10 construction permit as of last month is 27 and their capacity
11 is 31,000 megawatts. So, they are slightly bigger on the
12 average than TMI. Let me get one other figure, and that is,
13 the present total electrical generating capacity of the United
14 States is around 600,000 megawatts.

15 In terms of capacity to produce power, not the total
16 electric power produced, actually, the present nuclear capacity
17 of licensed reactors is 8.7 percent. Now, you probably all
18 have seen a figure of 12 percent. That 12 percent refers to
19 a combination of two things, in addition to this, and that is
20 the total amount of electrical energy produced that is
21 nuclear, compared to the total.

22 But there is an additional 15 or 20 percent, because
23 people -- in this 12 percent -- because people go back to the
24 heat source that is required to produce the electricity and
25 nuclear reactors are somewhat less efficient than the big coal

1 plants and oil plants.

2 Now, I just want to say two things about the rest of
3 the world, just to give a sense of where we are. The total
4 number of reactors now operating worldwide is 271 -- do not take
5 the one seriously. That means there are 200 reactors outside
6 the United States. Their average power is quite a bit lower
7 than the average power of the US reactors.

8 COMMISSIONER PETERSON: You said 271?

9 COMMISSIONER TAYLOR: Two hundred seventy-one is the
10 world total, of which 72 is the United States, so it is 199 for
11 the rest of the world.

12 COMMISSIONER PETERSON: How many megawatts in that?

13 COMMISSIONER TAYLOR: The world total is 142,000
14 megawatts, which is a little less than three times the US.
15 This is capacity. The rest of the world, therefore, has an
16 installed nuclear capacity which is slightly less than twice
17 what the US has.

18 COMMISSIONER LEWIS: May I ask you a question, Ted?
19 What about the reports that we already have 30 percent excess
20 electrical capacity? You have seen those figures, that we
21 already --

22 COMMISSIONER TAYLOR: I have seen those figures; I
23 have not looked into them carefully, so --

24 COMMISSIONER LEWIS: In other words, we already have
25 quite an excess capability without building new plants.

1 COMMISSIONER TAYLOR: I know that there is an
2 argument being made, for example, by the Union of Concerned
3 Scientists. I have not seen the report. I have heard about
4 it. They make a review out of that, what they cal' excess
5 capacity, as an argument for -- that bears on the rate of
6 unwinding ourselves from nuclear power, which is what they
7 generally are advocating, but I do not know whether that is a
8 fair treatment or not. I just do not know.

9 COMMISSIONER PETERSON: Well, all four of VEPCO's
10 reactors are down right now in this area. We know that two
11 are down, and many others are down. How many coal-fired plants
12 are being built now?

13 COMMISSIONER TAYLOR: I do not know.

14 COMMISSIONER PETERSON: There is a substantial
15 increase in that, as you know.

16 COMMISSIONER TAYLOR: I think we can find out, if
17 you think it is important, Russ, that we find out, because we
18 can.

19 COMMISSIONER PETERSON: Can you get that from the
20 same source you got the other one or not?

21 COMMISSIONER TAYLOR: I do not know.

22 CHAIRMAN KEMENY: Cora?

23 COMMISSIONER MARRETT: Well, I guess what we are
24 addressing in this question, should we as a Commission make
25 any recommendations with reference to pressing on or not

1 pressing on, just to use that phrase for a moment. When I
2 joined the Commission, I did not have a position with reference
3 to that issue, and I still do not, and the reason I do not is
4 because I am not sure that our inquiry would lead to a
5 conclusion one way or another.

6 I say that because I am willing to decide certain
7 things about NRC, but even to make recommendations or to make
8 statements about the industry at large, for me, will go well
9 beyond what I am prepared to do at this time. If I cannot make
10 decisions about what the industry at large looks like, it makes
11 it difficult for me to decide what should be the fate of the
12 whole situation.

13 So, that is essentially where I stand. It may be
14 that it was within our mandate to talk more broadly, but as I
15 see it, our activities have been far more limited and I am
16 willing, then, to stick more with what we have, in fact, come
17 up with and thus say, for right now, I do not know where I
18 would stand if I were asked to talk about nuclear energy in the
19 larger setting.

20 COMMISSIONER PIGFORD: Is the purpose to decide if
21 that issue is something that should be added to this document?

22 CHAIRMAN KEMENY: Carolyn is raising the issue here.

23 COMMISSIONER PIGFORD: Well, I suggest it not be
24 added because of the reason that Cora gave.

25 COMMISSIONER MARKS: Now I am not even sure what you

1 are suggesting should not be added specifically.

2 COMMISSIONER PIGFORD: Well, I agree with Cora, and
3 I do not think we have a basis for reaching any conclusion or
4 recommendation on pressing on. I think it simply takes time
5 away from more important business.

6 COMMISSIONER TAYLOR: John, I tend to agree with
7 Tom, but I want to point out a possible difficulty if we say
8 nothing, if we make a statement early on in the report to the
9 effect that we are not taking a position on whether to press
10 on or not.

11 It, in my mind, logically follows from that that we
12 are not going to have any recommendations with respect to
13 holding up in any way the licensing process applied to any
14 reactors of any kind in any state, and I think that is a
15 presumption at this stage that we may not be prepared to make
16 as a body -- I do not know.

17 But I think it does suggest -- maybe if there is a
18 change in wording, but I think accepting that right up front
19 in the overview that says we are not going to -- do not look
20 for anything about delays in licensing, about anything about
21 new construction or not.

22 COMMISSIONER PIGFORD: I think you go too far, Ted.
23 We ought to make a recommendation that before you do any
24 licensing you straighten out these emergency procedures. We
25 have ample basis for making such a recommendation, and that is

1 only an example, so I think we can and should make recommendations
2 on the things we have bases for. The things we do not, I join
3 you.

4 COMMISSIONER TAYLOR: Excuse me. I think Tom has now
5 gotten quite specific. I want to point out another logical
6 consequence of that. If we say no licenses until certain
7 changes have been made, that means we are saying shut down the
8 industry, unless we say new licenses for construction, or
9 licenses for construction of those reactors that are X percent
10 complete.

11 If we say no licenses, that means shut everything
12 down immediately.

13 COMMISSIONER HAGGERTY: Now, I would like to say --
14 I said when we began that I thought the problem of transition
15 to whatever the recommendations were going to be was going to
16 be a very difficult one, and it seems to me that we would do
17 better, first, by limiting. Whatever our previous opinions,
18 and Ted has been quite careful to say opinion, and I was quite
19 careful to say opinion, but we have no debate, no background,
20 no discussion, nothing that fundamentally gives the Commission
21 as a whole any reason to have a basis for it having even an
22 opinion.

23 As individuals we have got opinions, but we certainly
24 have not looked in alternative energy sources, we have not
25 looked into conservation, we have not looked into the security

1 problems; I mean there is a million things that we have
2 absolutely no basis for drawing conclusions on. There is
3 going to have to be a public debate on the degree to which we
4 press on or not press on with energy, and there is a whole
5 damned system in the country, including Congress and all the
6 rest of it, for getting that done, and they are going to do
7 that no matter what we say.

8 We can play a constructive piece in it or not, so I
9 think two things. One, I think we do have to agree more
10 specifically than apparently we have -- not even apparently,
11 than we have -- on what the limitations are, number one. Number
12 two, I would suggest that as a matter of procedure we are much
13 more likely to arrive at the overall -- without deciding it
14 ought to go on or not go on, if the option is there, there are
15 certain things that need to be done with respect to the safety
16 of nuclear plants that are necessary, but not necessarily
17 sufficient, which you said several times.

18 I think we can agree on that. Having done that,
19 my guess is we are going to have one hell of a time agreeing on
20 the transition to that state. Pieces of it we can agree on.
21 Other pieces of it I do not think we are going to arrive at
22 any agreement. We may have to say how we go from here to there
23 is something that the Congress and -- are going to have to
24 settle, because I do not think we have got enough time to
25 settle that transitional problem.

1 But I have a notion we can agree, if we describe
2 the limitations properly, on those necessary conditions, which
3 is what you have done to a great extent in your overview.

4 CHAIRMAN KEMENY: That is what I tried to do, and
5 I agree so much with what you said, Pat. You may notice that
6 while I stuck my neck out on a lot of issues, there is a blank
7 page on transition, because I also guessed that that could be
8 very hard, and I hope we can concentrate on the issue that
9 if nuclear power is not going to disappear overnight, and as
10 long as that option is at least there, we have found a number
11 of things that could make nuclear power significantly safer,
12 and I think we are in a position to make some very important
13 recommendations.

14 Then there is the much harder question of what one
15 does in the interim.

16 COMMISSIONER LEWIS: Are we going to deal with whether
17 or not Three Mile Island should go back on line? Is that
18 within our purview? If we say we cannot decide on the whole
19 nuclear industry -- I can recognize that we have not done
20 enough research on that -- but do we ever deal with whether or
21 not we say, and I think that is one of the things the people of
22 Middletown sure enough are sitting there waiting to hear -- I
23 am raising that as one of the things I think we have to say,
24 yes or no on Three Mile Island.

25 COMMISSIONER PETERSON: I think we need to consider

1 the broader picture. If we try to define our charge summarily,
2 as I think you have done here, we are sort of placing the blame
3 on the President for our myopia. Certainly the public is
4 expecting us to look at this thing more broadly, and I think we
5 are qualified to have an opinion on some aspects of this.

6 For example, we say loudly and clearly that unless
7 many of these changes are made, we consider this pretty unsafe
8 operation. That is the whole thrust of our message, we are in
9 a hell of a mess there. Boy, we have got to make a lot of
10 changes to straighten it out.

11 But for us to think they are going to be implemented,
12 we can just end up with a piece of paper recommending things.
13 It is a long way between the recommendations and the
14 implementation. If there is anything our study showed, it is
15 that the system did not pay much attention to recommendations
16 from people in responsible positions in the utilities, in NRC,
17 Babcock and Wilcox, and every place.

18 So, it would seem to me a very important thing to
19 do something such as this, because of our concern about us and
20 our worry about implementing the recommendations, that we think
21 our government should consider not giving any more construction
22 permits for nuclear plants.

23 COMMISSIONER TAYLOR: Beyond those that have now been
24 issued?

25 COMMISSIONER PETERSON: Beyond those that have now

1 been issued.

2 COMMISSIONER TAYLOR: Beyond the 92?

3 COMMISSIONER PETERSON: Right. Now, that is one
4 place to cut it to make some concrete recommendation, and it
5 gives us plenty -- a few decades to worry about what future
6 decisions would be made. It recognizes the possibility, in my
7 view high probability, of bringing through an alternate source
8 of energy so we would not need to put up with this concern.

9 As I wrote down here as a suggestion for the overview,
10 and it is pertinent to my last comment, so I will read it, if
11 I may. We are convinced that the major public concern about
12 the TMI accident was not about the small release of radiation
13 in the neighborhood of the plant, or the 1-1/2 billion dollar
14 cost to the community. It was about the threat to health and
15 life from the potential release of a major amount of radioactive
16 material.

17 It seems to me we keep coming back into this concern
18 about the little release of radiation without really facing up
19 to what this is all about, and that is the potential release
20 of a major amount of radiation that could have devastating
21 impacts on the community. That is going to remain with us, I
22 think, regardless of what we do. That concern is going to
23 continue in different degrees.

24 By implementing what we are recommending, I, too,
25 think we can reduce the probability of accidents, but I question

1 how much we can reduce the level of the concern. Enough said.
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TAPE 5
GRUWOOD

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CHAIRMAN KEMENY: Anne?

COMMISSIONER TRUNK: I was just going to say, why can't we recommend a probationary period, three years, five years, that the industry clean itself up and fix, you know, get their credibility back, if it is going to stay, because I don't really think people are going to be happy with the 92 on the line, and if in five years or three years they are not safe enough, then we close them down. I just want to be sure that it is safe, and I am willing to go on a probationary period.

CHAIRMAN KEMENY: That happens to be very close.

I did not put it in here because it is something I thought of, and have not talked to any of you, but frankly, I have been thinking along the same lines of specifying a probationary period within which we would look for significant improvements and if they do not occur, I would be prepared to go along with --

COMMISSIONER TAYLOR: This might be helpful to get us across this very difficult transition period in the following way. If one takes literally the words that are in your overall finding, and then does paraphrasing, it is very easy to come up with a statement that nuclear reactors as they are now being operated, at least B&W reactors are unsafe or are being operated in an unsafe way, because we use the word "necessary" in our overall findings. I think what we

1 need to say, if we are not prepared to argue that all reactors
2 should be shut down is that we are very uncomfortable about
3 a transition period in which it is going to take a finite
4 length of time to get from where we are now which we believe
5 is unsatisfactory to a time which may or may not be
6 satisfactory if our general lines of our recommendations are
7 implemented, and we are very uncomfortable about that, but
8 we, because we are faced with a dilemma which is in the
9 literal interpretation of our worries. We seem to be
10 contradicting ourselves the same way that Harold Denton did,
11 I thought, when he said TMI-2 was being operated in an unsafe
12 manner beforehand. That really shows the NRC was just not
13 doing its business at all.

14 Okay. I think that sense of discomfort and
15 recognizing that we have gotten into a situation from which
16 one cannot get extricated cleanly, if we agree that shutting
17 down the Middle Western reactors as the Washington Post put
18 it yesterday in their editorial would be a disaster, we have
19 not explored that, incidentally.

20 I don't know whether we have a basis for saying that
21 would be a disaster or not. We certainly, I imagine, have a
22 number of opinions about that.

23 I see a coupling between what has come up several
24 times as a possible recommendation, and that is a probation
25 period and a sense of discomfort. If you put a student on

1 probation, and he is one of your students, you have a state
2 of discomfort about that student. You don't know how he is
3 going to make out, and you don't like it, but you keep him
4 on to see if he will change and improve, and then at some
5 later time, you make a decision about whether to kick him out
6 of school or keep him.

7 COMMISSIONER MC PHERSON: Will you explain what you
8 mean by probationary period?

9 COMMISSIONER TAYLOR: Well, maybe --

10 CHAIRMAN KEMENY: I would be willing to go on. I
11 don't know if we have the same thing in mind, that if we have
12 certain recommendations then obviously we are not naive
13 enough to think that recommendations that will be implemented
14 will be precisely the ones we recommend, but we hope that
15 something like what we recommend will happen. Then we could
16 have a stated time period, and Anne suggested three to five
17 years. I don't know what the right period is. We would say
18 that in effect, this is the period during which we look to
19 changes like the ones we feel are necessary to be made in the
20 industry, and the decision on the continuation of nuclear
21 power should depend on whether within that stated period
22 changes like these have really taken place.

23 COMMISSIONER MC PHERSON: What effect would that
24 have on the issuance of either construction licenses or the
25 continuation of construction or the granting of operating

1 licenses?

2 COMMISSIONER TAYLOR: Well, one suggestion, and I
3 think this has been mentioned by several Commissioners as a
4 possible position, is to recommend no new construction
5 licenses be issued. I am not necessarily supporting this.
6 I see some problems with that with the numbers, but just
7 as an example, one could say that new construction is going
8 to be deferred for the X years.

9 CHAIRMAN KEMENY: Tom?

10 COMMISSIONER PIGFORD: Mr. Chairman, it was
11 decided before recess we were going to talk about this. I
12 know it is important to talk about recommendations, but maybe
13 we ought to decide what we can agree on before we get to the
14 recommendations.

15 At least, maybe we should vote on it.
16 I gather that many people are saying that we cannot go beyond
17 what we have investigated which is certainly what I am for.
18 I don't know. Does that need to be established by some formal
19 vote or something?

20 COMMISSIONER LEWIS: Tom, I think what we are
21 trying to say is that if we say that it is not within our
22 parameter to discuss the future of nuclear power, there still
23 is this question of the licensing, and I think this is the
24 question Ted was raising. We should --

25 COMMISSIONER TAYLOR: I don't say that it would end

1 in a recommendation about a moratorium on construction.

2 COMMISSIONER LEWIS: Right, we have to draw lines.

3 COMMISSIONER PIGFORD: I am for or against it
4 depending upon what you actually say, and we are just talking
5 in such generalities I don't think we are getting very far,
6 frankly.

7 It is the philosophy.

8 COMMISSIONER LEWIS: I think we need more of the
9 philosophy, Tom. I think that we have not looked at the
10 forest because we have been so busy with all of the trees
11 in this entire investigation.

12 COMMISSIONER PIGFORD: John's document was
13 interesting. It got us to looking at something real.

14 COMMISSIONER MC PHERSON: Can I speak to the
15 document, to your document?

16 CHAIRMAN KEMENY: Yes.

17 COMMISSIONER MC PHERSON: Also, I think that what
18 Carolyn recommended, I would be opposed to a historical and
19 philosophical beginning to our report. I don't feel at all
20 competent to contribute to such a historical philosophical
21 statement. I don't know enough about it, have read a couple
22 of books, but that is about it. I think from the point of
23 view of structure of the report that the opening statement
24 should be a Commission overview, as I told John.

25 CHAIRMAN KEMENY: Yes, I have said that I would much

1 prefer that.

2 COMMISSIONER MC PHERSON: Yes, I believe that the
3 people are expecting us to state our conclusions right at the
4 start, and that certainly will be the way newspapers and
5 Congressmen and others will want to see. I would begin, I
6 think the first paragraph is fine on the one that begins on
7 March 28, 1979, and then I would skip over to the fifth line
8 on Page 5, so as to begin with the Commission has reached the
9 following overall conclusion. We can debate the precise words
10 as we did last time in that overall conclusion, but I think
11 we ought to step immediately into that conclusion and then
12 describe how we got there.

13 My view of how we got there is that we used this
14 accident, that we did two things. We made an investigation
15 of what precisely happened at Middletown and secondly in
16 making that investigation we found that there were lines
17 leading, causal lines, thought trees, as they say, leading
18 all over the place, to the NRC, to the utility, to the vendor,
19 to the way training was done and all those things fed into
20 that 4 o'clock in the morning March 28 event and what happened
21 in the next week, and it was that inquiry that caused us to
22 see some substantial faults in the process, and we cannot
23 begin to say that the faults we found are all the faults
24 there are. There may be a helluva lot more of them
25 someplace.

1 At the same time, they may be only faults, hairline
2 cracks in a way because at the same time this reactor was
3 having a transient, there were 71 other reactors in the
4 country that were operating.

5 One thing I have tried to keep in my own mind as I
6 have looked at this is a realization that in looking at any
7 accident it tends to assume the nature of ordinary existence.
8 I mean the accident is what nuclear power is, and that is not
9 so, I believe. If it were, then clearly it ought to all be
10 closed down, and there should never be any other plants at
11 all. If everything is going to lead to a TMI-2 March 28
12 situation my own belief is from what I have learned here, that
13 that is not necessarily the case.

14 The danger that there will be more TMI-2's and more
15 serious ones persists and ought to be reduced. What we have
16 done is not, in my view, not to bring ourselves to the point
17 where we could say that the system is too dangerous to permit
18 any further development of nuclear power but that the
19 current environment, regulatory, economic, practical
20 environment is too dangerous to go on as it is. It can be
21 remedied sufficiently in our view which is why we came up
22 with these recommendations.

23 COMMISSIONER HAGGERTY: We did not say, "Sufficient,"
24 I mean whether you think so or not, we said, "Significantly,"
25 but in fact, we said, "Necessary, but not necessarily

1 sufficient," right?

2 COMMISSIONER MC PHERSON: Yes, that is right.

3 COMMISSIONER PETERSON: I was going to say, change
4 that and say what we have here on Page 5 now.

5 COMMISSIONER LEWIS: You see, there is a difference,
6 Harry. I don't totally disagree with you. I mean I think
7 that before we say, "It can be remedied enough," we have to
8 say that presuming that this is the way we ought to go which
9 is a political decision outside of our mandate, I guess this
10 is kind of what I am trying to say is, we have not dealt
11 with whether or not we should go this way, and we, maybe don't
12 feel that that is within our thing.

13 Then we go on, having said the presumptions or
14 clarified the presumptions on which we pressed ahead, and
15 then people will understand that while we are making these
16 recommendations we are not, also, recommending, because we
17 felt that was outside of our mandate. That is all I have
18 been trying to say, so that the public will not therefore,
19 say that because we made these recommendations we are all for
20 this thing, and that is the thing that I am afraid will come
21 out, if we don't make it clearly.

22 COMMISSIONER PIGFORD: We agree on that approach.
23 We are limited. We cannot go that far. Isn't that really
24 what you are saying? You want to say it out in front.

25 COMMISSIONER LEWIS: I want to say it out in front,

1 and I think the Commissioners should have a sense of the
2 Commission.

3 CHAIRMAN KEMENY: Excuse me, what should we say up
4 front, just to be specific?

5 I mean it is easy to say what not to say, but what
6 should we say up front?

7 COMMISSIONER PIGFORD: Carolyn is saying that she
8 wants to say immediately what we have not considered.

9 COMMISSIONER LEWIS: That is right, which would be
10 we do still have to be specific on that. In other words,
11 I guess I was writing this so that it is not that, our
12 report is not based on the presumption that nuclear power
13 should continue because that is not --

14 COMMISSIONER HAGGERTY: Or that it should not
15 continue.

16 COMMISSIONER LEWIS: Or not continue, that we --
17 but I think people will then know that, in other words,
18 we talked a lot about context, I think to set the --

19 COMMISSIONER PIGFORD: Why don't we decide what to
20 say and let someone else decide where it goes in the report?
21 I agree with you it is very important.

22 COMMISSIONER LEWIS: I think it should be up front.

23 COMMISSIONER TAYLOR: I get the sense that
24 Carolyn says that that should be right up front, and I agree
25 with her. In that sense, Harry, you were talking about

1 skipping directly from just the introductory paragraph as it
2 is now directly into our overall conclusion. I would argue
3 strongly that we let the readers know immediately, as soon
4 as possible in reading the documents that they are not going
5 to find an overall position on nuclear power anywhere in the
6 report.

7 COMMISSIONER HAGGERTY: May I suggest, I will put
8 a specific resolution and we can argue about that, that the
9 first chapter, prologue, whatever we want to call it, it is
10 something that will stand by itself and precede the overview
11 discussion. We will include a summary of our charge, a little
12 bit longer than this first paragraph, number one, maybe a
13 page or so of summary of what the charge was and second what
14 we did do and what we did not do, and hence what the report
15 is about and what it is not about.

16 Then we go into the overview.

17 CHAIRMAN KEMENY: Maybe we could decide that. Just
18 let me ask, is there any disagreement with Pat's suggestion?

19 COMMISSIONER MARRETT: I don't have any disagreement.
20 I think it sounds reasonable. I am not sure what gets listed
21 there in terms of what we did or what we did not do.

22 COMMISSIONER HAGGERTY: But then we could ask
23 somebody to -- well, we could put it down, and then we can
24 argue about that when it is put down.

25 COMMISSIONER PIGFORD: Maybe we ought to go further

1 and say right now what we --

2 COMMISSIONER LEWIS: I have something written here
3 if that will help.

4 CHAIRMAN KEMENY: Could I test something, Carolyn,
5 on that? Let me ask you then whether my section on
6 limitations, at least, is a beginning on that, if I can find
7 it? It starts on Page 33 and it is only two pages.

8 I know you, also, want to say what we did do, but
9 I think that we will have less trouble with that, Pat.

10 COMMISSIONER HAGGERTY: I have no quarrel. I mean
11 I think this is a beginning. I think you have to expressly
12 say that we do not draw conclusions on whether we should or
13 should not proceed with nuclear energy as a significant
14 portion of our solution. I mean I think that is what the
15 debate has all been about.

16 COMMISSIONER PETERSON: It is the topic of limits.
17 Take the first one. Here is a case where those words show
18 a presumption that the radiation dangers are not very great
19 because you talk about we did not investigate the overall
20 problem, in spite of the accident, a minute fraction, there
21 is radiation that occurs naturally in human bodies. The total
22 amount in medical practice is not much greater, et cetera.
23 Why don't you also, say in that thing, nor did we consider
24 the devastating impacts of a major release of radiation
25 which could have an impact hundreds of miles downstream. if

1 the meteorological conditions were right? We did not do that
2 either. Put that in that perspective. This just says
3 that a little piddling radiation got out there, and we did
4 not concern ourselves with that because God, it was not
5 any more than you get in normal medical practice anyway.

6 CHAIRMAN KEMENY: I did not mean to say that here,
7 and I am sure it can be improved. What I tried to get here,
8 Paul, was your point that there is a vast amount of radiation
9 around.

10 COMMISSIONER HAGGERTY: Neither tone should be
11 present.

12 COMMISSIONER TAYLOR: That has nothing to do with
13 our investigation.

14 COMMISSIONER HAGGERTY: Pardon?

15 COMMISSIONER TAYLOR: I mean I think that is not
16 appropriate to put under --

17 COMMISSIONER MARKS: It does, Ted. It does, because
18 I think we are going to get into, at least we are certainly
19 going to get into a discussion, you know, when we get to
20 recommendations about the whole area of research and support
21 of education and training, and I think that in that
22 discussion we are going to get into the context in which
23 this should proceed. As you know, I feel very strongly that
24 it should proceed in the context of the total applications
25 of nuclear science in our society because certainly the

1 research base, the science base for making decisions is
2 common, and many of the principles with regard to safe
3 application are common, whether it is nuclear energy or
4 medical applications, and therefore, since we did not get
5 into an investigation into these issues, certainly at any
6 great length and depth, I think this ought to be stated here
7 because it is a limitation, the way I see it on our
8 investigation and a limitation on how we can proceed with
9 recommendations based on facts that we generated for the
10 safe application of nuclear science.

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1 COMMISSIONER PETERSON: We did get into this area.

2 COMMISSIONER MARKS: We certainly did. No, I am in
3 complete support of what you just said, Russ, so -- I mean I am
4 just trying to expand this. In other words, I think this
5 paragraph, with some rewording, you know, covers, I mean every-
6 thing in this paragraph should stay, so to speak.

7 I think we ought to add these two points, the one
8 that Russ made and the one I am trying to make, which is that
9 there is a commonality in terms of research across the board
10 with regard to the application of science, and a commonality
11 with regard to certain principles for its safe application.

12 COMMISSIONER HAGGERTY: I think I would suggest that
13 what Russ is really saying in addition to the specifics, we
14 ought to avoid the coloration -- this has the coloration of
15 potential insignificance. I would argue that your use of --
16 and I think perhaps you did it deliberately -- devastating was
17 to show the impact of it. I agree with you, Russ, and I do
18 not think there really would be any argument about that.

19 COMMISSIONER MARRETT: I wanted to support Pat on
20 that, because I, too, thought that it does have a coloration
21 there, and we could follow the first statement with a comment
22 about the scientists disagree about the effects of low level
23 radiation.

24 COMMISSIONER HAGGERTY: More accurately, scientists
25 do not know.

1 COMMISSIONER MARRETT: Okay, yes, all right.

2 COMMISSIONER MARKS: I think they do not know. That
3 is what is important, they do not know. Therefore, it follows
4 from that certain possible recommendations.

5 COMMISSIONER PETERSON: But the one thing that the
6 scientists do know is that if you get this larger amount of
7 radiation, it has a devastating impact.

8 COMMISSIONER MARKS: In other words, I am again
9 reaffirming my support for having that in.

10 COMMISSIONER TAYLOR: I am a little confused now,
11 because if we are saying, we are trying to balance these
12 statements about the exposure to natural sources of radiation
13 by saying, on the other hand, we also did not look at the
14 consequences of a presumed large release, that presumes that
15 we are not going to pay any attention to that outside report
16 or that we did not, in fact, follow through with what I was
17 going on, namely, to use the Oak Ridge model to get some idea
18 of what would be the downwind effects under various
19 assumptions.

20 Now, I think -- I object to that, because that
21 suggests that we are not going to pay any attention to anything
22 except what we actually found within our own staff. I mean we
23 are relying very heavily on outside work. We are relying on
24 the Eppley Report, which we did not charter.

25 CHAIRMAN KEMENY: Could I add something to that.

1 Russ, I certainly agree with what you said about tone here, but
2 to say a flat statement we did not look or did not take into
3 account the possibility of a major release, I think, would make
4 our report a little --

5 COMMISSIONER PETERSON: Let me just correct that,
6 because if anybody had that idea, I misled you, because I do
7 not think we ought to say that. I was trying to use that to
8 illustrate how inadequate this limitation was. We really have
9 looked into this thing, what it says here, to some extent, and
10 we have all kinds of talk about how much radiation is obtained
11 in normal medical practice.

12 We have had very little talk about something which I
13 think we ought to mention very strongly, and that is the
14 potential impacts from a catastrophic release.

15 COMMISSIONER TAYLOR: If this section is simply to
16 say what we did not look at, then I do not see that we have to
17 say anything except we did no further investigations of the
18 basic science associated with radiation effects in human beings
19 in the biota, period. That is it.

20 CHAIRMAN KEMENY: Tom?

21 COMMISSIONER PIGFORD: I think, Ted, that Russ is
22 saying besides that thing that we did not investigate, we also
23 have not looked at the theoretical release of essentially all
24 the material beyond the containment, which is the fact. We
25 have not looked at that and that is what you are getting at.

1 COMMISSIONER TAYLOR: I am sorry, I have looked at
2 it. I read --

3 COMMISSIONER PIGFORD: You may have, but I do not see
4 that reflected in any finding of any report that I have seen.

5 COMMISSIONER TAYLOR: I think it should be.

6 COMMISSIONER PIGFORD: Then I would change this
7 statement.

8 COMMISSIONER PETERSON: We want to get it reflected.

9 COMMISSIONER TAYLOR: At this stage, all I object to
10 is that there is the presumption if we say that we did not look
11 at consequences of a large release, is the presumption that
12 we are not going to have anything to say about that, and I
13 think it is too early to presume that because I, for one,
14 think that we should have something to say about that.

15 Two aspects of it, so that it is not -- so that no
16 one presumes that I am saying we are going to say something very
17 scary, necessarily -- there are two separate pieces of
18 investigation.

19 COMMISSIONER HAGGERTY: Why don't we eliminate the
20 first paragraph? Because we can cover the base for your
21 recommendations, which I read in our interval, in a different
22 way.

23 COMMISSIONER TAYLOR: See, the thing is, I agree with
24 that, because other things we did not look at --

25 COMMISSIONER HAGGERTY: Why don't we just eliminate

1 the first paragraph?

2 CHAIRMAN KEMENY: Okay, can we cut it down and leave
3 out the part of it which speaks of --

4 COMMISSIONER HAGGERTY: If you are going to put we
5 did not investigate the overall problem of radiation dangers,
6 I think that is true in the overall problem, but I do not know
7 that we have to say it. I am not sure that it is going to be
8 a debatable area, and the narrow sectors in which we did do
9 some things, I think will appear in the findings.

10 So, that is all, and I think in this case, I think
11 the description of limitation is not necessary to our purpose.

12 COMMISSIONER TAYLOR: We have at least 8 inches of
13 staff reports on the health effects of radiation one way or
14 another -- a trivial change, military applications of nuclear
15 energy.

16 COMMISSIONER PETERSON: A major change. That last
17 sentence now, we have not dealt with the question of the
18 disposed radioactive wastes, that one little brief statement.
19 I recommend that we use something like I wrote up in that letter
20 I sent to you on September 21st, which -- either there or some
21 other place.

22 I think we need to say something besides that
23 fraction of a sentence about this subject.

24 COMMISSIONER LEWIS: It ought to be separate, too.
25 We should point out that we are exploring -- I presume that is

1 still in the works -- the disposal of radioactive wastes at
2 Three Mile Island, so this is only the broader issue, and I
3 think that should be qualified, too.

4 COMMISSIONER TAYLOR: The general problem of long
5 terms waste disposal.

6 COMMISSIONER PIGFORD: You mean specifically beyond
7 the operations of Three Mile Island.

8 COMMISSIONER LEWIS: Yes, exactly.

9 COMMISSIONER PIGFORD: But what are you asking that
10 we add, Russ?

11 COMMISSIONER PETERSON: Item 5 over here in the
12 letter. I am sure you would want to edit this to use some less
13 striking words, but let me just read it. Probably the most
14 hazardous aspect of the TMI plants over the long run, and other
15 nuclear power plants, for that matter, was not analyzed by our
16 Commission, since it lay outside the sequence of events
17 involved in the accident we were assigned to study, that is,
18 the storage of spent fuel and large pools of water immediately
19 adjacent to the reactor containment building.

20 What additional hazard this storage might contribute
21 in case of a reactor meltdown has not been considered. The
22 pools have a capacity to hold about seven times as much fuel
23 as is in a reactor any time. While the industry waits for
24 the government to finish its 30-year long struggle to determine
25 how to safely dispose of these life-threatening wastes,

1 including the atom bomb-making material, plutonium, each
2 nuclear power plant continues to fill its in-house dump with
3 these wastes.

4 Now, I did not expect you are going to use those
5 words exactly that way, but I wanted to drive home that point.

6 (Laughter.)

7 COMMISSIONER PIGFORD: Drop out the adjectives and
8 use the nouns and verbs, and it might go --

9 COMMISSIONER MARKS: I think we should also note
10 that we have not had an opportunity to look into other issues
11 related to the fuel cycle, and I think that these are issues of
12 great consequence to the viability of the application of
13 nuclear power to generate energy and I think we ought to
14 include this in the limitations of our study.

15 CHAIRMAN KEMENY: Yes, instead of the mining of
16 uranium, it should mention the whole fuel cycle.

17 COMMISSIONER HAGGERTY: Including the mining and
18 disposition of wastes.

19 COMMISSIONER TAYLOR: In terms of environmental and
20 safety questions?

21 COMMISSIONER MARKS: In terms of the safety of the
22 workers and so on.

23 COMMISSIONER PIGFORD: Mr. Chairman, I agree with that.
24 I think since we ought to try to be specific, I think we have
25 to drop out the words that imply a conclusion. It may be

1 Russ' conclusion that that is probably the most hazardous
2 aspect, but I do not think this Commission can reach that
3 conclusion, and so forth, so I think we should reduce it to a
4 factual statement of what we have not considered, without
5 placing value judgments on it.

6 COMMISSIONER TAYLOR: I have to add another item to
7 the list of things we did not consider, and that is the whole
8 matter of all forms of nuclear weapon proliferation, about
9 which many people have expressed considerable concern.

10 CHAIRMAN KEMENY: Would that not be covered by
11 military applications?

12 COMMISSIONER TAYLOR: No. No, at least not in my
13 mind, because what that means to me is we did not --

14 COMMISSIONER MC PHERSON: Why would anyone think we
15 would have covered that?

16 COMMISSIONER TAYLOR: Because many people are looking
17 to the Commission to tell them what to do about nuclear power
18 in general, and I think we have to --

19 COMMISSIONER MC PHERSON: Well, I think the
20 recommendations we are making are derived from TMI 2 and I
21 do not see any -- I do not see any aspect of TMI 2 that bears
22 on the proliferation in question.

23 COMMISSIONER TAYLOR: I certainly do.

24 COMMISSIONER PETERSON: So do I.

25 COMMISSIONER TAYLOR: Like spent fuel storage. What

1 is going to become of it if -- I mean TMI 2 in some other
2 country, for example.

3 COMMISSIONER PETERSON: That was the reason for my
4 phrase in putting the atom bomb-making material, plutonium.

5 COMMISSIONER TAYLOR: It is just as relevant to say
6 we did not look at proliferation as to say that we did not look
7 at the long term general disposal problems and opportunities
8 connected with the long term wastes. I think it is just as
9 relevant.

10 COMMISSIONER MARRETT: Well, I guess what Harry is
11 raising is something that is beginning to bother me. We could
12 think of any number of things that we did not deal with that
13 in some way touch on nuclear power, perhaps, nuclear issues,
14 and I start getting concerned that we might, after a point, try
15 to be too -- I think we do need to ask what are the kinds of
16 limits that would make sense in the context of the charter of
17 the Commission, to start with.

18 I am not sure where I would stand on that, on what
19 those would be, but I do get worried about our going into a
20 number of things just trying to come up with a shopping list of
21 what we did not do.

22 COMMISSIONER TAYLOR: Is this part of your worry,
23 Cora, that if we list a number of things which are hazardous
24 that we did not take into account, that list already carries
25 some sense of Commission concern about other things, and if

1 that list gets too long, in effect what we are saying is we
2 looked at safety-related questions having to do with TMI, and
3 we did not look at all these other things that might go wrong.

4 I would suggest that maybe, so far as what we did not
5 look at that has to do with the nuclear industry, that we make
6 it in a positive statement, and that is, we restricted ourselves
7 to an analysis of the safety issues related to TMI and, by
8 inference, other reactors.

9 COMMISSIONER LEWIS: That still does not answer -- the
10 public is going to extrapolate. I mean it is not go to the
11 heart of what I am trying to do with this thing, and I recognize
12 Cora's problem. I think we do have to be a little bit -- set
13 limitations. I think the public impression is that we are
14 going to come out with a report that is going to indicate which
15 way we ought to go on nuclear power.

16 Now, the fact is we are not prepared to do that, and
17 all I have been trying to say in setting limitations is to let
18 them know up front that was not what we saw as our mandate,
19 we do not feel qualified, we did not do the research, so that
20 everything that follows is put in that context. That is really
21 all -- I think it is all right to add these other things, but
22 I think it is begging the question.

23 COMMISSIONER HAGGERTY: I do not disagree with these
24 comments. I just think we want to be very careful in a premise
25 we are drawing as to what the public expects. I do not know

1 that we know what the public expects and some of the public
2 is going to expect all of these things we are talking about.
3 I mean I cannot worry very much about what the public expects.
4 What I think we have to put down is what we have done.

5 COMMISSIONER MC PHERSON: I think we run the danger
6 of presumption. The public knows we are a bunch of private
7 citizens, and only a couple of you people have ever had anything
8 to do with nuclear energy and the rest of us have just been
9 learning as we go along. To think that we are suddenly going
10 to become a collective head of Zeus, from which will spring
11 all the resolutions of all the nuclear problems and questions
12 that have come up over the last 25 years, is nuts.

13 So, I think it is really protesting too much to say
14 -- in fact, I would have the limitations follow our original
15 conclusions. I mean let us be as simple as possible. Start
16 off with something that says here is what we found, as I think
17 John is trying to do in the overview. Then after it list a
18 whole bunch of things that we did not look at.

19 I frankly do not think the public -- I do not think
20 there is anybody out there who would remotely expect us to look
21 at a lot of these things that we have just been talking about.

22 COMMISSIONER TAYLOR: You should read the letters
23 that were sent in in response to our questions, because you get
24 a very different impression.

25 COMMISSIONER MC PHERSON: Well, I am sure that a lot

1 of people would like us to suddenly become the forum, a kind of
2 continuing, floating forum to consider everything, and we could
3 go on for quite a long time.

4 COMMISSIONER HAGGERTY: I think that, you know, we
5 really -- we came, I thought, to a conclusion on this prologue,
6 and it is only a matter of how much you include. It does seem
7 to me a brief statement, and a brief can be a page long, as to
8 what the charge was and another brief statement about what we
9 did and did not do, which is no more than a page, two pages
10 of that, and the more the positive and the less the negative,
11 the more I am for it.

12 Then you can get much freer in the overview. I tell
13 you what I am concerned --

14 COMMISSIONER MC PHERSON: I do not think it ought
15 read like a 10(k) statement, I guess that is what I am saying.

16 COMMISSIONER LEWIS: Oh, no.

17 COMMISSIONER MC PHERSON: Offering it in a way that
18 is really nothing but negative.

19 Let us not do it that way. Let us start off by
20 talking --

21 COMMISSIONER LEWIS: I have written something that --
22 could I suggest the real thing that I have been trying -- I
23 know I opened up a can of worms, probably, with this proposal
24 -- but this is the kind of thinking I had. Whether or not
25 this nation is to press on with the building of nuclear plants

1 is a political decision which a majority of this Commission
2 feels is outside the bounds of its mandate from the President.
3 Therefore, the following recommendations are predicated on a
4 political decision that will lead this country to continue to
5 license and build reactors.

6 We are prepared to say neither that that is the right
7 decision nor the wrong decision. I mean obviously worded
8 better and more felicitously, but I think that was the thing
9 that I wanted to say, so that in our saying this is what we want
10 to do, we are not also implying that we are saying we really
11 ought to go this way.

12 It is a political decision, which we are not prepared
13 to make. I felt that was kind of important to say up front.

14 CHAIRMAN KEMENY: Yes, we could be willing to leave
15 out the phrase on it being outside our mandate, because I do
16 not think it was, but I do agree with the rest of what you
17 say that this is something that has to be decided by the
18 political process and not by this Commission.

19 COMMISSIONER LEWIS: Yes, in other words, if that is
20 the sentiment of the Commission, which I sense is, that we
21 feel we cannot make that decision, then we ought to say that,
22 because I do think, regardless of what Harry is saying, that
23 is what people are going to expect from us, and obviously we
24 feel we are not prepared to do that.

25 COMMISSIONER MARPETT: More than simply saying we have

1 left it out because it is a political question, we have left it
2 out because we do not have any evidence, our investigation has
3 not led to that kind of conclusion.

4 COMMISSIONER LEWIS: Well, we have not even tried to
5 investigate it. Why we did not is another question, but the
6 point is, we have not --

7 CHAIRMAN KEMENY: No, but I think Cora is making an
8 important here that I feel strongly on, too, which goes some-
9 what as follows; It is not true that we have done no
10 investigation relevant to this issue. What is true is by our
11 charge and by our time we have been limited to looking at TMI 2
12 and its consequences, which we find is enough to come up with
13 recommendations that would help make nuclear power safer, but
14 not enough to come now to a conclusion overall on nuclear power.

15 Isn't that roughly what you said?

16 COMMISSIONER MARRETT: Yes.

17 COMMISSIONER LEWIS: So, what you are saying, John,
18 is outside the bounds of its mandate is maybe -- maybe another
19 phrase there to explain we felt it was outside our abilities
20 within the time limits or something. We could say it that
21 way. But at least people know that is not what we are implying
22 by our proposals to make changes.

23 CHAIRMAN KEMENY: In a way, what I am trying to say
24 is, we have done, I think, a fairly in-depth study of a case
25 history, and you can learn many important lessons from a case

1 history, but you must not confuse that with thinking that you
2 have looked at the overall system and have become experts on
3 every issue having to do with that.

4 COMMISSIONER LEWIS: May I say right now that we have
5 missed a marvelous opportunity. It is the first time that 12
6 citizens have had a good look at the -- you know, even have had
7 as close a look as we have had.

8 COMMISSIONER MC PHERSON: You forgot to say as a
9 whole.

10 COMMISSIONER LEWIS: Well, I mean it was an
11 opportunity to look at -- yes, but, you know, nobody really
12 has ever, this thing has just been barreling along for 25
13 years without anybody, and the Rolph book really revealed that.
14 It was just done because it was there.

15 COMMISSIONER HAGGERTY: That is an exaggeration,
16 Carolyn.

17 COMMISSIONER LEWIS: There has never been 12 citizens,
18 I do not mean experts, that have had a look at this thing.

19 COMMISSIONER HAGGERTY: Let me point out something.
20 We have to be very careful. There are three times as many
21 reactors, roughly, in the rest of the world as there are here.
22 There are democracies -- and I know the debate goes on else-
23 where -- but let us remember that countries like Canada,
24 France, England, Japan, Taiwan, Sweden having another debate,
25 Germany, they have all had all kinds of issues. They have all

1 gone ahead with it, too, which says -- in a sense, the more
2 monolithic, the more they have gone on with the less discussion,
3 in Russia, I mean you can pick them all, it is not true that it
4 just happened here, that nobody else ever talked about it
5 anywhere, and that it is just because a bunch of enthusiasts
6 here pushed it. It is just not true.

7 That there are problems and issues, that is very
8 true, and that it is not as clear today as it appeared to be
9 10 or 15 years ago is probably also true, but you are
10 exaggerating the absence of discussion.

11 COMMISSIONER PIGFORD: I think you are wrong.

12 COMMISSIONER HAGGERTY: Just wrong.

13 COMMISSIONER PIGFORD: Maybe you think they were not
14 citizens, but I think they were, and I think it has happened.

15 COMMISSIONER HAGGERTY: Maybe they were wrong, too,
16 but what you are wrong about is that this has been such a
17 void. I mean how could it be in all these other places with
18 all kinds of other varieties of governments and everything else,
19 Carolyn?

20 Not in one place, but probably 40 different places in
21 the world.

22 COMMISSIONER LEWIS: I really am not familiar enough
23 with how they came to these decisions elsewhere --

24 COMMISSIONER HAGGERTY: Well, except you have to
25 question every set of decisions everywhere made in 30 or 40

1 places, that all of them were done with no discussion, etcetera.

2 COMMISSIONER LEWIS: I have never said -- I never said
3 no discussion. I said here was a citizens' panel for the first
4 time having a look at this entire thing, seeing how the NRC
5 works, getting behind the scenes. I think this was a very
6 special opportunity that we have all had.

7 I am not saying, there have been ACRS people challenging
8 generic problems, of course, but we have had a chance to look
9 at how those are challenged and nothing ever happens --

10 COMMISSIONER HAGGERTY: I will tell you what I think
11 is different about this, and that is, it happened after an
12 accident. What has changed is the atmosphere more than anything
13 else, and so in that sense I would agree that with two years
14 and a lot more money, this thing could have been a broader
15 investigation.

16 But the charge, you can read the charge as being
17 either very narrow or moderately broad. You surely cannot read
18 it as the whole deal.

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CHAIRMAN KEMENY: I did say from the beginning that we have been asked to look at a case history in all depth, we were not asked to look at nuclear plants overall. But we were allowed to make recommendations on any scale as long as it came out of the investigation of TMI-2. I think that is the only possible way to read that charge. I think the President was very clear. He didn't put any limits on it but it had to come out of our investigation. And what we were asked to investigate was the accident at TMI-2.

COMMISSIONER MCPHERSON: I think your first three sentences on number three in your limits are good from my point of view.

COMMISSIONER PIGFORD: I think we might drop out systematic. I think we haven't attempted to evaluate alternate sources of energy, even unsystematic, right?

CHAIRMAN KEMENY: Yes.

COMMISSIONER LEWIS: Yes, we haven't even dealt with that.

COMMISSIONER PIGFORD: That is correct.

CHAIRMAN KEMENY: Quite right. Otherwise is it okay? I mean, I think those are the only factual statements you can make. How about the next paragraph or two which really pull together -- and this is a very sensitive one?

COMMISSIONER PIGFORD: It is a little too broad. You are saying our report addresses -- and I am adding words --

1 overall issue of safety. I have trouble with that, of the
2 improvement of the overall issues.

3 CHAIRMAN KEMENY: Yes, you are quite right. I think
4 what the last sentence should say, it is the lesson related to
5 this from TMI-2 that our report addresses.

6 COMMISSIONER LEWIS: I don't like the word important
7 because we are only getting 8.7 percent of our electricity from
8 nuclear power. I think that word gives the impression that it
9 is far more important at the moment than it really is in pro-
10 viding -- isn't that right?

11 CHAIRMAN KEMENY: But let me go to Russ' point on
12 that which I have had in mind for six months, although I didn't
13 put it in here Russ and I am sorry for that. If there exists
14 one single plant that has the capability of having a catas-
15 trophic accident, then I feel addressing the issue of how
16 nuclear power can be made safer is an important issue --

17 COMMISSIONER LEWIS: Oh no. I was talking about --

18 COMMISSIONER HAGGERTY: No, she is quarreling with
19 the important as a component --

20 CHAIRMAN KEMENY: Oh, I am sorry.

21 COMMISSIONER LEWIS: I am sorry, John. Nuclear power
22 is an important component today, and it really isn't that im-
23 portant.

24 COMMISSIONER MARKS: Well, you can argue about it. I
25 think at that point you could become quantitative. In other

1 words, the figures that Ted quoted are also the figures that
2 are precisely from the American Electrical Utility Industry
3 report. They quote, you know, the nine percent and the twelve
4 percent figures and they put it in the context of the total
5 capacity to produce the 515 gigawatts, or, you know, 115,000
6 megawatts. I also think that it would be desirable to put in,
7 sort of putting things in context, the statement of what is
8 now on mind in terms of its potential for generating electri-
> city.

10 COMMISSIONER TAYLOR: What is on mind?

11 COMMISSIONER MARKS: Yes. During the next twelve
12 years nuclear energy might add a million and a half barrel equi-
13 valents a day of oil --

14 COMMISSIONER TAYLOR: Where are we?

15 COMMISSIONER MARKS: No. I am just quoting from --
16 what I have extracted from the American Electrical Utility
17 Industry report.

18 COMMISSIONER LEWIS: What page are you on?

19 COMMISSIONER MARKS: This is on the bottom of page
20 one, going to page two of the document.

21 CHAIRMAN KEMENY: As I understand it, the suggestion
22 is instead of arguing whether it is important or not, and some
23 are looking for more than that, put in the facts of what is in
24 place now and then --

25 COMMISSIONER HAGGERTY: Because the fact is that what

1 has been excepted in this place -- you shouldn't go into all
2 this discussion.

3 COMMISSIONER PIGFORD: The simple fact, it generates
4 so many percent. That is all you need to say.

5 COMMISSIONER TAYLOR: Well, I am not sure about it,
6 that that is all we need to say because there is another fact,
7 and that is, total energy consumption at end use, the point at
8 which it is purchased, electricity itself in the United States
9 is ten percent of the total, ten percent. So we are talking in
10 terms of energy at the point at which it is purchased and some-
11 thing is done with it by human beings. We are talking about
12 roughly ten or twelve percent, ten percent if you are talking
13 about the in use percentage of ten percent, which is one per-
14 cent. Now, that gets to be provocative.

15 CHAIRMAN KEMENY: Ted, then there is, of course, the
16 contra argument that seems -- I am about to make an argument
17 and I am not suggesting that we put it in -- but why I am
18 arguing that we shouldn't get into that kind of detail because
19 then I think the point Pat raised earlier that I feel strongly
20 about would have to go in, then one could measure what fraction
21 of the potential production of nuclear power is in terms of the
22 energy, the oil we are importing from overseas, and there it is
23 not a negligible fraction.

24 COMMISSIONER HAGGERTY: What the choices are going to
25 be and everything else --

1 CHAIRMAN KEMENY: And what the choices are going to
2 be and then we are off --

3 COMMISSIONER LEWIS: That is right. I mean this evens
4 it off, right. I mean this gives the impression -- and that is
5 one of the things I think that the public needs to evaluate --
6 the word is out that nuclear power is going to be the answer
7 to our energy problems, and it ain't. This gives the impression,
8 you know, that it isn't, it is maybe one factor in it and that
9 is why I think maybe we ought to just eliminate that statement
10 altogether. It says something that just simply isn't true. It
11 leaves an impression that it is more important in our total
12 energy situation than it actually is.

13 COMMISSIONER MARRETT: I agree with Carolyn. I don't
14 think we really need it. If the purpose of this section is to
15 identify some of the limits and directions of the investigation --

16 COMMISSIONER HAGGERTY: Well, he uses it, of course,
17 to do something we did say, the improvement of the safety of
18 existing nuclear plants is a crucial issue and he uses the
19 existence of that many -- and I think it is valid.

20 CHAIRMAN KEMENY: Can I try a terribly simple solution
21 for this which probably won't work? Since there are 72 operating
22 reactors in the United States and 92 more under construction,
23 and many more in other parts of the world, therefore, the
24 improvement of the safety of existing and planned nuclear plants
25 is a crucial issue.

1 COMMISSIONER MARKS: Yes, because I think you have
2 to have some context because otherwise why are we worrying about
3 it?

4 COMMISSIONER LEWIS: Yes. Well, that is more precise.

5 COMMISSIONER HAGGERTY: I agree with you.

6 COMMISSIONER TAYLOR: Well, if you take the words
7 literally, including the safety does not exclude the option of
8 doing so by shutting them down. That is not the way most
9 people would read it. Let us face it.

10 COMMISSIONER PIGFORD: Would you repeat those numbers
11 again? I am not sure your second number is quite right.

12 CHAIRMAN KEMENY: I just hope that the 72 operating
13 reactors in the United States and 92 more have received cons-
14 truction permits --

15 CHAIRMAN PIGFORD: And 92 more?

16 CHAIRMAN KEMENY: Yes. And there are many more --

17 COMMISSIONER TAYLOR: And construction permits have
18 been issued.

19 COMMISSIONER LEWIS: Not necessarily. They have to
20 start building those.

21 COMMISSIONER TAYLOR: But if it is important there is
22 a breakdown which I won't give you here because I don't have it
23 with me --

24 COMMISSIONER PIGFORD: I hope you will check the
25 second number.

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1 COMMISSIONER TAYLOR: I will bring in the source to-
2 morrow.

3 COMMISSIONER PIGFORD: Fine.

4 CHAIRMAN KEMENY: I have a suggestion to just list
5 that there are so many already operating and so many more have
6 received construction permits, and there are lots in other
7 parts of the world, therefore, the improvement of the safety
8 of existing and planned nuclear plants is a crucial issue.

9 COMMISSIONER PIGFORD: I have a question on the last
10 sentence. It says, while all of us hope that significant ef-
11 forts will be devoted to the exploration of alternative sources
12 of energy, alternate sources -- I don't think this means al-
13 ternative to Three Mile Island. I think we should say all
14 sources of energy. I don't think we concluded that it has to
15 be an alternative to Three Mile Island. I would say all sources
16 of energy.

17 COMMISSIONER TAYLOR: How about not having that sen-
18 tence at all? That last paragraph? I don't get much out of
19 reading it.

20 COMMISSIONER HAGGERTY: We could quit with the pre-
21 vious sentence. Because we already said that.

22 CHAIRMAN KEMENY: Yes.

23 COMMISSIONER LEWIS: I agree.

24 COMMISSIONER PETERSON: Let me go back to this waste
25 disposal. Some place --

1 COMMISSIONER MARKS: Where are you now, Russ?

2 COMMISSIONER PETERSON: I am back on paragrap.. two
3 on page 33. We talked about this at substantial length but
4 didn't make any conclusion that I am aware of.

5 CHAIRMAN KEMENY: Let me tell you what notes I have
6 made then on that one, that I should include your mentioning
7 amongst the list, the problem of storage of waste fuel within
8 plants --

9 COMMISSIONER PETERSON: That is what I wanted.

10 CHAIRMAN KEMENY: And that there is radioactive waste.
11 I qualified it by saying beyond the clean up operation at TMI-2
12 and that I should replace --

13 COMMISSIONER MARKS: May I just ask -- you will have
14 no statement in here then as to the fact that we have not
15 looked into issues related to alternative sources of energy?

16 COMMISSIONER HAGGERTY: No. That is in here. That is
17 three.

18 COMMISSIONER MARKS: Okay. I thought I heard some-
19 body say let us knock it out.

20 CHAIRMAN KEMENY: No, the very last paragraph it was
21 suggested --

22 COMMISSIONER MARKS: Oh, okay. Fine.

23 CHAIRMAN KEMENY: And I would feel uncomfortable if
24 we have no mention here that we haven't looked into medical
25 uses, or such uses.

1 COMMISSIONER MARKS: I assume we are going to try and
2 deal with it in a positive fashion in our recommendations.

3 COMMISSIONER PIGFORD: On Russ' point I think we ought
4 to go a little further. I think spent fuel started as one of
5 the issues at the plant that we haven't looked at. There are
6 many more. Would you be willing to say that?

7 COMMISSIONER PETERSON: Well, this sentence had to
8 deal with disposal of the waste. That is why I thought the
9 storage of spent fuel and large pools of water adjacent to the
10 reactor containment building was important because that is a
11 waste problem, as well as --

12 COMMISSIONER PIGFORD: All right.

13 COMMISSIONER PETERSON: That is something we haven't
14 looked at and since there is this tremendous concern all over
15 the world about disposing of that waste, including laws in our
16 country and some states saying that they are not going to ap-
17 prove any more plants until there is a safe disposal of the
18 waste and, yet, we are temporarily disposing the waste right
19 next to the containment building. There is enough there,
20 capacity, to hold seven times as much material as there is in
21 the reactor building. 20 year's supply. Personally I and some
22 friends of mine, can speculate about a series of consequences
23 that could result if you had a meltdown with all that stuff
24 right next door. We are out there, running around the world,
25 trying to figure out how we are going to dispose of it. There

1 is major money being spent drilling holes and studying where we
2 can put that stuff. In the meantime, we have put it right in
3 the middle of all kinds of communities, such as Three Mile
4 Island. To me that is a major problem. We haven't looked at
5 it but I thought we ought to just mention it.

6 COMMISSIONER MCPHERSON: One of the NRC Commissioner's
7 told me the other day that the disposal problem in the military
8 is many times greater than in commercial reactors. Is that cor-
9 rect?

10 COMMISSIONER TAYLOR: In the spirit in which the state-
11 ment I think was being made, I think the answer is no, it is
12 not. If the spirit in which it was being said that there is a
13 larger quantity of troublesome radionuclei, like strontium 90,
14 in the military waste than there are in the spent fuel in the
15 civilian nuclear power system that is not correct. That is a
16 statement that was made about a year ago and it is not correct.
17 Now, there is some uncertainty about when the two were equal.
18 But I have seen a detailed analysis which is not classified
19 that suggests, that concludes that this equality happened in
20 1976. It is the only analysis that I have seen and I went
21 through that very carefully.

22 COMMISSIONER PIGFORD: I would like an opportunity
23 at some other time of providing you some reports from the
24 National Academy of Science which may bear upon that question
25 and you can make your own judgment.

1 CHAIRMAN KEMENY: Okay. Can I suggest now -- we have
2 agreed I guess that there is something like a prologue which
3 states the charge, it states in one page what we did do, and
4 states in one page what we did not do, which we have just dis-
5 cussed in great detail.

6 COMMISSIONER MCPHERSON: We don't have the page of
7 what we did do.

8 CHAIRMAN KEMENY: No but I think -- I mean that is
9 a simple statement. I will try to draft that for you.

10 COMMISSIONER MCPHERSON: That would include locking
11 into the licensing procedures of the NRC --

12 CHAIRMAN KEMENY: I think we will simply list there
13 what we did do.

14 COMMISSIONER MCPHERSON: That is an important state-
15 ment --

16 CHAIRMAN KEMENY: I am just hoping that our state-
17 ment of what we did do won't be as contraversial as the state-
18 ment of what we didn't do.

19 COMMISSIONER MARRETT: Well, I guess it is going to
20 be in certain ways because, for example some of the questions
21 that Anne has been raising about the population and the areas,
22 we have to be cautious about what we even say we did in reference
23 to studying Middletown and the surrounding area. So there can
24 be some controversy if we state too generally what we did with
25 reference to that, with reference to NRC, and those areas we
undertook our investigation on.

1 COMMISSIONER MCPHERSON: I think we can be a little
2 more generous with things like the NRC. We did a study of how
3 TMI-2 got the commission but we also went far beyond that with
4 a great many depositions and a great many inquiries as to the
5 way the NRC operates, the way its divisions operate, and so
6 on. So there is an awful lot of material.

7 COMMISSIONER HAGGERTY: I am not worried about a lot
8 of that in the report. I don't think the prologue ought to get
9 very long. I thought our discussion was to get out of the way
10 misleading people so that as they read through a chapter that
11 they think that because we are making a bunch of recommendations
12 that we are drawing a conclusion either way --

13 CHAIRMAN KEMENY: Harry was trying to argue, however,
14 that the prologue ought to be balanced in the following sense,
15 that we ought to make very clear what we did not do, at least
16 on one page, and what we did do so that people don't think
17 that we did a trivial job.

18 COMMISSIONER HAGGERTY: Oh, I agree with that.

19 CHAIRMAN KEMENY: All right. Let me try out a draft
20 and then bring it back to you.

21 COMMISSIONER LEWIS: John, may I also say that I was
22 kind of rough on you. I thank you for giving us an opportu-
23 nity to do this because I really think this is, frankly, I
24 found this extremely useful and important to do.

25 CHAIRMAN KEMENY: May I suggest that we now turn to

1 page five and just sort of go, not on wording but on the major
2 ideas.

3 COMMISSIONER MARKS: That is what I was going to do.
4 I like the statement and what I would like to suggest is that --

5 COMMISSIONER MCPHERSON: What page?

6 COMMISSIONER MARKS: The conclusion, fundamental
7 changes, et cetera. I think if we all agree that specificall
8 the area of, you know, personnel, programs, procedures and
9 practices is what we are identifying as a major shortfall through-
10 out the entire industry, both the Government and private sec-
11 tor, that this be an up front sentence. Now, whether you want
12 to put it in a quote or in one of the sentences immediately
13 following that -- but this whole issue that, you know, the
14 human factor has to be the ultimate safety barrier, and this
15 has been really almost completely ignored by the NRC, is some-
16 thing I feel is a major conclusion and ought to be right up
17 there.

18 COMMISSIONER HAGGERTY: I think I would say that if
19 we agree with this we would be better off to not leave it in
20 quotes, to add the tone about people together, and let it be
21 an up front kind of conclusion statement. I don't think you
22 have to segregate this out by itself any more. I don't think
23 you necessarily intended that but we agreed on this last time --

24 CHAIRMAN KEMENY: We had a tentative agreement on
25 this, it was only in that sense in quotes because last time we

1 had just tentatively agreed that that would be our final and
2 overall conclusion. It is in quotes only in the sense that we
3 are quoting our own conclusion. That is the only thing I meant.
4 There is no reason it should be in quotes here.

5 COMMISSIONER LEWIS: John, is there any reason why
6 that doesn't include to prevent nuclear accidents at least as
7 serious as Three Mile Island? It seems to me that this sounds
8 like all we want to do is make it, you know, we haven't really
9 explored the larger accident --

10 COMMISSIONER TAYLOR: That is in there.

11 COMMISSIONER LEWIS: That isn't in this. I thought
12 we did put it in, didn't we? Because that gives a different --

13 CHAIRMAN KEMENY: Yes, I am sorry, I guess this sen-
14 tence meant to me at least as serious --

15 COMMISSIONER MCPHERSON: It means that to me.

16 COMMISSIONER LEWIS: Does it?

17 COMMISSIONER MCPHERSON: Yes.

18 COMMISSIONER PETERSON: One thing that I recommended
19 that we change last time, let me try it again, I don't think
20 we can say necessarily to prevent -- to reduce the likelihood
21 of nuclear accidents -- because we can't begin to tell anybody
22 we are going to prevent them.

Del
9-29-79
Tape 8

1 COMMISSIONER TAYLOR: Literally, I think the state-
2 ment is correct. That fundamental changes are necessary, but
3 not necessarily sufficient to --

4 COMMISSIONER HAGGERTY: May I suggestion that if
5 this weren't standing by quotes and if the statement about
6 people being the problem and the sentences which follow imme-
7 diately were all together, it would say what you are saying.
8 Read the next couple of sentences.

9 COMMISSIONER PETERSON: But this is the real key
10 one and you say you can prevent it, I don't buy that.

11 MR. MC DERMONT: But yours doesn't go far enough.
12 If you say -- we can do one thing out of a hundred recommen-
13 dations, if we did one thing we would have reduced the like-
14 lihood.

15 COMMISSIONER LEWIS: That is true.

16 COMMISSIONER HAGGERTY: Russ, read the next two
17 sentences and forget the quotes.

18 COMMISSIONER PETERSON: I have forgotten the quotes.

19 COMMISSIONER HAGGERTY: And he goes on and he says,
20 however, we do have claim that our proposed recommendations
21 are sufficient to assure the safety of nuclear power. I mean,
22 he is -- whether you want to accept that line or not, he has
23 gotten a lot stronger than what you are doing. It is all one
24 statement. I think you can debate that.

25 COMMISSIONER TAYLOR: I have a suggestion which I

1 wrote out, which I listed as the second finding, following
2 that, but it could be incorporated into it. I put it in very
3 positive language, which some of you may object to, and that
4 is, attainment of absolute assurance that an accident at least
5 as severe as TMI-2 will not happen again is impossible.

6 COMMISSIONER PETERSON: Okay. I would buy that as
7 following it immediately.

8 COMMISSIONER PIGFORD: Is that something that we
9 have learned from this investigation?

10 COMMISSIONER TAYLOR: I have through my -- outlines.

11 COMMISSIONER LEWIS: You rather admitted that last
12 time.

13 COMMISSIONER PIGFORD: Oh, I think it is a fact.

14 COMMISSIONER TAYLOR: It is a finding, a conclusion.

15 COMMISSIONER PIGFORD: If it is, I am sure it isn't
16 anything that we ourselves have turned out that is all that
17 earthshaking. It might be an observation. I am a little
18 puzzled that this commission comes out with that conclusion
19 because we haven't made any analysis of probabilities and
20 risks and so forth. We have heard other people's analyses.

21 COMMISSIONER TAYLOR: This is an absolute statement,
22 which I think is relatively trivial, but is important to some
23 people. It is not a matter of probabilities at all. It is
24 a statement that there is no way to have absolute assurance
25 of no accidents at least as severe as TMI-2. All I am saying

1 is that if there is a consensus that we believe that as an
2 absolute guarantee, which many people are calling for, that
3 that is not possible.

4 COMMISSIONER PIGFORD: Well, I think that if it
5 goes, it belongs as a qualifier. I think that that as a con-
6 clusion is something that we really have not --

7 CHAIRMAN KEMENY: Yeah. How would you feel, Ted,
8 about sticking it in where I said, given the scope of our
9 charge and the severe time limitation, it would be impossible
10 to arrive at the set of recommendations that would give --
11 note that I said here, nearly complete assurance of safety.
12 And then I think your sentence, that it is impossible to give
13 absolute assurances of safety.

14 COMMISSIONER TAYLOR: Well, there is only one prob-
15 lem with that and that is to say that we did not -- we were
16 unable for one reason or another to arrive at a set of recom-
17 mendations that would guarantee no accidents. That is slightly
18 different from saying it is impossible for us to have done that.
19 Because that suggests --

20 CHAIRMAN KEMENY: No. I was trying to make two
21 points that we could not even -- with our investigation we
22 couldn't even give ones that would give nearly complete assur-
23 ance and then I wanted to add in absolute assurances.

24 COMMISSIONER TAYLOR: The question is did we really
25 try to get nearly complete assurance through our recommendations.

1 I question whether we are really ready to say that we were
2 unable to.

3 COMMISSIONER TAYLOR: He is saying it would have
4 been impossible to -- didn't even try to do it. It seems to
5 me it is a statement of fact which John has, with the addi-
6 tion that complete assurances --

7 COMMISSIONER HAGGERTY: Well, again, I think Ted
8 has a certain point there when you say a nearly complete assu-
9 rance because what is nearly complete? One in 10 million?
10 One in a million?

11 COMMISSIONER TAYLOR: Well, that is the point.

12 COMMISSIONER HAGGERTY: I know that is what you are
13 saying.

14 COMMISSIONER TAYLOR: It gets us into the whole mat-
15 ter of probabilities because many people would argue with the
16 new NRC license regulations that, in fact, it is possible to
17 get nearly complete assurance that no TMI again. I am not
18 suggesting that is true, but -- I don't know how we can --

19 COMMISSIONER HAGGERTY: Yeah. Because what is near-
20 ly complete?

21 COMMISSIONER TAYLOR: Exactly. I don't know.

22 COMMISSIONER PIGFORD: I think the Chairman's state-
23 ment, plus the additional phrase, it seems to me that it would
24 be a correct statement.
25

1 COMMISSIONER PETERSON: What additional phrase is it
2 now?

3 CHAIRMAN KEMENY: The additional phrase was, and no
4 one could give absolute assurances that such an accident would
5 never happen again.

6 COMMISSIONER TAYLOR: -- and we believe that.

7 COMMISSIONER HAGGERTY: May I suggest that it would
8 be better to eliminate your sentence given, and the complete
9 assurance, and put in Ted's. I mean, personally, I think Ted's
10 is true. This arrives at a debate at what the hell nearly
11 complete means. I would put Ted's in in place of yours.

12 CHAIRMAN KEMENY: Okay. If Ted is willing to give
13 me a copy of his, I will be glad to put that in.

14 COMMISSIONER PETERSON: Read yours, Ted.

15 COMMISSIONER TAYLOR: Shall I read it? Let me read
16 it with the slight modifications. We are convinced that
17 attainment of absolute or we believe -- I don't care which --
18 attainment of absolute assurance in an accident at least as
19 severe as TMI-2 will not happen again is impossible.

20 COMMISSIONER HAGGERTY: But we are convinced that if
21 -- now, that is a statement that you can buy.

22 CHAIRMAN KEMENY: We are convinced that absolute
23 assurance of -- I can't write that fast.

24 COMMISSIONER TAYLOR: Absolute assurance that an
25 accident at least as severe as TMI-2 will not happen again is

1 impossible. We have not proved that, but I get the sense that
2 we believe that.

3 COMMISSIONER PETERSON: Want to make any statement
4 about that we can't be assured that our recommendations would
5 be implemented. You say, if they are implemented, then on the
6 basis of our study, we want to raise that we would be greatly
7 concerned about whether they would be.

8 COMMISSIONER HAGGERTY: I think that is gratuitous.

9 COMMISSIONER MARRETT: We certainly proceed on the
10 assumption that there is going to be implementation, so it
11 wouldn't really seem appropriate to say you have to take these
12 things seriously.

13 COMMISSIONER TAYLOR: It also depends on what we say
14 about to whom these recommendations are being addressed for
15 action. They are not all addressed for action by the President
16 of the United States. Or they may not be. We don't know what
17 they are yet.

18 CHAIRMAN KEMENY: Okay. How about page five?

19 COMMISSIONER PIGFORD: We were asked by the President
20 to make recommendations. I think we recommend to him. If we
21 are recommending something the utility do, it is up to him to
22 find a way of getting them to do it, it seems to me.

23 COMMISSIONER HAGGERTY: We are recommending to the
24 President. I do think it is gratuitous to say we don't think
25 anybody is going to pay any attention to us or get anything

1 done, even if we believe it.

2 CHAIRMAN KEMENY: Page 5, a couple of people urged
3 me to put something in about not pretending that we are the
4 only group looking at this and particularly not overlooking
5 the Congressional investigations. I certainly agree that I
6 don't have any intention of overlooking that.

7 COMMISSIONER PIGFORD: Also, the NRC investigation
8 is not yet completed, also. I would suggest you add that.

9 COMMISSIONER LEWIS: It is supposed to be ready
10 before ours, though, isn't it?

11 COMMISSIONER MARKS: No.

12 COMMISSIONER HAGGERTY: I would simply add the
13 Congressional --

14 CHAIRMAN KEMENY: I was afraid once I got more de-
15 tailed I would overlook an important, that is why I said we
16 are very much aware of the fact that many other investigations
17 of the accident are underway. Some will examine individual
18 issues in much greater depth than we were able to do and no
19 doubt additional insights will emerge. I thought the ones --

20 COMMISSIONER TAYLOR: Skip the next sentence and
21 say, however, -- that is, additional insights will emerge out
22 of these various investigations, however, with our six months'
23 deadline. Why do we have to pick out the Congressional one,
24 because if we do --

25 COMMISSIONER HAGGERTY: Leave out the Congressional

1 is what he is saying because up to that moment you don't have
2 to add any more. As soon as you add that one, you really would
3 have to ask whether some of the others aren't going to provide
4 more detailed information.

5 CHAIRMAN KEMENY: Harry, you are my political ad-
6 visor. Is it not necessary to give special recognition to
7 the Congressional investigation?

8 COMMISSIONER MC PHERSON: I think we ought to. We
9 ought to mention it and why can't we mention NRC and the in-
10 dustry as well.

11 COMMISSIONER TAYLOR: NRC, industry and Congress and
12 I think we have probably covered --

13 COMMISSIONER HAGGERTY: Any other investigations by --

14 CHAIRMAN KEMENY: Okay. So, why don't we make that
15 the second sentence and then mention Congressional, NRC and
16 industrial. Okay.

17 COMMISSIONER HAGGERTY: You are saying many other
18 investigations --

19 CHAIRMAN KEMENY: That is why I am sticking it right
20 at the second sentence in this paragraph. Okay.

21 COMMISSIONER TAYLOR: Well, I hate to quibble but
22 the word "none" is really not accurate because an NRC invest-
23 igation has been completed and that was the basis for Denton's
24 proposal to go ahead.

25 CHAIRMAN KEMENY: I was suggesting that we are very

1 much aware of the fact that many other investigations of the
2 accident are under way. These include several Congressional
3 investigations, the NRC self-investigations and investigations
4 by the industry period. And then there is actually better
5 logic, no doubt there will be additional insights. However,
6 with our six months' deadline we could not await the results
7 of those examinations but it is our hope that the result of
8 our efforts may aid and accelerate the progress of the ongoing
9 investigations.

10 COMMISSIONER MC PHERSON: Good.

11 Could I make a comment about page 6?

12 CHAIRMAN KEMENY: Yes.

13 COMMISSIONER MC PHERSON: I wish there were a way
14 for us to illustrate both how we got to our larger convictions
15 about nuclear regulation and operation from TMI-2 and how we
16 recognize that it is not the whole world. We recognize that
17 we can't extrapolate with confidence from this one event, but
18 it almost seems, without saying how that investigation of this
19 accident led us to the regulatory world, the utility world,
20 the manufacturing world and the governmental world of the
21 state and the federal -- it almost seems presumptuous to set
22 off with some grand conclusions, such as are here. Maybe
23 nobody felt that when you read it. I think your basic point
24 about the mindset is one that can survive. I have a lot of
25 questions later on, but I think we need a paragraph or so that

1 says that we looked at this one event and because there seemed
2 to bear on it a whole variety of regulatory, economic, manu-
3 facturing, industrial, whatever, influences or causes that we
4 pursued then and drew certain conclusions about the nature of
5 this industry. Maybe there ought to be then some sentence
6 that disclaims having understood the entirety of it, the large
7 world out there that we don't know.

8 COMMISSIONER MARRETT: As earlier Harry had pointed
9 out too, it starts there by talking about what the investiga-
10 tion led us to do. We were asked to look at TMI-2. In doing
11 that we had necessarily to consider the utilities, the vendor.
12 Now, in trying to explore what in those situations produced
13 TMI-2 in that sense, we came to certain kinds of findings,
14 some of which suggested that the problems rested well beyond
15 that particular utility or that particular vendor. But a num-
16 ber of things we did not pursue in that detail. I think that
17 is what you suggested earlier to start with that kind of thing.

18 CHAIRMAN KEMENY: Now, you would like to have some-
19 thing like that in the prologue, but you would like to have a
20 paragraph here also that says that.

21 COMMISSIONER MC PHERSON: Yes. It will be hard to
22 do it in one paragraph, but I think it is important because
23 we have suddenly leaped to these grand conclusions.

24 COMMISSIONER HAGGERTY: I think the paragraph leads
25 here. I am not as worried about the prologue getting in these

1 nuances because we did do a lot with NRC. I don't think we
2 have to say anything there. I think it is more important that
3 we scale when we get into this kind of thing. I think this
4 is where that paragraph -- to lead you in that feeling about
5 mindset.

6 CHAIRMAN KEMENY: Could I make one point before we
7 get into the section on mindset, because the way we are rewrit-
8 ing this, I had put something into my first section -- I am
9 afraid it is kind of buried in it -- which belongs in the mind-
10 set section. Before you bring up the obvious criticism, let me
11 suggest that you look at the following roughly one page, on
12 page 2. It picks up roughly in the middle of the second para-
13 graph and, of course, the order now won't be right, starting
14 with equipment can and should be included. From there to the
15 end of the first full paragraph on page 3, I think that some-
16 thing likes that belongs in the mindset. Remember, I wrote
17 mindset assuming that this was already here. Because this is
18 my major attempt at statement of the people problem, which
19 will now belong in the mindset section.

20 COMMISSIONER HAGGERTY: I think that belongs --

21 COMMISSIONER TAYLOR: Is that responsive to you,
22 Paul?

23 CHAIRMAN KEMENY: I am sure it can be improved --

24 COMMISSIONER HAGGERTY: -- not saying in exactly
25 this form --

1 CHAIRMAN KEMENY: I am sure it can be improved, but
2 what I am saying is leaving it -- not exactly this form, since
3 we are wiping out this original section, I think this major
4 point that was in there shouldn't get lost.

5 COMMISSIONER HAGGERTY: Well, then it can flow from
6 the sort of paragraph that Harry asked for.

7 CHAIRMAN KEMENY: Yes.

8 COMMISSIONER HAGGERTY: That is that this tree of
9 things that led to this overriding conclusion, because I do
10 think that is the overriding conclusion.

11 COMMISSIONER MARKS: That is right and I would say
12 I would like -- if we are going to put that in, there is
13 another concept, which ought to be in here, which is that
14 there are real problems in approaching the issue of safety and
15 of prevention in the mindset. In other words, it was contain-
16 ment of the consequences of an accident which received empha-
17 sis in whatever effort was going forward in the area of public
18 health and safety. And I fundamentally believe that that is
19 a mistake; that the empnasis should be on the prevention of
20 the hazards of radioactivity in the area of health and safety.
21 You know, I don't want to get specific, but I would be glad to
22 give you examples. For one thing, there is no ongoing epidem-
23 iological study of workers or populations around the plants to
24 determine the effects of low ionizing radiation. I think the
25 mindset there is that that isn't an area for emphasis. The

1 emphasis is on contain the consequences of an accident. When,
2 in fact, we don't know and I am not suggesting that there is
3 a major health hazard there, but we don't know whether there
4 is a health hazard there.

5 COMMISSIONER TAYLOR: To the workers.

6 COMMISSIONER MARKS: To the workers or the popula-
7 tion. We don't have any long term, ongoing studies to firmly
8 say "yes" or "no". One of the reasons we don't undertake
9 such studies is because of, in part, a mindset because from a
10 scientific point of view, group after group has suggested these
11 kind of studies be in progress. And I think --

12 COMMISSIONER MC PHERSON: What area?

13 COMMISSIONER MARKS: About populations that are
14 potentially exposed to low levels of ionizing radiation.

15 COMMISSIONER TAYLOR: How do you do an epidemiologi-
16 cal study of something that hasn't happened?

17 COMMISSIONER MARKS: It is happening. What do you
18 mean it hasn't happened?

19 COMMISSIONER TAYLOR: Well, you used the word
20 "potential".

21 COMMISSIONER MARKS: We don't know what the effects
22 of low ionizing radiation are on the population.

23 COMMISSIONER TAYLOR: Okay. And you say the popula-
24 tion has been exposed --

25 COMMISSIONER MARKS: Well, we are all being exposed.

1 COMMISSIONER HAGGERTY: I think the thing that is
2 confusing is the implication of the relationship between nor-
3 mal operation of a plant. That is not what you are suggesting.
4 What you are suggesting is we ought to be looking at low level
5 radiation and its impact on a much more methodical, research-
6 oriented basis.

7 COMMISSIONER MARKS: I am also suggesting that in
8 high risk populations such as workers, the normal operation
9 of a plant --

10 COMMISSIONER TAYLOR: Workers. That is why --

11 COMMISSIONER MARKS: I am sorry --

12 COMMISSIONER HAGGERTY: Of which that is one piece.

13 COMMISSIONER MC PHERSON: Are you suggesting an in-
14 crease at this stage of --

15 COMMISSIONER MARKS: Where John is saying there are
16 structural problems in various organizations; there are de-
17 ficiencies in various processes; there is a lack of communica-
18 tion amongst individuals and groups and there is insufficient
19 attention to the ongoing health and safety considerations of
20 the operation of nuclear reactors.

21 COMMISSIONER MARRETT: Okay. Where is that?

22 CHAIRMAN KEMENY: Top of page 3.

23 COMMISSIONER HAGGERTY: I have no quarrel with the
24 fundamental point whatsoever. I would like to see a recommen-
25 dation like that in our recommendations. I have some quarrel

1 with it appearing here because I think the -- the thrust of
2 it. Not the one about the people -- but the thrust of the
3 recommendation appearing here, because I think it will get
4 lost. It will sound too much like it is associated with a
5 specific nuclear plant; whereas, it really isn't except for
6 the workers. Because what you are suggesting is much bigger
7 and more important than that.

8 COMMISSIONER MC PHERSON: I don't think it fits here.
9 I think it belongs in our statement, but it doesn't --

10 CHAIRMAN KEMENY: Could we put this in the section
11 on health more generally. Maybe we could put it in there.

12 COMMISSIONER MARKS: On the overview on health.

13 CHAIRMAN KEMENY: Tom was first and then Russ.

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GREENWOOD

1 COMMISSIONER PIGFORD: Page 6, I have trouble
2 with the first two paragraphs. It is getting into something
3 which I know there is some merit on, but I want to show you
4 how I think these particular messages don't say it.

5 First paragraph on Page 6 is talking about the
6 attitudes of the industry, the Nuclear Regulatory Commission.
7 The second paragraph says essentially --

8 COMMISSIONER HAGGERTY: What page?

9 COMMISSIONER HAGGERTY: Page 6, talking about the
10 attitudes of the industry, the Nuclear Regulatory Commission,
11 a very broad group of people and organizations.

12 The second paragraph says that group had the
13 belief that nuclear plants are fundamentally safe. Now, of
14 course, we know what the belief was, at least I will tell you
15 what I think it was, that the plants had large potential
16 danger which I don't think anybody would argue. They believe
17 the actual risks were small, and they were safe.

18 Finally, we come down, the Commission is convinced
19 that this attitude must be changed to one that says, "Nuclear
20 power is by its very nature dangerous."

21 Now, I believe that what our investigation shows is
22 that it still first, is the same. It has a great potential
23 for consequences, no doubt about that.

24 I don't think we have shown that the actual risk
25 is by nature dangerous. That is what this is saying.

1 CHAIRMAN KEMENY: I was trying to paraphrase
2 something that two or three Commissioners said at the last
3 meeting. Instead of starting from saying that things are
4 reasonably safe, they should start by saying that it is an
5 inherently dangerous thing, and however, we do everything
6 possible to contain that danger.

7 COMMISSIONER PIGFORD: How do you know that is not
8 what they were saying originally?

9 COMMISSIONER LEWIS: Oh, that is obvious.

10 COMMISSIONER PIGFORD: How is it obvious?

11 COMMISSIONER LEWIS: That they are not saying it?
12 They presumed it was safe. That is why they did not look at
13 things.

14 COMMISSIONER MARKS: There was no office of public
15 health or safety in the early days of the AEC.

16 COMMISSIONER MARRETT: But you could read all the
17 emphasis on equipment as precisely having said that.

18 COMMISSIONER HAGGERTY: I really think you have to
19 be careful. We are going to be self-defeating here if we
20 are not careful. My word, I mean you can take Rickover and
21 the submarines and all the things he said about inspection,
22 et cetera.

23 I don't think you could say that they did not say
24 it was dangerous. I think they did come up with a view with
25 respect to equipment.

1 COMMISSIONER PIGFORD: That is correct, and I think
2 we have to stick with what we know to be the case. I think
3 you are speculating if you go back towards attitudes
4 themselves.

5 COMMISSIONER HAGGERTY: I don't think we have to.
6 That is the point.

7 COMMISSIONER PETERSON: Mr. Chairman, could we change
8 that sentence to say that the Commission believes that
9 the attitude should be that nuclear power is by its very
10 nature dangerous without saying that, implying that they had
11 to change their view or their view was different earlier?

12 COMMISSIONER MARRETT: I was thinking what we are
13 really saying here is to make this whole section, instead
14 of focusing on mind set on an emphasis on equipment as the
15 sole means for safety, because there is a problem in talking
16 about attitudes.

17 COMMISSIONER MC PHERSON: Absolutely, I could not
18 agree more, and I don't know whether to address this Carolyn
19 or to whom, but people back in the fifties and the sixties,
20 you are right; you certainly get the feeling from the Rolph
21 book that the whole thing started with a let us get it going.
22 It was a promotional, strong promotional drive, and I worked
23 on the Hill in the midfifties, and I know that Senator
24 Pastore and others really felt that way, but they were not
25 dense. They did not think that this was like a steam boiler

1 in the basement of your apartment house. They knew
2 differently. Certainly throughout the sixties and the
3 early seventies, people have been conducting campaigns against
4 nuclear power. You would have to be deaf as a post if you
5 were a regulator not to be sensitive to it. So, I would much
6 prefer, rather than painting with such a broad brush that
7 everybody thought it was safe; so they did not worry about
8 it, I don't think that is so at all. There were no doubt
9 many promoters in ERDA and in AEC before it who regarded the
10 union of concerned scientists, and the NRC itself as a
11 bunch of wet blankets at the party, but I don't think that
12 you could say that that was broadly held by anybody who ever
13 served on any of those Commissions. I know some who did, and
14 I have talked to them about it over the years. I know that
15 they did not feel utterly complacent. That is the view,
16 that the feeling about conviction of safety leads one to a
17 feeling of complacency. Now, I guess we could argue whether
18 people really had that or not.

19 I would much prefer, instead of talking about
20 attitudes of people whom I don't know, as well as some I do,
21 to go Cora's route and to talk about the devotion to design
22 and equipment and once handling that we had a safe industry.
23 You did not have to worry about it. That was the great
24 fault, I think.

25 CHAIRMAN KEMENY: But, Harry, before -- I agree

1 that this should be modified, but before we go all the way
2 that route, let us not ignore some testimony we had under
3 oath at our hearings when we had the five NRC Commissioners.
4 I think it was Chairman Hendry, but I may be wrong on that,
5 who said that the basic standards for safety were laid down
6 before this NRC was created, and they accepted them as being
7 sufficient to assure nuclear safety, and that is the point.
8 It is not well brought out here, but that influences. It is
9 very hard to understand what NRC did without getting the
10 point that they thought that basically they had sufficient
11 safeguards in terms of equipment, et cetera.

12 COMMISSIONER HAGGERTY: That is really different from
13 -- you know, I think the valid point of the argument is, if
14 you say that nobody thought it was dangerous or the industry
15 did not think it was dangerous, et cetera, you open the
16 whole damn report up to all this debate because why did they
17 put in three layers of safeguards, et cetera, because a helluva
18 lot of people did think there were dangers. What they were
19 was narrow and blind about some things, and you know, there
20 is no doubt in my mind that our points on people and the
21 failures there are the things that are important about this
22 report.

23 COMMISSIONER PETERSON: May I comment, Mr. Chairman,
24 about the dangers, the safety? Obviously throughout these
25 many years we have been working like hell to contain this

1 dangerous material. That is pretty obvious. What I am
2 concerned about is in recent years and particularly before
3 TMI, main message that came through to the community from the
4 whole nuclear industry, as far as I was concerned was this
5 is safe, and we have seen people tell us that. John has
6 referred to it. Several people are there telling about how
7 they were afraid that they could not promote a certain idea
8 because they were going to get the community upset about
9 nuclear energy being dangerous. We have heard that from many
10 different people, and we, also, know there is damn little
11 done toward dealing with the consequences of any major
12 release of radiation, and I conclude from that they assumed
13 there was not going to be any because they had taken care
14 of the job. They had made it safe, and that to me --

15 COMMISSIONER HAGGERTY: But that is different,
16 Russ. I don't think we disagree with that. That differs
17 from saying they concluded that; so they said, "It was not
18 dangerous." I think that they will argue the other way
19 around.

20 COMMISSIONER TAYLOR: John, could I make a
21 suggestion which goes back to a problem I had with the first
22 sentence in the first paragraph that bears on what we are
23 discussing now? I have a problem with that first sentence
24 which says first of all, after many years of remarkably safe
25 operations of nuclear power plants. I don't like that phrase

1 for the following reason, that we have even had testimony
2 from the head of it all at NRC that prior to TMI-2, TMI-1,
3 TMI-2 and the other B&W reactors were not being operated
4 in a safe manner.

5 What I propose we do is to substitute for that,
6 after many years of operation of nuclear power plants without
7 -- I put down direct radiation damage to the public, and that
8 is not the right phrase, but the sense of it is, without any
9 member of the public being hurt, rather than remarkably
10 safe, let me amplify that a little bit. The situation at the
11 fermi(?) reactor was not safe in the sense of anybody saying
12 what we did was remarkably safe; the same situation at the
13 Atomics International reactor in 1959 in which there was
14 severe --

15 COMMISSIONER LEWIS: Brown's Ferry?

16 COMMISSIONER TAYLOR: Brown's Ferry is a separate
17 matter because in the cases I want to cite, that is the fermi
18 reactor and the sodium graphite experiment which, however,
19 was on line and was a commercial power plant -- it was small,
20 it was only 20 megawatts, but that had a severe accident,
21 and by severe, I mean it released radioactive material in the
22 containment. I don't think there was any outside the
23 containment, but there was severe fuel damage done, and day
24 before yesterday I saw a movie of what that looked like
25 when they finally got in there to recover it. So, I object

1 to the phrase, and I think what people keep talking about
2 over and over again as the record is we did not hurt any
3 member of the public.

4 CHAIRMAN KEMENY: How about in the second half
5 of the sentence changing fundamentally safe, changing it to
6 sufficiently safe grew into a conviction.

7 COMMISSIONER HAGGERTY: What he is objecting to is
8 the first sentence.

9 CHAIRMAN KEMENY: I am still in that sentence. I
10 am going on with the rest of that sentence. First of all,
11 as I understand, you have, first of all after many years of
12 operations of nuclear power plants without any member of the
13 public being hurt, the belief that nuclear plants are
14 sufficiently safe grew into a conviction because I think that
15 is a true statement.

16 COMMISSIONER PIGFORD: I am sorry, grew into belief
17 into conviction. Here we are implying we know something
18 about people that I don't think we know anything about. Is
19 it necessary for us to go that far?

20 COMMISSIONER MARRETT: That is still what bothers me,
21 too. In our discussion of attitudes and convictions --

22 COMMISSIONER TAYLOR: I did not quite finish my
23 suggestion because I think the main thought, as I sense what
24 we are trying to get across was that no one in the public was
25 hurt because of hardware considerations. We put a great big

1 thick container around the reactor in addition to the pressure
2 vessel and so on. Given that hardware, nothing has gotten
3 out, and I think the mind set that, at least to me is there
4 is not a concern with safety; it is a concern in inherent
5 design considerations that make it safe.

6 COMMISSIONER PIGFORD: That is the productive
7 approach right there.

8 COMMISSIONER HAGGERTY: I agree.

9 COMMISSIONER PIGFORD: Get rid of attitudes and
10 talk about what really happened.

11 COMMISSIONER MARKS: Then I would just suggest that
12 we say that they are without apparent direct adverse
13 radiation effects on the public.

14 COMMISSIONER LEWIS: That is right, too, because
15 we don't know.

16 COMMISSIONER TAYLOR: That is very good.

17 COMMISSIONER PETERSON: Mr. Chairman, may I tie this
18 discussion into something we discussed about one-half hour
19 ago? It was my concern about our giving the impression
20 that once people implemented our recommendations the nuclear
21 energy industry was safe, and so we talk about thousands of
22 people for a few decades working in this industry, working
23 hard on these problems, and in recent years it appears to us
24 on the basis of much testimony that people had developed a
25 mind set that they had done the job, and we need not be

1 concerned about the results of a major release of energy.
2 Now, along comes our Commission for a six-month effort, and
3 we come up with a bunch of recommendations adding to the many
4 other recommendations that have been brought in over the
5 last 30-some years.

6 Now, we want to be careful we don't give the
7 impression that once they carry our recommendations that the
8 industry will be safe, and that was the point I was trying to
9 make before.

10 Otherwise, we will be propagating this mind set.
11 So, I just say that somebody in editing this be careful we
12 don't give that message.

13 COMMISSIONER PIGFORD: Doesn't the whole paragraph
14 need to be redrafted along the lines that Harry suggests?

15 COMMISSIONER LEWIS: Be specific rather than
16 general.

17 COMMISSIONER TAYLOR: Does anyone object to the
18 thought being the mind set has to do with mechanical things,
19 with hardware.

20 COMMISSIONER HAGGERTY: No, as a matter of fact,
21 I think the conclusion we are entitled to draw is that they
22 felt that as a consequence of no damage to the public, the
23 safeguards predominantly equipment safeguards were adequate.

24 COMMISSIONER TAYLOR: The engineered safeguards.

25 COMMISSIONER HAGGERTY: The engineered safeguards

1 were adequate.

2 COMMISSIONER TAYLOR: Right.

3 COMMISSIONER HAGGERTY: And I think that we are
4 entitled to conclude, and I think from that we, also, are
5 entitled to conclude that they did not do this job on people,
6 and I think those are the two things, and if we will stick to
7 those we won't get lost in these philosophical discussions
8 that are going to defeat our report if we are not careful.

9 COMMISSIONER PIGFORD: You are quite right, Pat,
10 and I agree with you. I would quarrel with one of your
11 first statements. I don't think the conclusion of safety
12 on the part of the industry, of NRC is based simply upon the
13 many years of operation, because on the design basis
14 accident, clearly it is based upon some expected improbability
15 which goes beyond that.

16 COMMISSIONER HAGGERTY: I would not argue.

17 CHAIRMAN KEMENY: Do we keep in the point that
18 one must continually question whether the safeguards already
19 in place are sufficient to prevent future accidents?

20 COMMISSIONER HAGGERTY: Oh, yes. I don't quarrel
21 with that.

22 CHAIRMAN KEMENY: Okay, how about the point on
23 preoccupation with regulations?

24 COMMISSIONER MC PHERSON: Excuse me, John, are you
25 going to keep in the last sentence of that paragraph, "The

1 health of workers must be the overriding concern?"

2 CHAIRMAN KEMENY: I don't dare not to keep it in.

3 Paul will shoot me if I don't keep it in.

4 COMMISSIONER MC PHERSON: I don't think it follows
5 logically from what we have just said. It seems to me that
6 is assumed. What we are talking about is how to serve the
7 health of workers and of the general public, and we are saying
8 that that takes something more than an emphasis on design.

9 COMMISSIONER TAYLOR: Can we just say that in effect?

10 COMMISSIONER MC PHERSON: The protection of the
11 health of workers and the health and safety of the general
12 public requires something more than safe design; it requires
13 a comprehensive --

14 COMMISSIONER TAYLOR: It means safe establishment
15 of a complete system in which it is recognized that human
16 beings are an integral part or something.

17 CHAIRMAN KEMENY: Could we start one of the
18 sentences with a statement, "Since the health of workers and
19 the health and safety of the general public must be the
20 overriding concern, we feel that the following is needed."
21 Okay?

22 COMMISSIONER LEWIS: Yes, that is fine.

23 CHAIRMAN KEMENY: Because I think Paul is making
24 a very important point there that I want to keep in there that
25 that has to be the fundamental concern.

1 COMMISSIONER MARRETT: I guess Harry is just asking
2 about where it belongs. If the purpose of this section --

3 COMMISSIONER MC PHERSON: Yes, I mean it still does
4 not seem to me that -- no one questions whether it must be
5 the overriding concern, that is what we are all in business
6 for.

7 COMMISSIONER MARRETT: But the purpose of the
8 section was to indicate the kind of overemphasis with
9 equipment as the sole means of safety and then to follow with
10 the indications of why we say --

11 COMMISSIONER MC PHERSON: Protecting these things
12 requires something more than a safe physical design. It
13 requires comprehensive total system in which operators and
14 human beings are treated just as importantly.

15 CHAIRMAN KEMENY: Okay, Paul?

16 COMMISSIONER MARKS: Yes, but I feel it should be
17 up here, but I think, in fact, Harry's statement is even
18 stronger and better.

19 COMMISSIONER TAYLOR: Are we going to Page 7?

20 CHAIRMAN KEMENY: The thing that starts on the bottom
21 of Page 6.

22 COMMISSIONER HAGGERTY: What is the situation on
23 eating?

24 SPEAKER: We will go to lunch in a few minutes.

25 COMMISSIONER TAYLOR: I have a comment on Page 7.

1 CHAIRMAN KEMENY: Yes.

2 COMMISSIONER TAYLOR: The fourth line down. The
3 regulations are so complex that immense efforts are made and
4 so on. I think I know what you mean and that is the
5 regulations are so complex that they require --

6 COMMISSIONER MC PHERSON: That must be made.

7 COMMISSIONER TAYLOR: Otherwise it is a kind of a
8 non sequitur.

9 CHAIRMAN KEMENY: That is what I meant, yes.

10 COMMISSIONER TAYLOR: In other words, the key
11 phrase is immense efforts. It takes a lot of work to do that,
12 which tends to consume people's time.

13 COMMISSIONER PIGFORD: I agree with that. I think
14 there is another point though. It sort of implies that
15 if they were not complex immense efforts would not be made.

16 COMMISSIONER TAYLOR: That is why I had trouble
17 with this, and I still have trouble.

18 Is it correct, the point you are making is that
19 since they are complex, the amount of effort required to
20 abide by them is very large?

21 COMMISSIONER PIGFORD: Just to comply with this
22 complexity.

23 COMMISSIONER TAYLOR: That is right.

24 COMMISSIONER MC PHERSON: The question I have with
25 this paragraph is the concluding sentence, and I thought

1 you were going to do what Russ Peterson has urged us to say
2 in many ways. I thought you were going to say that it is not
3 -- it would be a wonderful place here to use one of Jesus'
4 expressions about the law, that life is not the law and that
5 those who --

6 COMMISSIONER LEWIS: The spirit and not the letter.

7 COMMISSIONER MC PHERSON: It is the inculcation of
8 an absorbing concern with safety that will bring about safety
9 and not the meeting of narrowly prescribed and complex
10 regulations. Isn't that the point that you have been driving
11 home to these many months?

12 COMMISSIONER PETERSON: I think we had better have
13 you and John write this together. You come up with such
14 good expressions.

15 CHAIRMAN KEMENY: That is what I was trying to
16 say. I rewrote that last sentence four times, and I still
17 don't like it. We have heard over and over again that people
18 equated the meeting of regulations with safety, and you need
19 a really good sentence and something like what you said
20 to Harry is what I was trying to say here and did badly.

21 COMMISSIONER PIGFORD: Does the last sentence
22 go then as a result of this?

23 CHAIRMAN KEMENY: Yes, I think something like
24 Harry's sentence.

25 COMMISSIONER PIGFORD: I had problems with it.

1 CHAIRMAN KEMENY: What I am trying to say here is
2 that one cannot get to the point that somehow safety equals
3 meeting of regulations. Instead of that you need an overall
4 attitudinal situation where people are continually concerned.

5 COMMISSIONER PIGFORD: I think it would be wrong
6 to infer that we are sure that additional measures are needed
7 to significantly improve the safety. I think literally that
8 is right. We know that we are emphasizing the main problem
9 which is this operator business, and that is not necessarily
10 an additional measure. It is a better approach to that
11 problem. I have trouble with the implication. You need some
12 more safety devices.

13 CHAIRMAN KEMENY: We are replacing the last
14 sentence by saying that instead an attitudinal change is
15 necessary toward safety.

16 COMMISSIONER TAYLOR: I have a comment on the next
17 paragraph, and that is the third line from the bottom. There
18 is sufficient safety built into nuclear power plants to --

19 COMMISSIONER MARKS: Where are you, Ted, please?

20 COMMISSIONER TAYLOR: Page 7 near the bottom of the
21 page. I don't think we have any basis for making that
22 statement.

23 COMMISSIONER MARKS: Right. I had trouble with
24 that sentence, too.

25 COMMISSIONER TAYLOR: We have not analyzed it.

1 COMMISSIONER PIGFORD: The previous sentence says
2 some potentially catastrophic scenarios, such as the break
3 of two huge pipes -- actually it is just one huge pipe.

4 CHAIRMAN KEMENY: What is a double break? I was not
5 sure what double break was, Tom.

6 COMMISSIONER PIGFORD: It means one pipe, and you
7 go all the way through it with a guillotine, you have two
8 ends. There is no such thing as a single break, by this
9 definition, at least double ended. That is what they mean,
10 doubled ended.

11 COMMISSIONER MARKS: So, we are striking the sentence,
12 there is sufficient, et cetera?

13 COMMISSIONER TAYLOR: But we cannot just leave it
14 that way because then it does not track.

15 COMMISSIONER LEWIS: Have these been studied
16 extensively and diligently? I mean is this --

17 CHAIRMAN KEMENY: No, no, we are not saying --
18 this is the fundamental thing that supposedly every plant
19 is supposed to meet.

20 COMMISSIONER LEWIS: It is the large break, is what
21 you are saying.

22 COMMISSIONER HAGGERTY: Actually those things
23 happen so fast and the signals are so clear that they
24 have clear -- there is no doubt in my mind that that is a
25 great share of what has produced the problem, and if you are

1 going to assume that that much water and that much pressure
2 and all the rest happens, the combinations of safeguards, the
3 signals, everything else are quite different. The potential
4 is worse, but the --

5 COMMISSIONER TAYLOR: Isn't the point that this is
6 what got the attention?

7 CHAIRMAN KEMENY: That is it.

8 COMMISSIONER TAYLOR: And not, in fact, the kind of
9 accident that led to TMI's problems. That is the point,
10 isn't it?

11 CHAIRMAN KEMENY: That is the point, and that we
12 went over and over again.

13 COMMISSIONER LEWIS: I think you are presuming
14 that even that was covered enough, which we are not sure we
15 have that evidence, John.

16 COMMISSIONER TAYLOR: We did not look at it
17 ourselves.

18 COMMISSIONER LEWIS: Yes, that is why I questioned
19 it.

20 CHAIRMAN KEMENY: But people told us over and over
21 again that the huge break LOCA's were studied over and over
22 and over again.

23 COMMISSIONER TAYLOR: That is true.

24 CHAIRMAN KEMENY: And that that is the design
25 basis for plans. Isn't that true, Tom?

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COMMISSIONER PIGFORD: That is correct.

COMMISSIONER TAYLOR: The question is whether those design basis studies have, in fact, shown that they are sufficient.

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CHAIRMAN KEMENY: That sentence is stricken.

2 COMMISSIONER PIGFORD: Also, in the previous sentence
3 you say some potentially catastrophic scenarios. Now, later
4 we use catastrophic to mean something that is catastrophic,
5 like what Russ has been talking about, release of a major
6 fraction from the containment. These particular scenarios, by
7 that definition, are not catastrophic.

8 COMMISSIONER LEWIS: Serious would be a better word,
9 wouldn't it? It would be serious.

10 COMMISSIONER TAYLOR: I mean you can always visualize
11 something beyond the pipe area(?) that will assure that no
12 radioactivity will get out, if you poll them on whether that
13 is the situation.

14 COMMISSIONER PIGFORD: These, the containment still
15 operates, so I think in the sense of catastrophic we are using
16 elsewhere, serious is better.

17 COMMISSIONER TAYLOR: Well, how about this, the break
18 of two huge pipes were studied extensively and diligently and
19 were the central focus?

20 COMMISSIONER LEWIS: Yes, but -- one huge pipe with
21 two ends.

22 CHAIRMAN KEMENY: Yes. I feel the sentence is left
23 hanging if you strike the next sentence, and were used as a
24 basis for the design of --

25 COMMISSIONER MARRETT: Yes, you would have to because

1 the question I had there was it starts with a comment on
2 regulations, so unless we show its link to what the implications
3 were for regulations, it just kind of hangs.

4 COMMISSIONER TAYLOR: A simple way to put this is to
5 say that the most serious accident was presumed to be the
6 result of a break in one huge pipe and so on.

7 COMMISSIONER PIGFORD: No, it is just a design basis
8 accident. It is not the most serious.

9 COMMISSIONER TAYLOR: No, but wasn't that the
10 presumption?

11 COMMISSIONER PIGFORD: It was presumed to be of
12 sufficiently low probability and all others of lower probability,
13 that is the presumption.

14 COMMISSIONER TAYLOR: Well, can we say that? Because
15 I think it is important. There was a reason why the pipe
16 breaks were looked at.

17 COMMISSIONER PIGFORD: But isn't it important here
18 just to state the fact? That is what John is doing. The
19 preoccupation was with this break.

20 COMMISSIONER MARRETT: Yes, that says it. We are
21 talking about two comparisons, a small consideration or a large
22 break, so in this context we only need to talk about --

23 COMMISSIONER TAYLOR: We do not need to say why.

24 CHAIRMAN KEMENY: Excuse me, I have a terribly
25 important announcement to make. It has just been pointed out

1 that lunch has arrived. How about a 10-minute break so we can
2 collect it.

3 (Brief recess.)

4 CHAIRMAN KEMENY: Will the Commission please come
5 back into session. We had just made some changes on the
6 bottom of page 7. With those changes is the rest of that
7 paragraph that goes to the middle of page 8, all right. The
8 point we are trying to make is that not enough attention has
9 been paid to the kind of accident that did occur at Three Mile
10 Island.

11 COMMISSIONER PIGFORD: And I think the last sentence
12 gets replaced by something else. The last sentence of the top
13 paragraph on page 7, is that correct?

14 CHAIRMAN KEMENY: Yes, and we had started already
15 work on the bottom of page 7. We are now on page 8. You know
16 that paragraph we started fixing up about the -- getting the
17 double break right and taking a sentence out. The question,
18 then, is, is the top half of page 8 all right?

19 COMMISSION PIGFORD: Okay, now, I would like to raise
20 the question of the sentence in the middle of that paragraph
21 that reads, therefore, a potentially insignificant incident
22 grew into an accident of severe proportions. Now, frankly, I
23 agree with that, but I think we are going to have to bite the
24 bullet pretty soon -- we are talking about a serious accident
25 of severe proportions.

1 We need to say what we mean. It requires some
2 elucidation. We know that the health effects from the actual
3 releases were not severe, so what do we mean by severe
4 proportions? The more we use these words that are qualitatively
5 vague, I think the more difficult our report is.

6 COMMISSIONER TAYLOR: Serious damage to the nuclear
7 power plant.

8 COMMISSIONER HAGGERTY: An accident sufficiently
9 severe so the NRC identified it as a grade IX accident.

10 COMMISSIONER PIGFORD: That is semantics.

11 COMMISSIONER HAGGERTY: I understand that, but that
12 is their most severe category.

13 COMMISSIONER PIGFORD: I think Ted's suggestion, it
14 grew into an accident with severe damage to the reactor. That
15 is what you are suggesting, isn't it? That is a very clear
16 statement.

17 COMMISSIONER PETERSON: It grew into the TMI accident.

18 COMMISSIONER PIGFORD: That also is right.

19 COMMISSIONER MC PHERSON: It was severe in every
20 way except in hurting people. It was severe enough to call
21 into question the whole nuclear industry in the minds of lots
22 of people.

23 COMMISSIONER PIGFORD: Eventually we will have to
24 say what we mean by that. We are going to confront that, I
25 guess, later on.

1 CHAIRMAN KEMENY: Yes, I tried to confront that
2 later on, yes.

3 COMMISSIONER PIGFORD: I noticed page 13.

4 CHAIRMAN KEMENY: Yes, that is where I tried my hand
5 at that. Therefore, a potentially insignificant incident grew
6 into the TMI accident. That might be the simplest solution
7 here.

8 COMMISSIONER PETERSON: Usually when there is a
9 billion-and-a-half dollars' worth of damage, we consider that
10 severe.

11 COMMISSIONER PIGFORD: I do not argue that it is not
12 severe.

13 CHAIRMAN KEMENY: The last line is very brief here,
14 but remember we are lifting a whole page worth from the
15 earlier section to elaborate on this.

16 COMMISSIONER PIGFORD: I have one suggestion on the
17 third line from the bottom. What the regulatory commission and
18 the industry failed to recognize was that human beings, and
19 so forth. I think we have to be precise, sufficiently recognize.
20 They were not without any recognition.

21 Do you care, Carolyn, whether it splits infinitive
22 or not?

23 CHAIRMAN KEMENY: I do.

24 COMMISSIONER LEWIS: Everybody does.

25 CHAIRMAN KEMENY: So, recognize sufficiently.

1 COMMISSIONER MC PHERSON: I think not do it for the
2 important safety system, but that it was at least as important,
3 that its safety was at least as important as the equipment.
4 In this event, it turned out to be --

5 COMMISSIONER TAYLOR: John, back to the first
6 paragraph on page 8, the therefore says that the severe
7 accident, however we put that, was the result of the confusion
8 caused by the equipment failures. I do not think that is clear.

9 That is, I do not think we have established that if
10 there had been no equipment failures and, therefore, no
11 confusion, somebody wouldn't have turned off the HPI.

12 COMMISSIONER MC PHERSON: I have written out here
13 something that is very clumsy, and I do not like it, but
14 anyway I will tell you what I have. Since such combinations
15 of minor equipment failures are likely to occur much more
16 often than the huge accident, they deserve extensive and
17 thorough study -- obviously so.

18 But the point I felt we ought to make was that the
19 containment of such potentially insignificant incidents would
20 require more than just analysis, just study. It would require
21 operators and managers who understood the entire plan and,
22 therefore, could respond to combinations of small equipment
23 failures or whatever else. That seemed to be the problem here.

24 People did not think beyond, think of the whole
25 plant.

1 CHAIRMAN KEMENY: Is it agreed that we should add
2 such a sentence?

3 COMMISSIONER MARRETT: Well, it seems like there
4 several things that are going on in this section. On the one
5 hand, we are comparing the interest in large break with small
6 break. On the other hand, it is a matter of saying even if
7 there had been analyses of small breaks, it is the question of
8 whether the information would have been transmitted, would have
9 been used, so there may be more than one or two equipment --
10 there are a variety of things that we are talking about there
11 which just need to be spelled out a lot more in this section.

12 COMMISSIONER MC PHERSON: I am assuming that if you
13 studied the possible combinations of equipment failures and
14 small break LOCA's from now until doomsday, you would never
15 study them all. It must be like the California license plates
16 with that many combinations of three letters. It would just
17 keep on going and multiply forever.

18 So, what it takes is a bigheadedness on the part of
19 somebody in the plant who could be prepared for them.

20 COMMISSIONER PIGFORD: As a specific change in the
21 sentence, this was the tragedy of Three Mile Island, where the
22 equipment failures. I think we mean the equipment failures in
23 the accident. There were so many other failures that we talked
24 about.

25 COMMISSIONER TAYLOR: Well, we are blaming the accident

1 on confusion on the part of the operators because of the,
2 equipment failures. I do not think that is correct.

3 COMMISSIONER PIGFORD: You may be right.

4 COMMISSIONER TAYLOR: I mean I think it is much
5 deeper than that.

6 COMMISSIONER PIGFORD: Well, of course, Ted, if the
7 PORV had not stuck open, then there would have been no rise in
8 pressure --

9 COMMISSIONER TAYLOR: Well, agreed, but it is the
10 statement that --

11 COMMISSIONER HAGGERTY: It was not just confusion.
12 They clearly did not understand procedures were wrong.

13 COMMISSIONER PIGFORD: There were two things, bad
14 training and then when it did happen, they were not prepared
15 for it.

16 COMMISSIONER HAGGERTY: In fact, the instructions
17 were -- you could make a pretty good case -- were counter-
18 productive.

19 COMMISSIONER TAYLOR: I just object to blaming the
20 accident on confusion.

21 CHAIRMAN KEMENY: Yes, the word "therefore" is
22 oversimplified there. I totally agree with that. We can come
23 up with something else there to say that --

24 COMMISSIONER TAYLOR: The attitude exacerbated it,
25 or what -- it was not the cause.

3
1 COMMISSIONER HAGGERTY: The series of relatively
2 insignificant material failures or equipment failures in the
3 absence of an understanding of the total system and how it
4 functioned and exacerbated by confusion is what did it.

5 Again, you have to put the right words down, but that
6 is fundamentally it. They really had enough information, if
7 they had understood. And they were not just confused by the
8 equipment failures and the bad signals --

9 COMMISSIONER TAYLOR: They were confused because they
10 did not know the mean vibration temperature or whatever.

11 CHAIRMAN KEMENY: Okay, are we ready to go to page
12 9?

13 COMMISSIONER PIGFORD: I think the sentence that says
14 if the operators had kept the emergency cooling systems on,
15 it says Three Mile Island could have been -- I think you might
16 say would have been. Isn't that a little clearer?

17 COMMISSIONER MC PHERSON: Can I go back to mindset
18 a minute? Cora and I share the same concern about it. I am
19 worried about stating it as we have, John, because if I were
20 a regulator or the chairman of a utility company, a responsible
21 citizen, I would say beans, I do not have any such mindset.
22 I am very concerned about operator training and I am very
23 concerned -- how can you get inside my mind and put me on a
24 couch and say that I --

25 COMMISSIONER HAGGERTY: I may have made a mistake, but

1 it is not because I was --

2 COMMISSIONER MC PHERSON: I think it is fair, on the
3 other hand, to say that the -- that our investigation has
4 revealed a number of circumstances, a number of what? I do not
5 know, deficiencies that would suggest a mindset.

6 COMMISSIONER HAGGERTY: Well, you get a little
7 beyond that a little further than that in some of the testimony.
8 The word "mindset" is used.

9 COMMISSIONER MC PHERSON: Yes, but it is in the same
10 sense that I am objecting to it here. I do not think there
11 is any proof of it.

12 COMMISSIONER HAGGERTY: Because other people used
13 it. We could say --

14 COMMISSIONER TAYLOR: No, with respect to themselves.
15 Sort of self-adulation.

16 COMMISSIONER MARRETT: When you move from that to a
17 generalization about mindset in the industry and NRC as a
18 whole, I think we are going a little far. If we were talking
19 specifically about some people having said in their instances
20 that is the way they were behaving -- but I prefer to talk
21 about the practices that we observed.

22 Having seen what the practices were, there may be any
23 number of explanations for those practices, some of which may
24 be certain kinds of attitudes that were held, but you build
25 from what we observed having occurred to try to see what might

1 have been some explanations for all the things.

2 COMMISSIONER LEWIS: I think Denton himself said that
3 we were complacent. He was talking about the NRC. You could
4 not have a more bald admission of a mindset. And he said
5 that, he said we had all these years and we were complacent.

6 I know what you are trying to say, not to sort of
7 paint the whole --

8 COMMISSIONER HAGGERTY: Well, you could say -- you
9 know, if you say Denton said we were complacent, I do not think
10 he can object to that. That is what they say.

11 COMMISSIONER LEWIS: Yes, to be more specific is what
12 you are saying.

13 COMMISSIONER PIGFORD: By "we," we refers to?

14 COMMISSIONER LEWIS: The NRC, because that was the
15 question.

16 COMMISSIONER HAGGERTY: Then you could say Denton
17 says the NRC was complacent and you have got a quote to that,
18 and you get a point across that way and nobody could object.

19 COMMISSIONER LEWIS: That makes it even stronger
20 because it is more concrete.

21 COMMISSIONER HAGGERTY: I think we are stronger still
22 when we stick to the fact that what happened with equipment and
23 what did not happen with respect to people interface, and we
24 very carefully do not defeat the real thrust of our report
25 with too many of these generalities, that is all.

1 That really lays you wide open to exactly the kind
2 of arguments we had around among ourselves, and then that is
3 an excuse for never paying any attention to the concrete things
4 in the report.

5 COMMISSIONER TAYLOR: Is the suggestion to strike the
6 word "mindset" and use something different?

7 COMMISSIONER LEWIS: No, I think mindset --

8 COMMISSIONER TAYLOR: I am not quite sure I know what
9 it means.

10 CHAIRMAN KEMENY: Can I make a suggestion. Could we
11 use it in the context of some introductory quotes and then
12 shift to the word "attitudes?"

13 COMMISSIONER HAGGERTY: Any time we use it and we
14 pick the right quotes from the people, and especially when they
15 are people like Denton, etcetera, can you use that as a
16 lead-in? I think that is fine.

17 COMMISSIONER TAYLOR: How about captioning the whole
18 thing attitudes instead of mindset?

19 COMMISSIONER HAGGERTY: That is just what John said.

20 COMMISSIONER TAYLOR: And then use it in the text if
21 someone used the phrase.

22 COMMISSIONER PIGFORD: I still worry. If you
23 generalize, you have got to say seeming attitudes.

24 CHAIRMAN KEMENY: Well, remember, we are trying to
25 document our main conclusion, I hope, has in it that there has

1 to be a change in attitudes.

2 COMMISSIONER MARRETT: Well, no, we are actually
3 trying to say there has to be a change in practice. Now, if
4 those practices and procedures are the result of the attitudes
5 -- but that is what we are really after, see, because you could
6 be, there is possibly an inconsistency between attitude and
7 behavior, anyway.

8 You could get a number of people whose attitudes have
9 changed, but the practices and behaviors do not. And vice
10 versa.

11 COMMISSIONER MC PHERSON: You have faith, but no
12 good works.

13 CHAIRMAN KEMENY: Shall we title in attitudes and
14 practices, or practices and attitudes?

15 COMMISSIONER MARRETT: It is okay with me as long as
16 we make sure that it is on that side of the behavior that we
17 want to see altered.

18 COMMISSIONER LEWIS: Harry has got the right thing,
19 we want all these folks to be born again.

20 (Laughter.)

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Tape 11

1 . CHAIRMAN KEMENY: Okay. I have noted that. Could
2 we get back to the section starting on page 9, on causes of
3 the accident. I have changed "could" to "would".

4 COMMISSIONER MC PHERSON: John, in the first para-
5 graph are you talking about TMI operators?

6 CHAIRMAN KEMENY: Yes.

7 COMMISSIONER HAGGERTY: We can go beyond that.

8 COMMISSIONER MC PHERSON: -- about nuclear plant
9 operators.

10 CHAIRMAN KEMENY: Where are the --

11 COMMISSIONER MC PHERSON: The third paragraph.

12 CHAIRMAN KEMENY: No, I did not mean to limit that
13 to TMI.

14 COMMISSIONER HAGGERTY: I think we went beyond TMI
15 there.

16 CHAIRMAN KEMENY: Yes and then we had NRC testing
17 only on what standards are imposed.

18 COMMISSIONER MC PHERSON: Insufficient attention
19 is paid or was -- was paid, suggests TMI.

20 CHAIRMAN KEMENY: I guess I used past tense because
21 you get into this trap that some changes have been made since
22 TMI. So, somewhere we need an overall clause that these find-
23 ings are as of the time of TMI.

24 COMMISSIONER TAYLOR: John, I have a fundamental
25 question about structure and that is, I would argue that we

1 are missing a section before causes of the accident and after
2 this mindset. And that is a brief statement about what hap-
3 pened. I don't mean a sequence of events in the formal sense,
4 but a statement about what was the accident. It is not in
5 here anywhere as far as I know.

6 COMMISSIONER HAGGERTY: That really needs to be in
7 there, maybe way back at the beginning.

8 CHAIRMAN KEMENY: You feel that that should go in
9 a separate chapter. We can't get away with simply saying we
10 have a chapter that describes exactly the sequence. It is
11 hard to do that briefly.

12 COMMISSIONER MC PHERSON: It sure it.

13 COMMISSIONER TAYLOR: I think you can describe the
14 important things that happened in less than a page.

15 CHAIRMAN KEMENY: I don't believe that, Ted. Let
16 me try arguing that way. We have seen a bit of the attempt
17 of that. Remember, it is a lay audience. You are going to
18 describe in here what a PORV is, for example; what the primary
19 and secondary system is. It is very hard to do this. I
20 haven't read it. I am told that Patrick Young has drafted the
21 chapter on this and it is very good, in lay terms, without
22 watering it down, trying to describe the sequence of events.
23 But it takes quite a bit of space and diagrams and what not.

24 COMMISSIONER TAYLOR: I don't one needs to go any-
25 where near that far, particularly in the context where, if.

1 somebody really wants to know what happened in more detail,
2 they can go to the main text and then on to the staff reports.
3 But a statement to the effect that there were, what is now
4 believed to be, some key, really key events. I would, for
5 example, not include anything about the polisher, which, I
6 think, can be put in lay language, that say what happened,
7 what we believe now happened to the core and to radioactive
8 material that was released from the fuel; mainly, that it was
9 almost all contained. I think that needs to be said because
10 there are some conclusions, some findings implied by that short
11 description. I just find it difficult for someone to be going
12 directly into the causes of something that is not described
13 at all.

14 CHAIRMAN KEMENY: Okay. How do the rest of you
15 feel?

16 COMMISSIONER MARRETT: I think it would be useful
17 to have something there. I was looking back at that document
18 that came from the Illinois committee and what they had done
19 was a section that described the TMI accident, indicating that
20 there is chronology that is available for more detail and
21 saying that they were not going to go into great detail, but
22 to limit themselves to the main events and, particularly the
23 main events that would bear on discussion that is important
24 here and this is operator --

25 COMMISSIONER HAGGERTY: Maybe our prologue ought to

1 have four pages instead of three; the accident, the charge,
2 what we did do and what we didn't do.

3 COMMISSIONER MC PHERSON: A one-page description of
4 the accident.

5 COMMISSIONER HAGGERTY: I mean, I am oversimplifying.
6 We agreed on fundamentally three pages. I am not trying to
7 say it is exactly three.

8 CHAIRMAN KEMENY: We can probably do a two-pager
9 here if one can defer to the full chapter.

10 COMMISSIONER HAGGERTY: Mightn't that be better in
11 the prologue. I mean the accident, the charge, what we did
12 do and what we didn't do or vice versa, what we didn't do and
13 what we did do is probably the right order; the accident, the
14 charge, what we didn't do, what we did do.

15 COMMISSIONER MC PHERSON: A precise, but general
16 and concise description of the accident, if that can be done.

17 COMMISSIONER HAGGERTY: If it pleases the minimum
18 of the 12 of us.

19 COMMISSIONER PIGFORD: This is a good model that
20 Cora has brought up and it is one page.

21 COMMISSIONER PETERSON: Where is that, Cora?

22 COMMISSIONER MARRETT: It is the report that was
23 submitted to the Governor of Illinois.

24 CHAIRMAN KEMENY: I have it somewhere, Cora, but
25 whether I can find it or not is another question. Just xerox

1 it for me. I would appreciate it. Just those two pages.

2 COMMISSIONER TAYLOR: Well, if we agree to put in
3 something short and concise that says what happened, go to the
4 causes, then the severity of the accident, which is the next
5 section, one possibility is not to refer to what actually
6 happened, would make that an entirely what if section, in the
7 response to the word "potential" that was in the President's
8 charter.

9 COMMISSIONER PIGFORD: I don't agree with that
10 sentence there.

11 COMMISSIONER TAYLOR: Well, it is just a matter of
12 structure. That is all.

13 COMMISSIONER PIGFORD: Do you want to delete causes
14 or keep it in?

15 COMMISSIONER TAYLOR: Oh, keep it in. Certainly.
16 What happened and what was the cause and then what might have
17 happened. That is all I am saying.

18 COMMISSIONER MARRETT: And would you reorganize in
19 terms of causes to say after what happened, move to the imme-
20 diate causes in terms of operator behavior or whatever and
21 this whole discussion about practices, what we have under
22 mindset now, does that --

23 COMMISSIONER TAYLOR: -- question because that is
24 part of the accounting of the causes.

25 COMMISSIONER MARRETT: Yeah. We could talk about

1 approximate, more distant causes.

2 CHAIRMAN KEMENY: Of course, if we follow Pat's
3 suggestion and put the brief description of the accident in
4 the prologue to this, then we have that out of the way at the
5 beginning.

6 COMMISSIONER HAGGERTY: Isn't that the place it
7 really ought to be?

8 COMMISSIONER TAYLOR: If you say write it all down
9 in a four-sentence paragraph --

10 COMMISSIONER HAGGERTY: Four pages, I said.

11 COMMISSIONER TAYLOR: On the accident?

12 COMMISSIONER HAGGERTY: No. A page on the accident.

13 A page on the --

14 COMMISSIONER TAYLOR: A page. Okay.

15 COMMISSIONER HAGGERTY: Please understand the page
16 loosely. A page on the accident, a page on the charge, a
17 page on what we didn't do, a page on what we did do.

18 CHAIRMAN KEMENY: I think you have to start with the
19 charge --

20 COMMISSIONER HAGGERTY: Or the accident.

21 COMMISSIONER PIGFORD: Then we are still on the
22 right track here. The causes --

23 COMMISSIONER LEWIS: As long as it comes across.

24 COMMISSIONER PIGFORD: I would like to make a point
25 on page 9. In the 6th line from the bottom, there is that

1 sentence, the theoretical background provided. As you know,
2 John is a mathematician. I disapprove giving such importance
3 to theory and I would prefer to see and the understanding of
4 reactor transients on the part of the operators and senior
5 reactor operators was insufficient.

6 COMMISSIONER HAGGERTY: It wasn't really their
7 theoretical background. It was that they didn't have an ade-
8 quate training on how that damned thing worked.

9 CHAIRMAN KEMENY: It is not just on transients.
10 Could I make it a little broader, their understanding of how
11 a reactor worked.

12 COMMISSIONER HAGGERTY: It is really the whole --

13 COMMISSIONER TAYLOR: -- just how the reactor worked.

14 COMMISSIONER HAGGERTY: The whole reactions and so
15 forth in the system.

16 COMMISSIONER PETERSON: Just said and the training
17 provided. Wouldn't that do it?

18 COMMISSIONER PIGFORD: And the understanding on the
19 part of the --

20 COMMISSIONER MC PHERSON: Let me ask a question.
21 It is not a rhetorical one because I really don't know the
22 answer to it. First, it says that it is our conclusion that
23 the training of operators is greatly deficient. John says that
24 he means that to include all operators. The gang on duty at
25 4 o'clock on the 28th, certainly, that fits and the same for

1 the people who came on afterwards. The NRC has an inadequate
2 training branch, but are we able to conclude on the basis of
3 those two things that the NRC is inadequate and that these
4 TMI operators were insufficiently trained, all operators.

5 COMMISSIONER MARRETT: Shouldn't we follow the same
6 format you suggested for this other -- what we really begin
7 with here is an observation about the inadequate training of
8 those operators who were on shifts at the time of the accident.
9 And we talk a lot about that and then go on to see how far, in
10 terms of training, can we conclude. We are assuming that the
11 general conclusion about training deficiency is going to be
12 what NRC does. I think, too, what Harry is saying. We know
13 about the problems in NRC, as reflected in those operators --

14 COMMISSIONER HAGGERTY: Makes me want to ask a
15 question. I saw something recently that I hadn't seen before
16 and that is, apparently after Davis-Besse, training of those
17 operators in HPI, etcetera, did occur and nothing ever got to
18 the rest of the industry.

19 CHAIRMAN KEMENY: No and after TMI-2, they issued
20 new training for all B&W --

21 COMMISSIONER HAGGERTY: Yes, but I am talking about
22 clear back after the Davis-Besse --

23 MR. KANE: -- and I can't really assess how valid
24 it is. It is a letter dated May 19, 1979, after the accident,
25 that encloses a description of their response to the accident.

1 The body of the letter clearly suggests -- the body of the
2 enclosure clearly suggests it was written after the accident.
3 That it is not a document that was composed at the time of the
4 transient at Davis-Besse. After the TMI-2 accident, this
5 document is written and it does state that they did that,
6 that right after the Davis-Besse transient in 1977, they gave
7 retraining to their operators, particularly emphasizing the
8 dangers of relying on pressurizer level during this kind of
9 transient. I showed that to Joe Hendry and he almost fell
10 out of his chair during a deposition. He immediately had a
11 copy run off and gave it to him minions to run out and invest-
12 igate this because it was never brought to the attention of
13 the NRC in his view and it clearly showed that the system
14 didn't work in that instance and it should not have happened.
15 So, they didn't know about it either.

16 COMMISSIONER TAYLOR: This is a very fundamental
17 issue here and that is to what extent on the basis of what
18 has been done by the Commission are we able to say anything.
19 outside of deficiencies on the part of -- I am thinking now
20 of vendors and utilities -- outside of B&W and GPU and Met Ed.

21 CHAIRMAN KEMENY: Before we do that, I think it is
22 right because we are talking about the causes of the accident.
23 And this paragraph should be limited to the operators and
24 supervisors at TMI. It is really in the wrong context here.
25 We have some evidence from NRC as to the nature of the training

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1 program. We have this quite fascinating evidence that the
2 operating personnel at TMI-2 were above the national average
3 on all of these tests. So, I think there is some basis for
4 inference, not on all operators, but of the average quality.
5 Len, is that a fair statement?

6 MR. JAFFE: Yes, sir. I think so. Nothing I did
7 really got outside the TMI area except looking into the NRC
8 operator licensing branch. We did look briefly at what the
9 DuPont Company does and, of course, it is hard to make a big
10 judgment based on a quick visit. But it did appear that,
11 perhaps, they went beyond the NRC requirements.

12 COMMISSIONER HAGGERTY: I would suggest something,
13 too. There is one thing that bothers me a little bit about
14 this. It can give an implication that they were careless
15 about training in the sense that the time wasn't put in, the
16 act wasn't there, all the rest of that. The real problem is
17 not so much that they didn't put in enough time or have re-
18 quirements. Again, it is really the contents and what they
19 did, etcetera. I am not sure, for example, that it would take
20 any more time, in total, given the right people and the right
21 training course to provide adequate training instead of what
22 they got. I am not trying to draw a conclusion on that. But
23 I have a pretty good hunch that you really could.

24 MR. JAFFE: I would agree with that also.

25 COMMISSIONER HAGGERTY: That is all I am getting at.

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1 CHAIRMAN KEMENY: I don't think I said that here.

2 COMMISSIONER HAGGERTY: You really haven't. It
3 sort of leaves the impression, you know, that they don't train
4 operators. That is not really true. The problem is -- in
5 fact, it is sort of the same thing that deceives you again
6 and they deceive themselves with. Since they put them through
7 two years of it and they tell you about all of these things,
8 but nobody has looked at what they teach them adequately.
9 That is the point. We have to be very -- because otherwise,
10 my God, we put them through two years of training. They have
11 to have their senior operator's license. They have to re-
12 qualify. The principle is there. It is what is in it that
13 is wrong.

14 COMMISSIONER TAYLOR: I think we have to be very
15 careful here. We are saying their understanding is inadequate.
16 The question is why was it inadequate. Was it because the
17 training program was inadequate? I think we have fair docu-
18 mentation of that. But I think we need to separate those two.

19 COMMISSIONER HAGGERTY: Yes, I agree with that.

20 CHAIRMAN KEMENY: At this point, all that is being
21 said in the document is that the training was deficient and
22 only two points are made; namely, that it may have been ade-
23 quate for normal operations. Insufficient attention was paid
24 to possible serious accidents and that we have documented.
25 And, secondly, that the understanding even of the senior people

1 did not prepare for this particular accident.

2 COMMISSIONER HAGGERTY: I don't really quarrel
3 with that and when you think about the words you may want to
4 say that the time put in may have been adequate, but it was
5 the content that had these deficiencies.

6 CHAIRMAN KEMENY: Okay. Now, I tried to do one on
7 operating procedures and I was very careful in my wording
8 here. That doesn't mean it came out right. Tom, this is the
9 one you have been probing and I tried to put in a way that
10 was least confusing and could be read in such a way as to
11 lead the operators to take the incorrect actions.

12 COMMISSIONER HAGGERTY: What did we ever decide
13 about that being legally required?

14 MR. JAFFE: I talked to the guys on the other side,
15 the legal people, and I didn't get an answer. They indicated
16 that, perhaps, you could justify legal requirements, but they
17 would hesitate to take that one.

18 COMMISSIONER PIGFORD: That came up in the last
19 hearing with Stello and he also promised to provide some ans-
20 wer to that question in those procedures. Have we ever gotten
21 anything from him?

22 MR. JAFFE: Not that I know of.

23 COMMISSIONER PIGFORD: You might note that some
24 place.

25 MR. JAFFE: I have had some other things from Mr.

1 Stello, but --

2 CHAIRMAN KEMENY: I don't think -- he may not have
3 been able to figure it out.

4 MR. JOHNSON: We have gotten a lot of material from
5 him, but I have not seen that.

6 COMMISSIONER PIGFORD: Since the hearing, you have
7 gotten material?

8 MR. JOHNSON: There was some. Kevin, you have
9 gotten --

10 MR. KANE: I am trying to recall what I have seen.
11 I will have to go back and check. I don't think --

12 COMMISSIONER HAGGERTY: Are we in the middle of
13 page 10?

14 CHAIRMAN KEMENY: Yes.

15 COMMISSIONER HAGGERTY: I think your description of
16 what Dunn and Kelly wrote is somewhat inaccurate, is it not?
17 It comes closer -- did he really say that we were lucky that
18 we didn't have a serious accident? Did he really ask questions
19 as a result of turning off the HPI about training and how they
20 really were treating such things because of the potential?

21 CHAIRMAN KEMENY: No, he goes beyond that. If you
22 like --

23 MR. KANE: I can run up and get it. The word he
24 uses was that they were fortunate that it was not --

25 CHAIRMAN KEMENY: They were fortunate. I recently

1 looked at that quote. It would be nice if we could get it.

2 COMMISSIONER TAYLOR: Let's just assume for the
3 present that that is it.

4 CHAIRMAN KEMENY: We looked at it very recently.
5 I think a portion of it is quoted in that set of findings.
6 I looked at it very recently and it specifically says that
7 unless we -- first of all, we were fortunate that it occurred.
8 I didn't spell out the circumstances. You know, they were at
9 low power and had recently refueled and then it goes on to
10 say that unless we send clearcut instructions to the operators,
11 we may have an accident, at least a core uncover, etcetera.
12 Is that your recollection, too?

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1 MR. JAFFE: Kelly is the one you are thinking about.

2 CHAIRMAN KEMENY: Yes, Kelly's is different.

3 COMMISSIONER TAYLOR: I have a point on the preceding
4 paragraph, the fourth line, minor accidents have not been under-
5 stood -- this is by whom? By TMI management? Certainly not
6 by the operators because you say that. But who are we refer-
7 ring to? You can't say everybody.

8 COMMISSIONER MCPHERSON: Leave that out.

9 CHAIRMAN KEMENY: I think here we mean B&W and NRC.

10 COMMISSIONER TAYLOR: Well, no, it was understood by
11 John.

12 COMMISSIONER PETERSON: If we left out have not been
13 understood we could get around that.

14 COMMISSIONER LEWIS: Yes.

15 COMMISSIONER TAYLOR: And just say not passed on.

16 COMMISSIONER LEWIS: Yes.

17 COMMISSIONER TAYLOR: Yes, but then we leave out
18 another important factor, many people in the business didn't
19 understand it and that is also --

20 COMMISSIONER HAGGERTY: What we really want to say is
21 that lessons from previous accidents did not result in appro-
22 priate instructions being passed on to appropriate operators.

23 COMMISSIONER TAYLOR: Perfect.

24 COMMISSIONER PIGFORD: Is that the substitute for
25 the last sentence?

1 CHAIRMAN KEMENY: Lessons of previous accidents did
 2 not --

3 COMMISSIONER HAGGERTY: Did not result in --

4 CHAIRMAN KEMENY: Did not result --. I think the last
 5 sentence on page 10 is accurate, that confusion that led opera-
 6 tors to incorrect action existed both with the Nuclear Regula-
 7 tory Commission and within the utility --

8 COMMISSIONER HAGGERTY: I think it is more than con-
 9 fusion.

10 COMMISSIONER TAYLOR: It is the lack of understanding.

11 COMMISSIONER PIGFORD: I agree, yes, it is a potential
 12 for confusion, or whatever.

13 COMMISSIONER MCPHERSON: I would like here, if pos-
 14 sible, to get in some notion of the lack of a system within
 15 either the vendor or the utility, or the NRC by which matters
 16 such as this got dealt with in a reasonable period of time.

17 COMMISSIONER HAGGERTY: If you are going to do this,
 18 this would be the place to get the engineer, to get the NRC,
 19 to get Michelson in.

20 COMMISSIONER MCPHERSON: I personally think it is a
 21 thing that will stand out more than anything else how in these
 22 huge enterprises do you get attention and definition, and
 23 resolution, and action on safety issues. How do you get it
 24 done? I have suggested at the last meeting nationalizing the
 25 industry and that was greeted with less enthusiasm by everybody

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1 else but it seems to me --

2 COMMISSIONER HAGGERTY: That was undoubtedly over
3 our excitement over the great qualities of the NRC and things
4 like that.

5 COMMISSIONER MCPHERSON: Well, that is true but
6 really what I am meaning to raise, perhaps it is obvious but I
7 will raise it anyway, we have here a huge private industry with
8 an enormous number of facets, presided over by a small regula-
9 tory commission and we are relying on that system somehow to
10 solve either by self-solution or by resolution by above the
11 safety problems that come up. It is enough, given one's under-
12 standing of beurocracies in less serious things than this to
13 give one great pause. How do you bring it about? That seems
14 to me the fundamen,al major problem with nuclear energy.

15 COMMISSIONER LEWIS: And if you can't bring it about,
16 should you still press on with it? This is my thinking. I
17 mean Harry is raising something that if you have watched Govern-
18 ment, this happens all through Government, it happens in large
19 organizations, and the fact is that it is there. I don't think
20 as long as human beings are on earth you are going to solve
21 that problem. Something is going to slip through the cracks.
22 I mean, this is one of our fundamental findings. How we fix
23 it I think is going to take a magic wand. You are raising one
24 of the reasons why I have such great reluctance to entrust so
25 dangerous a form of energy to this kind of human enterprise,

1 any human enterprise. I think we should say it high up. I
2 think it is one of our major things. But I would be very cu-
3 rious to see how Harry can solve it when we get to our recom-
4 mendations.

5 CHAIRMAN KEMENY: At the bottom of page ten we will
6 have a paragraph on the lack of closure being in the system.

7 COMMISSIONER PIGFORD: And are you going to add some-
8 thing about Michelson?

9 CHAIRMAN KEMENY: I think that is a good example.

10 COMMISSIONER HAGGERTY: I think you need B&W, Cres-
11 well and Michelson, all three here. Then the lack of closure --

12 COMMISSIONER: So it is all through the system.

13 COMMISSIONER HAGGERTY: You really have four.

14 COMMISSIONER LEWIS: That is true.

15 COMMISSIONER PIGFORD: I think they can be mentioned.

16 CHAIRMAN KEMENY: Yes, because they are dealt with
17 later on.

18 COMMISSIONER PIGFORD: Are you on page eleven now?

19 CHAIRMAN KEMENY: Yes.

20 COMMISSIONER MARRETT: Before you go on to that, on
21 page ten where you have -- the top of page ten, one of the
22 lessons not having been passed on -- that in part touches on
23 the matter of closure but would it be worth also mentioning
24 there the problem of, well, this illustrates the lack of closure
25 and then use this example to get those points very clearly?

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CHAIRMAN KEMENY: Okay, and then going on with both of these --

COMMISSIONER MARRETT: Yes.

COMMISSIONER PIGFORD: On page eleven, down about the middle, there is a sentence beginning, you will find illustrated here both the lack of attention to the human element and the fundamental conviction that nuclear plants are safe. I think that has the same problem on our determination of attitudes of other people that we encountered before. I would suggest we delete, and the fundamental conviction that nuclear plants are safe, and instead insert, and the over-emphasis upon the large break loss coolant accident.

COMMISSIONER HAGGERTY: That is a non sequitor, isn't it? Because what we are illustrating is the lack of attention to the human interface in the control really.

COMMISSIONER PIGFORD: Well, what I had in mind is that you see a large break accident occurred so quickly that I think there was, therefore, a larger emphasis upon diagnostics, and at the end of the sentence there where it says, during the course of an accident, I would have said, during the course of a small break accident, such as that at TMI. In short, I think there are two points, human element and then insufficient diagnostics. I believe that insufficient diagnostics is the result of the over-emphasis on the large break.

COMMISSIONER HAGGERTY: Yes, because the signals there

Bowers Reporting Company

1 are so clear and unmistakable that you could make a pretty
2 good case for what is there being adequate.

3 COMMISSIONER TAYLOR: I think Tom has a very good
4 point and I think to make the point, to use the phrase small
5 break, you have to explain a little bit about two kinds of
6 accidents, one of which involves a sudden large loss of so
7 much coolant that everything kind of has to proceed automatical-
8 ly because there isn't time to think --

9 COMMISSIONER HAGGERTY: And you can't use the sig-
10 nals --

11 COMMISSIONER PIGFORD: And the other kind, relatively
12 slowly occurring --

13 COMMISSIONER TAYLOR: I think that is the key point.

14 COMMISSIONER HAGGERTY: Such rapid changes in pres-
15 sure for example, that you can't miss them --

16 CHAIRMAN KEMENY: You know, we could work that ex-
17 planation into the previous section.

18 COMMISSIONER HAGGERTY: I think that is the better
19 place --

20 CHAIRMAN KEMENY: In the reference, in the reference
21 here it would make sense.

22 COMMISSIONER HAGGERTY: That is good.

23 COMMISSIONER MCPHERSON: John, is it accurate to say
24 that there is almost no evidence of the impact of modern infor-
25 mation technology --?

7
1 COMMISSIONER HAGGERTY: There is certainly damn lit-
2 tle.

3 CHAIRMAN KEMENY: If you prefer damn little --

4 COMMISSIONER HAGGERTY: It is certainly very limited
5 anyway. Actually damn little.

6 COMMISSIONER TAYLOR: I see that in two parts. If
7 there is a need for something that requires technology that is
8 new in the sense that it is less than 20 years old, fine, it
9 should be there. But the implication is that it is safer if
10 it is new -- I don't go along with that --

11 COMMISSIONER HAGGERTY: The sense in which I was
12 thinking of it fits in with what you are saying, really con-
13 temporary technology does call for thinking about the people
14 and their relation to the tools. That is number one. Number
15 two, it calls for using automatic reactions that simplify the
16 information as it comes to the people. Three, it calls for
17 getting the important things segregated from the unimportant.
18 I would say that in this sense this control room doesn't meet
19 any of those. But I think in the sense that you are talking
20 about there is a danger in what we are saying that it will be
21 interpreted that we are just saying that it should be full of
22 computers, and so forth. You could be just as bad if you did
23 all of that and didn't do the three things we were talking
24 about.

25 COMMISSIONER TAYLOR: I would rather see a really

1 thoroughly knowledgeable engineer in there with an abacus --

2 (Laughter.)

3 COMMISSIONER HAGGERTY: May I suggest that you may
4 have a point. Instead of hammering on the modern and not mod-
5 ern, that we say it shows little evidence of the emphasis on
6 man-machinery interface, there is little or no segregation of
7 the important signals, there is no attempt to relate saturation
8 which is clearly one of the important factors -- I mean, I
9 think you can illustrate the stuff that is missing, all of
10 which contemporary technology would make easy to do and then
11 you don't have to use this pejorative kind of comparison.

12 COMMISSIONER MCPHERSON: Have you ever seen the con-
13 trol room in the Panama Canal? Ancient stuff, beautifully
14 made. It goes back to 1950 and it has been working perfectly
15 since then, the gates, and all that.

16 CHAIRMAN KEMENY: It is precisely the point that Pat
17 is saying here and that is really why my last sentence is
18 really watered down in this paragraph and now it can be changed
19 as a result of this because I think your bright engineer with
20 an abacus would not necessarily have been good enough here
21 unless the information was presented to him in a timely fashion.
22 I mean I am not talking here about lots of computers but --

23 COMMISSIONER TAYLOR: All I am saying is I don't care
24 what type of modern technology you have, if you have people
25 who don't know what is going on it is to no avail. That is

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1 the only point.

2 CHAIRMAN KEMENY: Yes. But this is under a heading
3 basically of man-machine interface of ignoring the human element.
4 This point is supposed to show that they haven't paid enough
5 attention, at least on their accident circumstances for making
6 information available in a clear and non confusing way.

7 COMMISSIONER TAYLOR: Is this leading the point to say
8 what you just said, deficiencies which could have been corrected
9 by use of modern information control technology and was not
10 being made use of. To me that is a little different than just
11 saying everything they had there was old fashioned.

12 CHAIRMAN KEMENY: To say the positive things.

13 COMMISSIONER TAYLOR: Well, this was in deference to
14 the Chairman's expressed view that the control room is ancient.
15 I agree with that but I don't think it is quite enough to say.
16 There are some things that they could do now that they couldn't
17 have done 20 years ago.

18 CHAIRMAN KEMENY: You do know that my statement that
19 the technology is 20 years old turned out to be false because
20 we have a quote from NRC, a high official at NRC, ten years
21 ago and he said then it is 20 years old. So my statement is
22 off.

23 COMMISSIONER PIGFORD: On the last sentence on eleven
24 and the continuation on twelve, I think it is interesting but
25 I just wonder that the detail on that really belongs here?

sc 10
1 CHAIRMAN KEMENY: I figured you would probably want
2 to knock it out but I couldn't resist putting it in there. May-
3 be we could put that in as an anecdote into one of the chapters?
4 To me it is an anecdote. It is a delightful thing, it is an
5 interesting thing.

6 COMMISSIONER PIGFORD: ON the next paragraph and on
7 page twelve --

8 CHAIRMAN KEMENY: Pat, before we go past that, here
9 is the second half at least of the last sentence --

10 COMMISSIONER HAGGERTY: We are in agreement on that.

11 CHAIRMAN KEMENY: Yes. We agreed on the fact that
12 there are relatively few not very expensive improvements in
13 control rooms that have significantly --

14 COMMISSIONER HAGGERTY: It is certainly true of TMI
15 because they had the transducers in the reactor. I gather that
16 all of them don't have them. All they really needed was an
17 ability to read the temperatures to their actual levels. If
18 that stuff could have been brought in, they had enough pressure
19 points, they could have got saturation -- and that would be so
20 easy to do --

21 CHAIRMAN KEMENY: And even some prioritizing of al-
22 lowances would not be an extensive kind of thing to do.

23 COMMISSIONER HAGGERTY: I understand some of them
24 don't have those temperature measuring modes within the reactor.

25 COMMISSIONER TAYLOR: I have heard it said that it

11 1 was the most heavily instrumented core in the United States.

2 CHAIRMAN KEMENY: Are you ready for page 12?

3 COMMISSIONER PIGFORD: On the point talking about
4 deficiencies in operator training, and so forth, it says, there-
5 fore, given all of the deficiencies we are convinced that an
6 accident of the seriousness of Three Mile Island was eventually
7 inevitable -- I think it would be correct to say we are con-
8 vinced that the Three Mile Island accident was eventually in-
9 evitable. But the seriousness -- I raise this question because
10 we are going to confront it now on the next page where it says
11 what was serious about Three Mile Island. The only thing that
12 is said that is serious is the psychological stress --

13 CHAIRMAN KEMENY: Okay, how about saying, would you
14 be happier if we said, an accident like Three Mile Island --

15 COMMISSIONER PIGFORD: I am completely in agreement.

16 COMMISSIONER HAGGERTY: Maybe I just missed it, the
17 personal incident in visiting the control room, I don't really
18 think that that adds anything.

19 CHAIRMAN KEMENY: No, no, no. I knew you were going
20 to take that out.

21 COMMISSIONER HAGGERTY: Okay.

22 CHAIRMAN KEMENY: Maybe we can sneak it into one of
23 the chapters as an anecdote.

24 COMMISSIONER MARRETT: We will take it out of there
25 too.

1 COMMISSIONER MARKS: You should have taken a vote,
2 John, as to how many want it retained.

3 (Laughter.)

4 CHAIRMAN KEMENY: I am willing to put it to a vote.

5 COMMISSIONER PIGFORD: On this same sentence that we
6 just struck seriousness, and said that an accident like Three
7 Mile Island was eventually inevitable, I want to suggest
8 considering adding something like indeed such an accident was
9 essentially predicted by the Rasmussen Study.

10 COMMISSIONER MC PHERSON: Instead of inevitable, to
11 use predictable.

12 COMMISSIONER PIGFORD: Well, I think inevitable is
13 the right word for this. This means it was about to occur, was
14 going to occur some time.

15 CHAIRMAN KEMENY: Tom, I worry about bringing the
16 Rasmussen Report without going into great detail. You know the
17 controversies over it.

18 COMMISSIONER PIGFORD: Okay, I understand. I think,
19 then, your statement here is all right.

20 COMMISSIONER MC PHERSON: I would suggest a sentence
21 before that therefore sentence. We have -- because it is an
22 important paragraph, John, in conclusion, and I think your
23 statements are right in the first sentence, and I would
24 suggest these deficiencies are attributable to the utility, to
25 the suppliers of equipment, however that phrase ought to be,

1 and to the federal commission that regulates nuclear power.

2 COMMISSIONER HAGGERTY: Yes, I mean that it happened
3 in all three places --

4 COMMISSIONER TAYLOR: It is a good way to end that
5 section.

6 COMMISSIONER HAGGERTY: He is suggesting it as leading
7 in to the last sentence, and that is probably still better,
8 because that, since it occurred in all three places, it certainly
9 gives strength to the inevitability.

10 COMMISSIONER PIGFORD: Now, on the previous sentence,
11 which is the first sentence of the paragraph, it goes on to
12 say practice contributed to the action of the operators, such
13 as deficiencies in their training, lack of clarity in operating
14 procedures. Has this been developed before in this text, the
15 lack of clarity of operating procedures?

16 CHAIRMAN KEMENY: Yes, this is supposed to be a
17 summary of what is in this section.

18 COMMISSIONER PIGFORD: It is? Okay.

19 COMMISSIONER MC PHERSON: Where is it stated? Because
20 I think it is such an important --

21 CHAIRMAN KEMENY: These repeat the same four points
22 that we have here. I just thought the second was long enough
23 that putting the four points together would give it more punch.
24 But it does require, I absolutely agree --

25 COMMISSIONER HAGGERTY: And when you do it --

1 something that says that in a little different sequence might
2 tell it still better, because the reaction I had, it sounds a
3 little bit like this is all operator, that is, it is because
4 they did not learn from previous actions. So, you might want
5 to get the sense of the two sentences, you might be able to say
6 it better than the way it is said here.

7 COMMISSIONER MARRETT: Yes, you are right, because
8 it reads as if the operator --

9 COMMISSIONER HAGGERTY: Yes, that is what I was going
10 to comment on, then I realized -- and then Harry said what he
11 said and that is, indeed, what was wrong, but it could be that
12 if the two sentences could be put together in a different way,
13 then it says it.

14 CHAIRMAN KEMENY: Okay, severity of the accident --
15 let me just put out front on page 14, the first full paragraph
16 will have to be rewritten after we have the what if scenario
17 there. I just stuck something in for the time being.

18 COMMISSIONER MARRETT: Well, Tom was making the point
19 earlier about this question of seriousness, since we are using
20 it in several different respects, and is it here to ask just
21 how serious was the accident in terms of release to the public?
22 Since much of this is on health effects at the beginning, to
23 begin it or to introduce the section, how serious was it in
24 terms of consequences for public health.

25 CHAIRMAN KEMENY: Excuse me, that is what I am doing,

4
1 I thought. Maybe I am misunderstanding you.

2 COMMISSIONER MARRETT: Beginning on page 13?

3 CHAIRMAN KEMENY: Yes.

4 COMMISSIONER MARRETT: Yes, just how serious was the
5 accident?

6 CHAIRMAN KEMENY: In our chapter on the health
7 effects of the accident, we conclude that in spite of serious
8 damage to the plant, most of the radiation was contained.
9 Actual release will have a negligible effect on the health of
10 individuals. The most serious health effect of the accident
11 was psychological stress, which was quite severe during the
12 accident --

13 COMMISSIONER PIGFORD: The first place on this page
14 I raise a question is the third line from the bottom. It says
15 since the accident became serious due to a complex combination
16 of minor equipment failures and major inappropriate human
17 actions -- now, in the first paragraph we said the only serious
18 thing about it, paraphrasing, is the psychological stress.

19 It is not right that the psychological stress occurred
20 to the combination of -- complex combination of minor equipment
21 failures. In fact, I think it was due to two mistakes on the
22 part of NRC that led to escalation of --

23 COMMISSIONER HAGGERTY: You do not really have to say
24 -- since the accident occurred because of the complex combi-
25 nation.

1 COMMISSIONER TAYLOR: I think it is something more
 2 fundamental than that, and that is that I think we have agreed
 3 that we can use the word "serious" if we are referring to damage
 4 to the reactor. Now, we may be able to refer to some other
 5 things as a basis for using serious, but at least that. I
 6 would argue that we should say something before talking about
 7 direct financial cost that says what happened to the power
 8 plant.

9 Because that was the serious thing that happened.

10 COMMISSIONER MC PHERSON: He has in spite of serious
 11 damage to the plant, third line. Then he said the serious
 12 health effect was psychological. He uses serious again --

13 COMMISSIONER HAGGERTY: I do not think it is
 14 sufficient to say serious damage to the plant. I think the
 15 question is, what does that mean.

16 COMMISSIONER TAYLOR: You want to describe it more.

17 COMMISSIONER HAGGERTY: You want to describe it
 18 somewhere, and maybe we will have described it in that first
 19 page of the whole report, in the first four pages, I do not
 20 know, but I think something which highlights the internal
 21 damage is important, because that, first of all, leads to the
 22 statement of the financial cost, at least to some extent.

23 COMMISSIONER LEWIS: The fact that it is still, in a
 24 sense, going on --

25 COMMISSIONER TAYLOR: Well, it may be that, too.

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1 COMMISSIONER HAGGERTY: I think we could make a good
2 case for elaborating that middle paragraph a little bit.

3 I think leaving that first line alone, the serious damage to
4 the plant up in the third line, but the middle paragraph --

5 CHAIRMAN KEMENY: Should lead off --

6 COMMISSIONER HAGGERTY: Lead off with what serious is.
7 Describe it a bit. I think it would make it better.

8 COMMISSIONER MARKS: For the record, by the way, I
9 do not think the Commissioners have this yet, but the staff
10 report dealing with the behavioral effects, they have now been
11 able to more completely analyze the data, and the impression
12 with which we were left in terms of the finding last time is not
13 quite accurate, namely, you remember we discussed the level of
14 distrust having come down to be equal to the control group and
15 then more -- Cora suggested that they look at this against the
16 national average.

17 Just for the record, I want to tell you that it turns
18 out that, as the report now indicates explicitly, the level of
19 distrust was higher among mothers in the TMI area than in
20 mothers in Wilkes Barre, and comparison of the results of the
21 TMI study with the national poll results, as well as the
22 Wilkes Barre results, suggest that the level of distrust in the
23 TMI area continues to be higher than the national average.

24 COMMISSIONER HAGGERTY: Presumably somewhere they got
25 some data that backs that up.

1 COMMISSIONER MARKS: Yes, the data are in there. We
2 are going to get the new data and so on, I guess, in the next
3 -- I just, you know --

4 COMMISSIONER TAYLOR: There is another measure of
5 seriousness, and I do not know whether we want to get into this
6 here in terms of severity of the accident, and that is what, at
7 least in the view of, the published view of many people in the
8 industry, one serious, severe effect of this has been to lower
9 public confidence in them.

10 Now, I think that appropriately is a measure of
11 severity. It is a consequence.

12 COMMISSIONER HAGGERTY: I really think you are quite
13 right. How to say that --

14 CHAIRMAN KEMENY: Low public confidence in what?

15 COMMISSIONER HAGGERTY: In the nuclear industry and
16 the Nuclear Regulatory Commission.

17 COMMISSIONER TAYLOR: We have testimony to that,
18 hundreds of pages.

19 COMMISSIONER MARRETT: It is in there. What it will
20 show, however, is that in a sense, at least from the national
21 polls, there was a declining support for nuclear energy before
22 TMI, so that some were saying it was already on the downward
23 trend, and it simply accelerated for certain parts of the
24 population.

25 COMMISSIONER TAYLOR: Now, one step further

1 in that, and this is responsive to something that Anne has
2 said, and that is, in this overview there is really nothing
3 directed directly to the people at Middletown and the other
4 communities, and I think if we are going to talk about public
5 confidence having been gone down -- I was going to say
6 shattered, at least destroyed -- I think that is an appropriate
7 place to be responsive to what Anne has said.

8 Some important readers of this are people who were
9 in the direct vicinity of the accident, and I think it is
10 appropriate to have something to say to them about the Commission
11 recognizing the severity of the accident to them.

12 COMMISSIONER LEWIS: Well, this is kind of what I was
13 talking about, the historical and social -- just to sort of get
14 the sense of what happened, you know -- I felt, really, to just
15 say there was an accident on March 28, that maybe that is the
16 time, in those few opening lines, to sort of at least recognize
17 that there were people who lived a rather terrible time.

18 I think that sets it in historical and social context.
19 I agree with you, I think to just go into this thing as though
20 it is sort of an abstraction is really -- would be very
21 unfortunate for us, and that is all. I did not mean for us to
22 do a great takeout in terms of sociology at the beginning, but
23 to let us have the sense of what happened there and how people
24 were affected.

25 Then this is what we found. I agree with you, Ted, I

1 think to just ignore the people --

2 COMMISSIONER HAGGERTY: I do not think we are in any
3 danger of changing people's perceptions, Carolyn. I think
4 everybody pretty well accepts this as --

5 COMMISSIONER LEWIS: No, Pat, what I am saying is,
6 remember that this document is going to be read long after the
7 events that happened. I mean we are really creating, in a
8 sense, an historical document, and I think that we should
9 really lay out, to some extent, why are we bothering with this
10 thing.

11 I do not mean to go on for ad infinitum, but it did
12 create fears among people and I think we should mention that
13 somewhere in the -- would that cover the questions you were
14 raising, Ted? I feel that very strongly, that it is important
15 to say that.

16 COMMISSIONER TAYLOR: Yes.

17 COMMISSIONER PETERSON: One obvious thing, but I
18 think might be worth saying, I think it is important to say,
19 we have been caught up in the aftermath of this and may forget
20 about the big impact, but something like this. One of the most
21 important effects of the accident was its impact on millions
22 of people, on the whole nuclear industry, and governments all
23 over the world in raising their concern about the safety of
24 nuclear plants.

25 An event occurred and, boy, we had this tremendous --

1 COMMISSIONER TAYLOR: Whether or not the perceptions
2 of the danger were the same, it certainly did that. There are
3 reams of documentation.

4 COMMISSIONER LEWIS: Which then, of course, leads us
5 into why it was necessary, why the President felt he had to
6 form a Commission. Then it all has a background.

7 COMMISSIONER MARRETT: Well, I think we can easily
8 document some of the changes with reference to public opinion
9 in general, and some of the changes in the TMI area as a result
10 -- go back over some of the documents we have on that. There is
11 one other that is sort of interesting and that is a report I
12 got the other day on public opinion response to TMI in Canada.
13 Ontario Hydro has just completed a big survey to see how did
14 people regard TMI in that particular setting.

15 I will send it around, but I think it goes beyond
16 somewhat, since we will not have had time to sit down and talk
17 about the document, but we did ask if there was any way we
18 should take account of anything that bore on TMI in another
19 setting.

20 COMMISSIONER PETERSON: I have forgotten how you said
21 later here, John, about the discussion of evacuation.

22 CHAIRMAN KEMENY: There will be a whole section on
23 emergency preparations.

24 COMMISSIONER PETERSON: Then in connection with the
25 severity of the accident, the speculative severity caused a lot

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1 of problems, didn't it. I mean the intensity of concern, as we
2 all know now, was so markedly heightened because of the
3 speculation on the part of the experts of what might happen.

4 COMMISSIONER PIGFORD: On the part of NRC.

5 COMMISSIONER PETERSON: And then the same people say,
6 well, if they got the same data tomorrow from another plant,
7 they recommend evacuation again. I mean that is a factor which
8 we need to wrestle with some place.

9 COMMISSIONER MARRETT: How do we capture it in
10 discussion of the severity of the accident?

11 COMMISSIONER TAYLOR: Well, it was severe enough to
12 cause some temporary official advisories for an evacuation to
13 come out. That is another measure of severity. Now, we want
14 to make sure that we do not say that those recommendations
15 were based on correct information necessarily, and so on, but
16 there were recommendations to evacuate and it had something to
17 do with the severity of the accident.

18 COMMISSIONER PETERSON: It bothers me that these
19 supposed experts with a lot of training and responsibility were
20 sufficiently concerned in this period to take that half-ass
21 information and use it as a basis for recommending serious
22 action.

23 COMMISSIONER TAYLOR: Let me interject something. I
24 had a long conversation about the hydrogen bubble calculations
25 with someone who was directly involved in it and has been

1 deposed on this, and that is Bob Budnitz(?) -- this is just a
2 few days ago. He said that it was not until late Sunday
3 afternoon, as a result of some very sophisticated work by
4 people looking at the effects of impurities on all of the
5 things going on inside the bubble, that they came to a
6 conviction that the rate of formation of oxygen that would mix
7 with the hydrogen was very small, that it was not an offhand
8 thing that everybody who knows about reactors should know.

9 That is Bob Budnitz talking.

10 COMMISSIONER PIGFORD: It conflicts with Mattson's
11 testimony.

12 COMMISSIONER TAYLOR: I think that Budnitz would say
13 Mattson was wrong. He did not realize the extent to which
14 things, in addition to what he did, needed to be taken into
15 account, that it was not a sort of conventional wisdom among
16 people that really knew. Some new work had to be done in order
17 to come to this conclusion, and I feel very strongly about
18 this, that we be very careful about saying Mattson and company
19 were stupid -- if they had known what everybody else knew all
20 along, they would not have made that mistake.

21 Because I have it now from two people, one directly
22 involved at NRC and another one directly involved with it on
23 the telephone, that is, Dick Garland, that things were very
24 complicated. They have no basis now for saying that there was
25 a danger of an explosion -- I do not want to get misunderstood.

1 But the clarity with which they developed that
2 conviction did not appear until after some new work that, as far
3 as they knew, had never been done before.

4 CHAIRMAN KEMENY: Ted, could I tell you what shocks
5 me on that? I accept everything you say; what shocks me on
6 that, that calculation had not been done 10 years earlier.

7 COMMISSIONER TAYLOR: The reason is that no one had
8 faced a situation with that much hydrogen in contact with
9 water under those conditions, with severe boiling going on
10 inside, and with impurities consisting of the fission products
11 mixed with the water. That had never been faced before.

12 Those had to be taken into account, according to
13 both these people, to arrive at a firm conviction that no
14 explosion was likely.

15 CHAIRMAN KEMENY: But what troubles me on that is a
16 kind of mindset, if I may coin a word --

17 (Laughter.)

18 -- that nobody had to calculate in advance
19 what would happen if the core got severely uncovered and you
20 got serious boiling and what would result as a result of that.
21 That is what troubles me about the business.

22 COMMISSIONER TAYLOR: Well, under those conditions.

23 COMMISSIONER PIGFORD: Well, look, since, I guess,
24 we are on the record, I am not going to tell all I think on
25 this, but I believe the facts are -- they are in the whole

1 record of our hearing and not exactly the same as have been
2 related by these two people. I do not think it is important
3 right now or necessary to clear that up. What I would suggest
4 is that at the end of the first paragraph, where we say the
5 most serious health effect was psychological stress and so
6 forth, that we add something saying why and how this resulted.

7 I think, I believe, our investigation shows that it
8 resulted from an evacuation order on Friday, which occurred
9 from a mistake by NRC, and also resulted from the incorrect
10 belief on Saturday by NRC about the hydrogen explosion potential.

11 I think those are two such important facts, that they
12 should be set out here.

13 CHAIRMAN KEMENY: I actually made notes to put that
14 in after what Russ said earlier. We have to be a little
15 careful. There was speculation on the need for evacuation and
16 there were evacuation advisories actually issued.

17 COMMISSIONER LEWIS: And some reports that meltdown
18 was possible.

19 COMMISSIONER MARKS: Why not save that -- pardon me
20 -- for the emergency preparations. But somewhere in here I
21 think we have to say something about the fact that there were
22 these advisories and people left, and this was a severe effect
23 of the accident.

24 COMMISSIONER PIGFORD: Yes, I think that is right.
25 We are talking about a very important part. What was the

1 serious effect of the actual accident? It is here and why did
2 it occur?

3 COMMISSIONER MARKS: In fact, even in the summary of
4 findings of the emergency preparedness report there is no
5 mention of the advisory and the fact that people left -- not
6 evacuated, but left -- the area. I mean that certainly is a
7 major finding, and the number of people that left is a major
8 finding.

9 CHAIRMAN KEMENY: I have already been visualizing
10 breaking the first paragraph into two, where the second one has
11 all the factors that lead up --

12 COMMISSIONER MARKS: Where are you now, John?

13 CHAIRMAN KEMENY: Just back at the top of page 13.
14 That has to be broken up into two paragraphs, but the second
15 paragraph ends with the most serious health effect was
16 psychological stress, but before it to state all the things
17 that led up to that stress.

18 COMMISSIONER MARKS: Are you up to 14, yet?

19 CHAIRMAN KEMENY: Yes, I hope so.

20 COMMISSIONER MARRETT: Excuse me, before that, am I
21 to understand that you will talk about the most serious health
22 effect being psychological stress, but then there are some
23 indications that there were other dislocations, social and
24 economic dislocations, that occurred, and these have to do
25 with those produced by people voluntarily leaving, by the

1 COMMISSIONER MARKS: On 14, the second paragraph,
2 I recognize that --

3 CHAIRMAN KEMENY: While you were out, I said, "That
4 has to be rewritten after we get the rough draft." So,
5 I suggest we just wait with that. I just stuck something
6 in here, but I really am trying -- what I am told is that
7 if it is all right with you, Bill Stratton if you are willing
8 to wait until tomorrow morning for him to give his report.
9 Is that right, Vince?

10 MR. JOHNSON: That is right. At least when I
11 checked before he --

12 CHAIRMAN KEMENY: He could have but would feel
13 more comfortable doing it tomorrow morning. I think we have
14 enough to work on here today.

15 So, let us just assume that that paragraph will be
16 rewritten. I stuck some anything in here. What I really
17 am trying to test is the rest of this.

18 COMMISSIONER MARKS: Can I go on with 14?

19 CHAIRMAN KEMENY: Yes.

20 COMMISSIONER MARKS: I think there is an area of
21 our findings which are not covered and I have been sort of
22 trying to deal with where they could best be put, and it is
23 something like this. First of all, there is the area that
24 deals with the deficiencies we found in terms of ongoing
25 operations of the plant, and this relates to, and in many

1 ways this relates very heavily to the need for further research,
2 for education and so on. For example, the whole design of the
3 control panel, that is in here I feel, but the findings
4 that there is no complete medical record on workers with
5 regard to x-ray exposure, the findings that we don't have
6 standard operating procedures with regard to the use of any
7 of the available, which are very limited, mitigating agents,
8 to minimize the effects of exposure to radioactivity, the --

9 COMMISSIONER HAGGERTY: That is in here. Well, it is
10 in under potassium ion.

11 COMMISSIONER MARKS: It is in the potassium ion
12 but --

13 COMMISSIONER HAGGERTY: It is not said as clearly
14 as you are saying it.

15 COMMISSIONER MARKS: And, also, the fact that
16 while educational materials have been developed they were not
17 used or distributed in any effective way prior to the
18 accident. In other words, what I am trying to drive at here
19 is, again, we are -- I don't want us to fall into the trap,
20 if you will, of thinking in terms of containment of the
21 effects of the accident. I really would like to see us make
22 a statement in terms of the need to approach the problem in
23 terms of prevention, and there are a number of issues that
24 we have found which relate to prevention which were deficient.

25 Now, that does not neatly fit into the severity of

1 the accident, and it certainly does not fit into the handling
2 of the emergency. I wonder if this does not deserve another
3 page.

4 CHAIRMAN KEMENY: It may require a separate section.
5 I notice what I have I was talking to the handling of the
6 emergency.

7 COMMISSIONER MARKS: And there we have the mind set
8 problem. I mean this is not part of the handling of
9 emergency. This is really --

10 CHAIRMAN KEMENY: Paul, could we hold it until we
11 get to that part, the handling of the emergency, and I agree
12 with you, it should be pulled out of there, and I once more
13 reread this, and I, also, found it was not a logical place
14 to stick it.

15 COMMISSIONER MARKS: Okay.

16 CHAIRMAN KEMENY: Could I test on you whether the
17 stuff that follows after the made up paragraph under what if,
18 whether the handling, no matter what we come up with on what
19 if, if the second full paragraph and the paragraph that is on
20 the bottom and continues on the next page from there to the
21 end of the section is a reasonable way of treating the what if?

22 COMMISSIONER HAGGERTY: May I suggest you eliminate
23 the "which we have overlooked" because we make no claim to
24 have looked at very many?

25 COMMISSIONER PETERSON: In fact, we did a minuscule

1 job in this whole area.

2 COMMISSIONER PIGFORD: May you mean which we may
3 have overlooked.

4 COMMISSIONER HAGGERTY: That, at least, has an
5 implication we tried to look at all possible ones, and we
6 sure never did.

7 COMMISSIONER PETERSON: Mr. Chairman, may I just
8 comment on this, please?

9 This page has me most disturbed of anything in it
10 because I think it lends our support to the, if I may use
11 your word, it was not in my vocabulary until I got in this
12 group, to the mind set that nuclear can be made safe. We
13 talk about it is reassuring that there was no biological
14 damage because as a result of the radiation release that is
15 right, but it sort of implies that there really is no major
16 threat to biological damage, and the whole question about the
17 what if scenario, we did really a minuscule job in the whole
18 area.

19 We started out very late in the game, did not
20 even involve any of the nuclear experts who are convinced that
21 nuclear power plants are inherently unsafe, and we are going
22 to be really clobbered because we have not done that, and
23 so the end of that second paragraph, "Such knowledge is
24 essential for the prevention of future serious accidents,"
25 and I don't buy that at all. It is essential for coping with

1 the consequences of future serious accidents, but to me this
2 is the thing that really has caused all the concern. I would
3 like to see you put in here in some appropriate spot the
4 paragraph I read this morning which is like this. We are
5 convinced that the major public concern about the TMI accident
6 was not about the small release of radiation in the neighborhood
7 of the plant or the \$1.5 billion cost to the community. It
8 was about the threat to health and life from the potential
9 release of a major amount of radioactive material, and that
10 is why the whole world is upset.

11 COMMISSIONER HAGGERTY: Actually he is right. If
12 that were inserted where you note is, because that is
13 preliminary, and then I would like to say that in the middle
14 paragraph, John, the tone, however, we recognize that we
15 could not possibly have explored every conceivable question.
16 I think you can say, "However, we recognize we explored only
17 a limited number of these questions in the form of what if,"
18 and I don't think we should say, "Therefore others may come
19 up with a plausible scenario which we have overlooked."
20 There are all kinds of them, and it is not a question of --
21 overlooking implies it is something you did not intend to
22 happen but happened anyway.

23 The truth is we know there are all kinds of
24 scenarios that were not looked at. So, I would just get that
25 tone out of there.

1 COMMISSIONER MC PHERSON: Which we have not
2 addressed in this --

3 COMMISSIONER HAGGERTY: Which we have not addressed.
4 I mean, I think that I do not object without trying to
5 approve every word in terms of what you said, Russ, but
6 something stating that that is indeed what causes all the
7 excitement can quite properly belong right in approximately
8 where that note remark is and then that leads in to the
9 scenarios we did pursue and it makes sense out of the words,
10 it is reassuring that the ones we looked at are all right,
11 but it leaves the tone.

12 COMMISSIONER TAYLOR: I think I am going to suggest
13 that we postpone much more discussion until tomorrow, the
14 reason being that it is not a sort of yes or no question.
15 At least that is the way I see it, so far as anything that
16 would cause somebody to be more concerned about some things
17 that might have happened than what actually happened because
18 let me just say simply that there are two subjects associated
19 with what would have happened if. One is what might have
20 happened to the internals of the system out to containment.
21 There is another set of questions about how that might have
22 propagated out, and I think that there are some substantial
23 differences in the outcome, depending on some slight changes
24 in what actually happened out to containment, and then there
25 has been an effort to try to understand what would have

1 happened after that that might lead to going through
2 containment, and if we look at those separately, and I think
3 they both have to be summarized here because they leave one
4 with a different picture from just saying, "We have looked
5 at a bunch of scenarios, and we found none in which there was
6 any release." We found a lot more than that, even though
7 that statement may still be true.

8 CHAIRMAN KEMENY: That is why I asked you just to
9 try for the moment to ignore that paragraph. I just stuck
10 something in there.

11 COMMISSIONER TAYLOR: I think some things
12 following that paragraph are going to look different after
13 we have heard from Bill, is my guess, that is all.

14 COMMISSIONER PETERSON: For your consideration and
15 not trying to sell the actual words here, but I expressed
16 in this letter I sent to you, 'Item 4 on Page 2 my way of
17 tying in the nuclear experts and NRC in the recommendation
18 to evacuate to this question of what if, and as it says here,
19 the great concern, the accident cost stemmed from the threat
20 of what might have happened.

21 Respected nuclear experts and NRC with special
22 knowledge of the TMI plant envisioned such a serious threat
23 to the area that they recommended evacuation of the area.

24 Today they say on the basis of the data available
25 to them at the time that they were right in their recommendation,

1 and if they were presented with a similar event in the future,
2 they would again recommend evacuation.

3 CHAIRMAN KEMENY: Are you sure they are saying that
4 because some of our testimony does not say that?

5 COMMISSIONER PETERSON: I asked that at least three
6 times of three different individuals.

7 MR. KANE: Roger Mattson.

8 COMMISSIONER PETERSON: And Harold Denton said that.

9 MR. KANE: If he had to do it again, he would do it.

10 CHAIRMAN KEMENY: Oh, Roger Mattson did say that,
11 I see.

12 COMMISSIONER PETERSON: So did Harold Denton. So
13 did --

14 COMMISSIONER PIGFORD: Let me comment. It is a
15 trap we are in. Let us take the Friday release. Now Harold
16 Denton can say this on the basis of the information given to
17 him from Barrett, from the other guy. However, we know very
18 well that Barrett and the other guy had the wrong information,
19 assumed the wrong information in the first place. They thought
20 some relief valves were open. They calculated a larger
21 release, and nothing of that sort had happened. I think
22 Denton is saying if he got that same information from Barrett
23 he would do the same thing, but we know he got the wrong
24 information from Barrett. So, I don't think you can
25 prove something just from Denton's statement, unless one

1 goes further.

2 COMMISSIONER PETERSON: Read my next paragraph.

3 The concern of the NRC principals that led them to recommend
4 evacuation resulted from a calculation based on an erroneous
5 assumption in one case, a misinterpretation of the magnitude
6 of the radioactive release reported from TMI in the second
7 case and the assumption of a reaction now considered
8 technically impossible occurring in the reactor in the third
9 case.

10 The point I want to make here is that here are
11 these people with this substantial training experience and
12 responsibility and in the hectic period here of that accident
13 they are so concerned about what might happen that they run
14 with these rumors and false information and recommend
15 something as serious as evacuation, and they say similar
16 data coming to them in the future, they would do the same
17 thing.

18 I believe that it is likely that similar mistaken
19 information would also, arise in another emotional situation
20 like this.

21 COMMISSIONER HAGGERTY: What is the point, Russ?
22 I am missing the point.

23 COMMISSIONER PETERSON: The point is that the great
24 concern about what might have happened is the thing which
25 triggers off. the worry of the whole world about this, the

1 reason why we are here, and it shows even those people who
2 have been most deeply involved in it, they became particularly
3 concerned about what might have happened, and therefore we
4 ought to be really digging deeply into what might happen.
5 I have said this so many times now, I should have a little
6 record to play on it, but to me that is the key part of our
7 investigation, is the what might have happened part.

8 COMMISSIONER PIGFORD: I agree with you. We should
9 dig in. You are saying that the people most deeply involved.
10 Mattson was not deeply involved in this business of oxygen
11 generation. In fact, even by the time of the second time
12 he came before us he admitted he did not know that BWR
13 reactors were not pressurized on this same point.

14 COMMISSIONER PETERSON: I mean he had a key
15 assignment.

16 COMMISSIONER PIGFORD: You cannot say that that
17 man was an expert in this area. He did not claim to be one.
18 So --

19 COMMISSIONER PETERSON: Expert in Nuclear Regulatory
20 Commission area. He is in the world of the nuclear energy
21 business.

22 COMMISSIONER PIGFORD: But he was not expert on the
23 subject. They made a mistake. I don't know that your
24 proposition that they will necessarily make that kind of
25 mistake again, but it is reasonable. Then one should say

1 as a logical consequence NRC should do something about it
2 so that the expertise which does exist, and there is no
3 doubt it does exist; once they got to that expertise they
4 got the right answer; so with the expertise that does exist
5 that is available. That is the mistake, that experts made
6 the mistake. That is wrong.

7 COMMISSIONER PETERSON: I am trying to illustrate
8 how damn dangerous this whole business is. Those guys realize
9 how dangerous it is, and when they get in that spot they
10 cry out, "Boy, this is so dangerous, evacuate." And they are
11 so frightened about it they go off half cocked and call,
12 "Fire."

13 COMMISSIONER PIGFORD: I view it like the problem
14 of operator training. Something has to be done. It is a
15 people problem. If you are implying the expertise is not
16 available, that is not correct.

17 COMMISSIONER PETERSON: I am implying it is a people
18 problem that is going to persist, is what I am saying, and
19 we had better not slip it under the rug.

20 CHAIRMAN KEMENY: Perhaps we could come back to the
21 main body of the question after we hear Bill Stratton tomorrow,
22 and I would love to pick up with it, because I suspect that
23 we would have trouble agreeing on the what if, and this is
24 why I tried putting in language -- could we turn to the
25 paragraph that starts at the bottom of Page 14 and go from

1 there to the end of the section? I don't know if this is
2 the right way to handle it, but I am trying to make a case
3 that without necessarily agreeing on how close we came to
4 something we have a basis for recommendations.

5 COMMISSIONER TAYLOR: Just one thing about the first
6 sentence. To say, "Why we may differ," suggests differing
7 among ourselves. Maybe we will and maybe we won't. Wouldn't
8 it be better to say, "Why we may be unsure about" or
9 something to that effect, rather than to suggest it in
10 terms of disagreement?

11 CHAIRMAN KEMENY: That would be all right with me.

12 COMMISSIONER PIGFORD: You are prejudging our
13 disagreement, Ted.

14 COMMISSIONER TAYLOR: I don't want to prejudge that
15 we are going to differ. Let us just set it aside.

16 COMMISSIONER LEWIS: We do differ.

17 COMMISSIONER PIGFORD: Let us agree to differ.

18 On the last line of that sentence which is the top
19 of Page 15, I think, you say, "Accidents of this kind must
20 not" -- "should not" is the right word, isn't it?

21 CHAIRMAN KEMENY: Yes, should not.

22 COMMISSIONER TAYLOR: Is it kind or severity because
23 this kind --

24 CHAIRMAN KEMENY: Sorry, no, I meant the severity.

25 COMMISSIONER PIGFORD: You mean the catastrophic

1 ones, John:

2 CHAIRMAN KEMENY: No, I do not mean, but you remember
3 the heading of this actually is the severity of the accident,
4 and we are just talking about what the severity was.

5 COMMISSIONER PIGFORD: I was confused. I think it
6 needs some clarification when you say, "This kind." I thought
7 you meant the catastrophic.

8 CHAIRMAN KEMENY: Oh, no. Sorry, I did mean that.
9 Thank you, Tom. I did mean that this meant -- this kind
10 referred back to catastrophic.

11 I am sorry. This accident was too serious.

12 COMMISSIONER TAYLOR: Accidents as serious as
13 Three Mile Island?

14 CHAIRMAN KEMENY: Yes, serious as Three Mile Island
15 should not be allowed to occur.

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1 COMMISSIONER TAYLOR: Instead of months.

2 COMMISSIONER PIGFORD: So it reads, accidents as
3 serious as Three Mile Island --

4 CHAIRMAN KEMENY: Yes, and here is where I am trying
5 to get the rationale for it.

6 COMMISSIONER HAGGERTY: I think you really mean in-
7 stead of saying, many times it was not clear just who was
8 managing the accident -- what do you mean?

9 CHAIRMAN KEMENY: I got into trouble in the earlier
10 draft when I spoke of those managing the accident and several
11 people pointed out to me that there were times when it wasn't
12 at all clear who was managing the accident.

13 COMMISSIONER MCPHERSON: You mean managing the res-
14 ponse to the accident?

15 CHAIRMAN KEMENY: Managing the response.

16 COMMISSIONER HAGGERTY: You know, I am not sure that
17 that is true. At what time? I got the impression that there
18 wasn't much doubt about it, someone came in and took over. I
19 never got any doubt that from that time on he was responsible.
20 That he didn't know what to do, or didn't do all the right
21 things -- but I don't have the impression --

22 CHAIRMAN KEMENY: No, it is not on Wednesday. I
23 think he is talking about Thursday when there was a large com-
24 mittee there but I am perfectly willing to leave that sentence
25 out.

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1 COMMISSIONER HAGGERTY: Well, I am not sure how much
2 evidence we have. I have asked sometimes how much attention,
3 for example, the perception of Denton taking over, et cetera,
4 and they, you know, they flatly denied it. And I don't think
5 he did. I think so far as the people who were there running it,
6 I think they paid attention when they wanted to. That doesn't
7 say that they knew what they were doing, that is a very dif-
8 ferent point. I think you have to be a little careful about
9 whether they felt in charge or not.

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CHAIRMAN KEMENY: Let us just take that sentence out.
Let me take the sentence out. I stuck it in because of the
earlier draft.

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COMMISSIONER PETERSON: John, where are we going to
cover the hydrogen explosion? Is that going to be a part of
the what happened, or is that going to be a part of the serious-
ness, the severity of the accident? In other words, just the
fact that enough hydrogen was released to cause an explosion
which led to a 28 pound per square inch pressure blip the
calculations indicated there could have been enough hydrogen
released so that it could have all got to the container before
it was ignited, it could have produced a pressure of 60 pounds
per square inch. That is about what the containment building
could stand.

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CHAIRMAN KEMENY: I guess we need "what if" answers
to that which I don't have.

3 1 COMMISSIONER PETERSON: Don't we have that information,
2 Ted?

3 COMMISSIONER TAYLOR: Yes.

4 COMMISSIONER PIGFORD: We have to consider the last
5 statement that concludes --

6 COMMISSIONER TAYLOR: Do you have the number for the
7 pressure reading?

8 CHAIRMAN KEMENY: Could I suggest on that -- let us
9 hold that until tomorrow morning. I am sure you will want to
10 have those gentlemen answer a lot of questions.

11 COMMISSIONER PETERSON: Let me ask another one then.
12 This deals with the clean up. This is certainly part of the
13 severity of the accident, this is the continuing part of the
14 accident --

15 CHAIRMAN KEMENY: If you will read this paragraph,
16 I am trying to give the argument why this accident was already,
17 in our opinion, too serious to let things like this happen and
18 like you mentioned, there is a sentence, we also recognize
19 that there still remains a very extensive and potentially
20 dangerous clean up process to remove immense amounts of radio-
21 active material trapped within the containment.

22 COMMISSIONER PETERSON: To me that is such a concise
23 statement about one of the most serious aspects of this. I
24 wish we could have a lot of background information. And we
25 talk in great detail about the amount of radioactivity released

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1 to the environment and nothing about the tremendous amount
2 within the containment building, and the primary coolant water,
3 release in the reactors, that has to be coped with. And the
4 tremendous operation up there in cleaning that up. Somehow, I
5 feel, we have to say that.

6 COMMISSIONER TAYLOR: Were you suggesting amplifying
7 on that --

8 COMMISSIONER PETERSON: Putting in here some place a
9 paragraph talking about the total amount of radioactive material
10 released within that containment building. For example, in
11 that write up of mine I said that the total release of radio-
12 activity to the environment throughout the accident period has
13 been established as 13 to 16 curies of iodine, 2.4 million to
14 13 million curies of noble gases, 400,000 times as much radio-
15 active iodine was retained in the primary loop. In addition,
16 the numbers of one of our reports -- I didn't convert them --
17 in addition, so many curies of iodine were retained in the
18 containment building, and so many in the auxilliary building.
19 In the interim since the accident most of the short-lived radio-
20 active iodine has decayed. None of the very dangerous long-
21 lived radioactive cesium and strontium escaped to the environ-
22 ment. But blank curies of these materials were retained and
23 are still present in the primary loop coolant water, so many
24 curies in the containment building, and so many more in the
25 auxilliary building tanks.

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1 COMMISSIONER MCPHERSON: Is that appropriate in an
2 overview statement? It seems to me that the point of this state-
3 ment is to summarize the various aspects which make it serious
4 and make it -- John uses the word intolerable -- I am not resis-
5 ting including what you are saying somewhere but in this early
6 overview, this is saying -- to me this paragraph says despite
7 the claims of a lot of people not if but so what -- nobody got
8 killed, business as usual. This is our statement that what
9 happened at Three Mile Island is unacceptable. Society can't
10 accept this. It seems to me --

11 COMMISSIONER HAGGERTY: In a way that dilutes the
12 punch of that statement.

13 CHAIRMAN KEMENY: May I point --

14 COMMISSIONER TAYLOR: Use immense instead of the
15 numbers.

16 CHAIRMAN KEMENY: Yes, I used immense here and let
17 me point out the reason I don't have anything on the radiation
18 releases is that once you get into that you have to be very
19 careful, very detailed, and I explained that we have a whole
20 chapter on it, which people have been working on terribly hard.
21 Every single number that will occur will be carefully ex-
22 plained and explained in context, hopefully, and make it under-
23 standable. But it is hard to get into that without writing a
24 whole chapter. I think Harry said this was what I was trying
25 to do here, that what we are saying here is that after having

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1 said that the health effects fortunately in this case, at least
2 the biological effects, were not great, we nevertheless, feel
3 that this accident was extremely serious.

4 COMMISSIONER MCPHERSON: The sentence that begins,
5 while today the accident is well understood -- you mean the
6 causes of the accident? Because if we consider the accident
7 as continuing --

8 COMMISSIONER TAYLOR: There is a lot we don't unders-
9 tand about the accident itself.

10 COMMISSIONER LEWIS: Say fairly well understood?

11 COMMISSIONER MCPHERSON: Aren't the causes understood?

12 COMMISSIONER PIGFORD: Yes, sure.

13 COMMISSIONER TAYLOR: Well, it depends on what you
14 mean. Causes of the overheating of the core but in terms of
15 what then happened, there is still considerable uncertainty.

16 COMMISSIONER PIGFORD: I agree the accident is not
17 well understood but the causes --

18 COMMISSIONER LEWIS: The causes are.

19 COMMISSIONER MCPHERSON: Operator error, equipment
20 malfunction, that akind of thing?

21 COMMISSIONER PIGFORD: Okay. The next sentence I
22 think has many problems --

23 COMMISSIONER MARKS: Which one?

24 COMMISSIONER PIGFORD: Once an accident reaches a
25 stage that goes beyond well understood principles and puts

7 1 those controlling the accident into an experimental mode
2 potential for a catastrophic outcome is too high. Maybe but --
3 for example, what I think it refers to is the issue of the
4 hydrogen bubble which was the height of the public concern. Now
5 sure to the NRC it was an experimental mode --

6 CHAIRMAN KEMENY: Tom, may I just interrupt for one
7 moment? I was also referring to some of the experimentation on
8 Wednesday. You know, they tried to depressurize it rapidly and
9 then they turned the pumps back on again, then they turned them
10 off again.

11 COMMISSIONER PIGFORD: I didn't like those operators
12 flying the way they were doing. That was a bad thing.

13 CHAIRMAN KEMENY: If you like you can put in Wednes-
14 day.

15 COMMISSIONER PIGFORD: There is one other thing. You
16 know, earlier we began to define catastrophic outcome I think
17 reasonably so, the stuff getting beyond the containment. I
18 think we had better reserve judgment on this one that the
19 statement was correct. I would agree if it said the potential
20 for a far more serious accident was to happen -- catastrophic
21 outcome now begins to be a little well defined but I am not
22 sure it is correct.

23 COMMISSIONER HAGGERTY: A propos of the bottom of
24 page 15, everything humanly possible must be done to prevent
25 accidents of the seriousness of Three Mile Island -- I have

1 just asked to have a copy of the paper written by Carroll
2 son, the first general manager of the AEC, that was published
3 in the Bulletin of the Atomic Scientists this past June, in
4 which he quotes from a paper he actually wrote back in 1975 and
5 also discussed in Sweden and in other countries this recommen-
6 dation about putting the plants below ground, the plant itself
7 actually would be 500 feet below ground. You know, there are
8 lots of things that are not out of the question.

9 COMMISSIONER LEWIS: Then the radiation would get
10 into the underground water.

11 COMMISSIONER TAYLOR: That has a sense for some people
12 of everything that could reasonably be done if you are very
13 vigorous, and so on, and so on, but not literally everything
14 humanly possible.

15 CHAIRMAN KEMENY: I think we are talking now about
16 what is the crucial part of this portion where I tried to cap-
17 ture the spirit of what several Commissioners said last time,
18 that there should be a two phase attitude and the language
19 here should be agreed to carefully. Remember we said that some-
20 how -- it is the bottom of 15 and the top of 16 -- several
21 people are arguing that somehow on the one hand we should do
22 everything possible to avoid accidents, on the other hand, we
23 shouldn't, therefore, fall into the trap that accidents won't
24 happen.

25 COMMISSIONER HAGGERTY: I am happy with the two phases.

1 I think that the humanly bothered me but it also reminded me
2 of this other -- I would recommend reading the paper. It is an
3 interesting paper.

4 CHAIRMAN KEMENY: So, Ted, would you feel better if I
5 took out, humanly everything possible?

6 COMMISSIONER TAYLOR: No. I don't think it makes any
7 difference.

8 CHAIRMAN KEMENY: Okay.

9 COMMISSIONER TAYLOR: Because everything possible
10 includes such a long list of things, plus things people haven't
11 thought of --

12 COMMISSIONER LEWIS: Like drought. All of these
13 depend on water, what if we had seven years of drought? I have
14 this nightmare -- it is true, rivers do dry up my friends.

15 COMMISSIONER HAGGERTY: Then you have no choice.

16 COMMISSIONER LEWIS: No, that is why saying humanly
17 possible --

18 COMMISSIONER TAYLOR: I suggest, at least I am going
19 to hunt for a phrase that is literally -- I would have less
20 trouble if we said reasonably possible but I don't think it is
21 strong enough.

22 COMMISSIONER PIGFORD: How about just saying that
23 accidents of the seriousness of Three Mile Island should be
24 prevented.

25 COMMISSIONER TAYLOR: That is much better I think.

1 COMMISSIONER PIGFORD: We said that earlier. Actually
2 we are not saying anything different.

3 COMMISSIONER TAYLOR: Well, we are saying two non
4 sequiturs and I don't know how to avoid that. We are saying,
5 there should be no more accidents of this kind --

6 COMMISSIONER HAGGERTY: Then we have to approach our
7 technical attitudes for the whole procedure, I mean go for the
8 machines and the people part of it at the beginning -- must be
9 aimed first at making accidents like this impossible. Then
10 two, having done that, we still have to do everything with res-
11 pect to what you do when they happen. That is what you are
12 really saying. First, all of your technical procedures are
13 aimed at making an accident like this not possible, then second,
14 you do everything equally to minimize the impact if they do
15 happen --

16 COMMISSIONER PETERSON: Keeping in mind that it is
17 impossible to prevent it.

18 COMMISSIONER HAGGERTY: I agree, I agree. That is
19 what you were saying, isn't it?

20 COMMISSIONER MARKS: This might slightly change the
21 meaning but because I think just saying accidents of the
22 seriousness of Three Mile Island should be prevented is not
23 enough. I wonder if we should say that -- something to this
24 effect, well, there is a great deal that must be done to prevent
25 accidents of the seriousness of Three Mile Island, and two --

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1 COMMISSIONER LEWIS: But we have said that we can't
2 prevent them.

3 COMMISSIONER MARKS: If we are going to prevent them
4 there is a great deal that we have to do.

5 COMMISSIONER LEWIS: Okay.

6 COMMISSIONER MARKS: And then we have to recognize
7 that the chances of our, you know, really promising anybody we
8 are going to prevent them are extremely remote.

9 COMMISSIONER MCPHERSON: I think there is so much
10 truism here that we really don't need to say it. Everybody
11 knows that we are all for stopping accidents. I am like Calvin
12 Coolidge was against sin. You know, I am against sin and he
13 was against sin. What I think the conclusion ought to be --
14 we have arrived at two fundamental convictions and we have been
15 telling you about it for the first 14 pages, that in addition
16 to improvement in design and equipment, that fundamental
17 changes have to be made in the attitudes of all those associ-
18 ated with nuclear power, particularly as it affects the under-
19 standing of accidents, potential accidents, and the distri-
20 bution of information about that understanding, the training
21 of operators, et cetera. Those things have to be done if
22 accidents of the seriousness of Three Mile Island are to be --
23 if we are to have a reasonable chance to prevent them.

24 And even if we do all that, number two, if all those
25 changes are made, everybody becomes born again, that there is

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1 still going to be some in our judgment.

2 COMMISSIONER HAGGERTY: I agree. I think the present
3 two sentences have so many problems --

4 COMMISSIONER LEWIS: How about saying that we recog-
5 nize that even if everything humanly possible is done to try
6 to prevent an accident, there is no guarantee that one will not
7 occur? And then we go on to say recognizing that --

8 COMMISSIONER HAGGERTY: I think Harry's comes closer
9 because, look, these statements, they are so shorthand that
10 it was actually your remarks and mine, Russ, that led to -- I
11 recognize now what you are saying. Let me see if I can go
12 back to what we were saying, we said, and I even used some
13 words like this, that fundamentally the people concerned, the
14 industry, all three facets, said we have to make a grade nine
15 accident unthinkable and produced all of the things that in
16 their minds would do so, and then proceeded not to think about
17 what would happen if you had one. So what you really have to
18 do -- and you have gone to some more words, but there is a
19 slightly different connotation here and this is what he was
20 trying to say with his shorthand, what we really have to say is,
21 you do, indeed, have to have your system set up so that you make
22 this class of accident impossible. But then b), having done
23 so, you also have to do all the other things since you can't
24 really make them impossible.

25 COMMISSIONER MARKS: Well, that is a little different

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1 though.

2 COMMISSIONER HAGGERTY: Because this gets to be
3 practically a truism here, whereas, what came out of our argu-
4 ment from two different viewpoints was what John was trying to
5 put down here. And there is a difference.

6 COMMISSIONER MCPHERSON: You are saying build a per-
7 fect ship and then hold lifeboat practice.

8 COMMISSIONER HAGGERTY: That is right, exactly.

9 COMMISSIONER LEWIS: It seems to me there was a ship
10 that did that going down.

11 COMMISSIONER HAGGERTY: They didn't.

12 CHAIRMAN KEMENY: They did not have enough lifeboats.
13 As a matter of fact it is a perfect example for this because
14 the ship was so unsinkable --

15 COMMISSIONER HAGGERTY: That is exactly right.

16 COMMISSIONER MARKS: I was sort of waiting till we
17 got all through to come back to some of, you know, what I con-
18 sider still an area that I would like to see us further dis-
19 cuss -- go ahead.

20 COMMISSIONER MARRETT: It is just that in trying to
21 resolve how to phrase that, it seems to me you had some phrasing.
22 I am having trouble pinpointing it precisely but when you talk
23 about our presumption in not pursuing the mandate having to
24 do with overall safety in a manner likely to prevent future
25 accidents, such as that that occurred at TMI-2, I just wondered

14 1 if you might have some places in this document that you wanted
2 to pull out.

3 COMMISSIONER MARKS: Yes, well, in this page that we
4 are coming back to -- my document, bottom of page six, top of
5 page seven, you know, addresses four areas and I don't know,
6 I haven't yet figured out yet quite how to fit it in but I
7 think somehow or other I do believe we ought to be specific
8 about the areas where we feel our findings lead to the need
9 to a much greater emphasis. Now, Harry was trying to do that
10 I think. Well, the four areas, as I see them, are, one, pro-
11 cedures to assure the competence of personnel on a continuing
12 basis at all levels to provide for the safest possible practices;
13 two, the development and implementation of appropriate design
14 features to optimize the man-machine interfaces; three, assurance
15 of a coordinated response in the event of emergency; and, four,
16 support of health and safety related research to provide the
17 best possible scientific basis for establishing guidelines in
18 the regulatory process.

19 Clearly, even after you have done all that I think
20 that your second sentence is still appropriate and should be
21 included. Now, I am not, you know, I think something between
22 this and what Harry was saying ought to be the first sentence.
23 I would not be inclined to just leave it without some sum up,
24 short phrase because I think that is a very important concept
25 in terms of the fact that we are convinced that great efforts

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1 have to go into addressing some of the deficiencies if we are
2 to prevent further accidents.

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Bowers Reporting Company

9-29-79
Tape 16

1 CHAIRMAN KEMENY: Could we get out of it by not
2 stating this is a two-part conviction, that while we emphasize
3 throughout this document that fundamental changes must occur
4 to prevent accidents as serious as this, we feel that never-
5 theless, we must never again assume that an accident of this
6 seriousness can not happen. And then cover the rest of it
7 instead of trying to summarize the whole document in that one
8 sentence.

9 COMMISSIONER PIGFORD: Once more, please.

10 CHAIRMAN KEMENY: To have this paragraph go some-
11 thing like this, that we emphasize throughout this entire
12 document that fundamental changes must occur to prevent acci-
13 dents as serious as that at Three Mile Island, we must never
14 again assume that an accident of this seriousness cannot happen.
15 Therefore, in addition to doing everything to prevent such
16 accidents, we must be fully prepared to minimize the poten-
17 tially impact of such an accident.

18 COMMISSIONER PIGFORD: Earlier, I thought we covered
19 this question. Who has assumed that this accident cannot
20 happen? I have no evidence. There may be some people. But
21 evidence shows that, in fact, both the industry and the NRC
22 did recognize that it could happen. The real point is not
23 that they assumed that it could happen, but that they did not
24 give proper weight to it. So, those words "never again assume
25 that it could not happen", I think, are not correct.

1 COMMISSIONER MC PHERSON: We could say that we can
2 not assume that an accident of this seriousness could not
3 happen again.

4 COMMISSIONER HAGGERTY: That takes away the business
5 of --

6 COMMISSIONER TAYLOR: It is also in a new context.
7 It is not the context of the study. It is the context that
8 even if there is a change in attitude and so on and so on,
9 even then, one must still not assume that accidents are ab-
10 solutely impossible. It is a new context.

11 CHAIRMAN KEMENY: Okay. Can we go to the next
12 section?

13 COMMISSIONER PIGFORD: The second paragraph, next
14 to the last sentence. It is one of the many ironies of this
15 event that the best planning took place during the accident.
16 Best is referring to all emergency plans. We don't know that
17 the actual emergency plan as developed, for example, by Met
18 Ed and reviewed by the NRC, which were applicable to the de-
19 sign basis accident, were deficient. We really mean that some-
20 thing different, that the planning that took place -- that
21 there was not planning for this kind of accident itself and
22 that during the accident more detailed plans were devised.

23 COMMISSIONER HAGGERTY: Well, he was really talking
24 about the emergency and the evacuation and the absence of
25 potassium iodide, etcetera, etcetera. That is what he is

1 talking about.

2 COMMISSIONER PIGFORD: My point is the previous
3 planning might have been all right if the design basis acci-
4 dent had occurred. We don't have any basis for denying that,
5 do we?

6 CHAIRMAN KEMENY: Yes, we do. I mean, if an evacua-
7 tion were necessary, I believe the finding is that the plans
8 were not there for an evacuation, Cora.

9 COMMISSIONER MARRETT: Yes, that is basically --
10 what Tom is distinguishing --

11 CHAIRMAN KEMENY: Yes, but this was not referring
12 to Met Ed here.

13 COMMISSIONER MARRETT: It probably does have to be
14 cleared up that this is referring to governmental plans, the
15 plans of the local communities --

16 COMMISSIONER HAGGERTY: That is what I was trying
17 to say, too. I don't think our statement is clear, but that
18 is what I was trying to say. He really isn't quarreling with
19 your poi: .

20 CHAIRMAN KEMENY: It is supposed to refer back to
21 the previous sentence and I admit it is not clear that we found
22 an almost total lack of detailed plans in the local communities
23 around Three Mile Island. So, it is to that that it is refer-
24 ring.

25 COMMISSIONER LEWIS: -- planning by local authorities.

1 COMMISSIONER PETERSON: We need a plan for real
2 accidents, in addition to the design basis.

3 COMMISSIONER MC PHERSON: John, what do you mean by
4 planning taking place during the accident?

5 CHAIRMAN KEMENY: They were sitting there and writ-
6 ing out detailed emergency and evacuation plans right through
7 the accident.

8 COMMISSIONER HAGGERTY: You know, several of them
9 said, we have gotten people out.

10 COMMISSIONER MARRETT: One of the problems was, for
11 example, in the evacuation, the state plan made some assump-
12 tions about this without having identified the evacuation
13 routes and how would you get the information out. So, the
14 local communities during the course of the accident had to come
15 up with deciding what routes would have to be followed and
16 that is the kind of planning.

17 COMMISSIONER MC PHERSON: Is there any --

18 COMMISSIONER MARRETT: I was going to suggest that
19 many of the more detailed plans, but the problem was that
20 details as it is already used in the previous sentence, but
21 that I think may be preferable to talking about the quality of
22 the --

23 COMMISSIONER MC PHERSON: The specific and detailed
24 plans only took place during the accident. Is that --

25 COMMISSIONER PETERSON: More planning took place

1 during the accident than before.

2 COMMISSIONER HAGGERTY: We don't even know that,
3 but we sure know that plenty of the key ones took place during
4 it. There may have been more. This is the problem with doing
5 things in a vacuum.

6 COMMISSIONER PIGFORD: In the next sentence, it
7 says --

8 COMMISSIONER TRUNK: Excuse me. I just wanted to
9 add in that planning, it was never tried out.

10 CHAIRMAN KEMENY: I am persuaded to take out the
11 word "best". Really, all I am ying to get here is in a
12 sense the local communities did more planning during the
13 accident than had been done before.

14 COMMISSIONER MC PHERSON: I was suggesting instead
15 of "best", detailed planning or specific planning. They
16 apparently got down to cases when the thing started.

17 COMMISSIONER TRUNK: Yeah, well, I saw some of the
18 detailed planning. It was horrible. You know, like from
19 Middletown, it was terrible.

20 COMMISSIONER MC PHERSON: You mean even the stuff
21 done after the accident.

22 COMMISSIONER TRUNK: Even now, I don't like it.

23 COMMISSIONER MARRETT: -- before. That was the
24 whole issue, that is is specific, but without talking about
25 the quality of the planning or whether or not it could have

1 been implemented. It does seem to be difficult trying to
2 get that phrase.

3 COMMISSIONER PIGFORD: In the next sentence -- are
4 you ready for the next sentence -- in this case the most danger-
5 ous portion of the accident extended over a period of a week.
6 Now, it appears to me that the most dangerous portion extended
7 over the period of sometime in the first day and it was only
8 a mistaken perception, but a very important mistaken percep-
9 tion, that the most dangerous portion extended over the period
10 of a week. So, I am suggesting that we separate the fact from
11 the perception here. It was the perception that led to plan-
12 ning -- perception of the most dangerous portion, the incor-
13 rect perception.

14 COMMISSIONER LEWIS: Yes, because they thought it
15 might get dangerous, but it didn't.

16 COMMISSIONER PIGFORD: You could say it was incor-
17 rectly perceived that the most dangerous portion of the acci-
18 dent.

19 COMMISSIONER HAGGERTY: Does -- I am sure we do --
20 does -- and I just can't remember -- does our Volume 2 include
21 a reference to that GAO report that came out -- just happened
22 to come out right after the accident called "Areas Around
23 Nuclear Facilities Should be Better Prepared for Radiological
24 Emergencies"?

25 COMMISSIONER MARRETT: Yes. As a matter of fact,

1 some of the recommendations --

2 CHAIRMAN KEMENY: All I was trying to say here was
3 that here people had the perception that they had time to
4 plan, but that in another kind of accident you really can't
5 count on that.

6 COMMISSIONER PIGFORD: Well, that is a good direct
7 statement. In the last sentence, probably the last phrase,
8 where it says, lack of advance planning, you mean insufficient.

9 COMMISSIONER PETERSON: Wouldn't it be better also
10 to say with the first hour or first day? Because some of the
11 real critical things seemed to be coped with almost immediately.

12 COMMISSIONER PIGFORD: No.

13 COMMISSIONER LEWIS: You know, this might be a good
14 place for this whole suggestion on the unpreparedness of peo-
15 ple to even understand what was happening to them or what
16 might happen to them. I don't know. Maybe that is getting
17 a little off this thing.

18 COMMISSIONER MARKS: I think we ought to deal with
19 that in a separate thing.

20 COMMISSIONER LEWIS: Oh, in a separate thing.

21 CHAIRMAN KEMENY: I think there is a section missing
22 here.

23 COMMISSIONER LEWIS: I withdraw --

24 COMMISSIONER MARKS: There is this whole thing we are
25 leading up to in terms of reorganization recommendations on

1 the federal level. I think something has to lead into it in
2 this document.

3 COMMISSIONER LEWIS: Okay. I will withdraw that.
4 It just seemed that part of the reason that this was perceived
5 as dangerous was also unpreparedness on the part of the popu-
6 lation and everyone else.

7 COMMISSIONER HAGGERTY: You presumably are saying
8 we made a recommendation that would fundamentally change the
9 philosophy of picking appropriate sites, you have made an
10 assumption --

11 CHAIRMAN KEMENY: I am trying it out for argument's
12 sake. That is all I am doing. Similarly, there were sugges-
13 tions last time about the centralization of the emergency
14 plans, so I put it in here to try it out.

15 COMMISSIONER MARKS: I would assume, for example,
16 what might be considered a fundamental change is if we were
17 to make a recommendation that siting determinations have to
18 include now considerations, say, of agencies and HEW, related
19 to health and safety or something. That is a pretty funda-
20 mental --

21 COMMISSIONER HAGGERTY: Or that they had to be re-
22 mote or that they had to be underground or -- I mean all of
23 them would be.

24 CHAIRMAN KEMENY: Or remote sites. You see, this
25 should be replaced by a less vague statement. I am putting

1 it in here because --

2 COMMISSIONER PIGFORD: Well, in the second sentence
3 of that paragraph, it says, we have concluded that the limita-
4 tion of siting considerations and the required emergency plan-
5 ning to a small radius around the plant is inadequate. Now,
6 I think, literally, the siting considerations are not limited
7 to a small radius --

8 COMMISSIONER HAGGERTY: Theoretically, they are not.

9 COMMISSIONER PIGFORD: The data in the PSAR show
10 some analyses and other reports that go far beyond the plant,
11 so, maybe -- I don't know really what we mean here, but I
12 think this statement is literally not correct.

13 CHAIRMAN KEMENY: Let's see. What is it? We were
14 struggling with that yesterday and put it in one of the NRC
15 findings. I think it is that most of the outside consequences
16 only have to be considered for a small radius.

17 COMMISSIONER HAGGERTY: That certainly was said in
18 one of the cases, remember?

19 CHAIRMAN KEMENY: And we looked up, I think, the
20 regs on that --

21 COMMISSIONER LEWIS: 2.2 miles, wasn't it.

22 CHAIRMAN KEMENY: Yes.

23 COMMISSIONER HAGGERTY: I remember --

24 COMMISSIONER PIGFORD: I think that is true, yes.
25 In the case of a design basis accident, limited only to that,

1 they calculate the low populations on, which is relatively
2 small. It is not correct to say the other offsite consequences
3 are limited to that. They are not. The environmental impact
4 goes beyond that.

5 CHAIRMAN KEMENY: But, that is true. so this has to
6 be corrected. On the hand, for example, you remember evacua-
7 tion plans don't have to exist. That was true specifically
8 in the case of TMI-2 was ruled out of order because they only
9 have to --

10 COMMISSIONER PIGFORD: I agree and I think a state-
11 ment could be made more precise.

12 COMMISSIONER MARRETT: And if something, coming into
13 the recommendations, but it is talking about the effort under-
14 way to develop bases for emergency planning zones and it goes
15 on to say that these efforts indicate the low population zone
16 should not be regarded as sufficient for planning such protec-
17 tive actions at the evacuation of the public. That is where
18 the misuses come in, assuming that the OPP is sufficient for
19 emergency planning. That is what I think it is getting at in
20 here.

21 CHAIRMAN KEMENY: Yes and I was trying to connect
22 with siting because I would think that if evacuation has to
23 be considered well beyond an LPG, that would have significant
24 impact on where you can put a power plant.

25 COMMISSIONER PIGFORD: That is a direct statement

1 that I think is obvious and logical and correct.

2 COMMISSIONER PETERSON: I think, Mr. Chairman, that
3 we at this particular juncture in planning about coping with
4 an emergency, we shouldn't base our conclusion on it not being
5 possible for a major release to occur and, therefore, I would
6 like to follow the recommendation of that Von Hippie (?) report
7 and put a sentence in here after, around the plant is inade-
8 quate, this. With the right meteorological conditions, a
9 major release could have serious impact for hundreds of miles
10 from the plant.

11 COMMISSIONER MARRETT: Well, in terms of that, in
12 looking over this area, I think some of our documents come up
13 with using that suggestion from the GAO report that there should
14 be a requirement of 10 miles zones for planning purposes.
15 And when I was looking over that, it seemed to me that that
16 was getting far too specific for us to come up with any parti-
17 cular figure like that; in part, because of what you are just
18 proposing. That essentially what we are saying is that there
19 will need to be some consideration of a range of possible
20 events that might occur and take those into account in the
21 development of a plan. So, I guess that is where it fits into
22 some of the discussion.

23 COMMISSIONER PETERSON: Well, I have come to think
24 that if we really contain these accidents as they are planned,
25 then this whole population zone planning really makes some

1 sense. But if you assume there is going to be a major re-
2 lease and it is not going to be contained, then I think it is
3 ridiculous to talk about 10 miles and 20 miles, because of
4 the wind blowing the right way, it could go a hell of a lot
5 longer in one area.

6 COMMISSIONER PIGFORD: You mean a catastrophic
7 release.

8 COMMISSIONER PETERSON: I mean a catastrophic
9 release, right. If we are going to outlaw catastrophic re-
10 leases in this Commission, we need to say that. But if we are
11 going to leave the door open for a catastrophic release, then
12 I think that we ought to say to the community, you had better
13 be thinking about that and have some plans for coping with it.

14 COMMISSIONER PIGFORD: Well, we haven't yet conclu-
15 ded that we had a catastrophic release.

16 COMMISSIONER PETERSON: You are not going to catch
17 me agreeing for the fact that we can't have one on the basis
18 of the information that we have available today or likely to
19 have today.

20 COMMISSIONER TAYLOR: I guess this goes back to the
21 question of our two-part statement. Are we really talking
22 about nothing as bad as TMI or so much worse that a lot of
23 radioactivity would be released. Because if that is what we
24 have in mind, as a basis for emergency planning -- if we are
25 going to stop with the seriousness of TMI, by definition, there

3
1 is no need for emergency planning. So, we either want emer-
2 gency planning or we don't. If we want it, it is because
3 there has been a serious release. If there has been a serious
4 release then attention to what that consists of is required
5 and it is in the nature of some of the radioisotopes that, at
6 least one of them, under certain conditions, tends to propa-
7 gate very long ways and is also more likely than others to
8 come out; mainly, iodine. That has all kinds of implications.
9 If you assume that the thing we are trying to legislate out of
10 existence does, in fact, happen and then, I agree with you,
11 20 miles emergency response -- kind of begins beyond 20 miles
12 and goes on to whatever is appropriate, which might be several
13 hundred.

14 COMMISSIONER PIGFORD: Here, I think, is our problem.
15 A low population -- is there the design basis accident. Let
16 me assume that is the accident for the moment, because we are
17 talking for that as a reference point. Now, it seems to me
18 that what we have learned here in terms of emergency response
19 is that even for that accident the idea for evacuation in that
20 mode is not realistic. Why do I say that? Because outside
21 the low population zone, those people are going to get their
22 irradiated. In fact, they will get irradiated up to the neigh-
23 borhood of 25 rems, whole body; 300 rems thyroid right at the
24 outer edge of the low population zone. Those are the people
25 you decide not to evacuate. That is a hell of a lot of

4 1 exposure and so it seems to me that we have learned from this
2 that people --

3 COMMISSIONER MC PHERSON: This is in the event of
4 what kind of a release?

5 COMMISSIONER PIGFORD: A design basis accident, far
6 greater than Three Mile Island. I think we have learned --
7 and the Three Mile Island release was far smaller than that
8 and, yet, people -- we can see the state, and the NRC, and
9 the public talking about evacuation far beyond that to protect
10 the public against far smaller exposures. That is a real
11 thing. It seems to me, the important thing is the --

12 COMMISSIONER HAGGERTY: Not because of that, Tom,
13 but because of the point that Russ has been making, of the
14 fear that there would be a large one.

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1 COMMISSIONER PIGFORD: I don't know. I am not
2 sure the Friday evacuation is on that basis at all. I think
3 it was 1200 millirems when they saw a simple burst disc and
4 they said, "Let us evacuate."

5 COMMISSIONER LEWIS: They thought it might continue,
6 though, wasn't that it?

7 COMMISSIONER PIGFORD: Sure, if it continued. That
8 is not going to be anything like the doses I am talking about.
9 So, the first point, I think is that the concept that you
10 can limit evacuation in an accident out to the level of where
11 somebody will get 25 rems and not worry about that is wrong.
12 Why did they do that, because they said, "It is a suitably
13 improbable accident." Regardless, the evacuation plan is
14 based upon that, and that would have been completely untenable
15 here. So, I think the first thing we have learned is that
16 you must expect that if accidents happen you evacuate out to
17 protect people to much lower levels.

18 Then the other point is if this apprehension and
19 so forth of the catastrophic release comes up and of
20 uncertainty, that might, also, cause you to want to evacuate
21 and the low population zone which is calculated for quite
22 a different accident is not applicable.

23 Both of these points need to be taken into account
24 in emergency planning. They have not been before. I think
25 they are simple factual conclusions.

1 COMMISSIONER MARKS: Yes, but in both those
2 instances you are talking about areas significantly beyond
3 five miles, right?

4 COMMISSIONER PIGFORD: No, I am starting at the
5 low population zone which is two miles or something like two.
6 Is it 2.2 miles?

7 COMMISSIONER MARKS: Yes, but I mean I may be
8 unclear as to the implications of your statement, but if in
9 fact there is a catastrophic release or the potential for
10 a catastrophic release which makes consideration of
11 evacuation beyond the 2.2 mile area necessary, then what I am
12 unclear on is do you see the 5, 10, 20 mile concept makes
13 sense? In other words, if 2.2 is not enough, is 5 going to
14 be enough?

15 COMMISSIONER PIGFORD: I think you cannot tell until
16 you get into the mode because nobody can tell you what
17 accidents are going to occur. You must be prepared, and there
18 has to be some method of diagnosis and prediction, and I
19 think this is what we have learned that advance predetermination
20 of the evacuation zone and saying that is sufficient is not
21 enough, and I agree with that.

22 Another thing we have learned is you want to
23 evacuate to lower levels than have been prescribed.

24 COMMISSIONER MARKS: Right, I agree with that.

25 COMMISSIONER PIGFORD: Now, that leads you into the

1 following problem if we are going to try to deal with it,
2 which we may or may not try to deal with, which is that right
3 now, many nuclear plants are sited in such a fashion that
4 certainly within the 50-mile radius of the plant you have
5 cities of a size for which evacuation is not a feasible --

6 COMMISSIONER TAYLOR: Have we demonstrated that?

7 COMMISSIONER MARKS: Indian Point is 36 miles from
8 New York City, and New York City is not evacuable.

9 COMMISSIONER TAYLOR: Has that been shown?

10 COMMISSIONER MARKS: That has been shown. I have
11 been told and the staff can -- that there is no plan for
12 evacuation for New York City.

13 COMMISSIONER TAYLOR: That is not the same statement.

14 COMMISSIONER MARKS: Because there could not be.
15 In other words, it was analyzed, and they decided that there
16 was no way of developing a plan.

17 COMMISSIONER PIGFORD: Paul, I thought you pulled --

18 COMMISSIONER MARKS: That is right and when they --
19 no, that was in terms of a military emergency, in other words
20 a threat from a foreign power, and that assumes a certain
21 amount of time to get people out.

22 COMMISSIONER TAYLOR: Twenty minutes.

23 COMMISSIONER LEWIS: Twenty minutes to get from
24 Mid-Manhattan.

25 COMMISSIONER PIGFORD: To get the faculty out?

1 COMMISSIONER MARKS: Faculty first.

2 COMMISSIONER HAGGERTY: You have to be a little
3 careful. I think you are asking a good question because I
4 believe that conclusion was drawn in connection with a bomb
5 attack.

6 COMMISSIONER MARKS: That is right. So, the point
7 is, what I am --

8 COMMISSIONER TAYLOR: Let us not fall into the
9 conventional wisdom trap.

10 COMMISSIONER MARKS: I don't want to debate right
11 now, because I think we ought to find out the facts, but what
12 I am concerned about is that following Tom's reasoning it
13 seems to me that you then place the Commission in a position
14 where we have to come to grips with the fact that evacuation
15 psychology, if you want to call it that, in terms of
16 containing the accident may be even more wanting, so to
17 speak, in its potential effectiveness in protecting the
18 general public than we have recognized.

19 COMMISSIONER PETERSON: At least you could say that
20 if they had a catastrophic accident at Indian Point or a
21 major release of nuclear radiation and the wind was blowing
22 toward Manhattan, you would have one hell of an evacuation
23 assignment, wouldn't you?

24 COMMISSIONER MARKS: I think you would have to go
25 beyond that, Russ. I mean the point is if in fact, you cannot,

1 then there is a different strategy and a different approach
2 in terms of protecting the public that would have to be
3 considered.

4 CHAIRMAN KEMENY: I mean, isn't it possible to
5 consider whether under such circumstances in New York City
6 you order people to stay indoors?

7 COMMISSIONER MARKS: Exactly. Potassium iodide,
8 and you are also going to bite the bullet and accept a
9 certain amount of biological effects of this kind of situation.

10 COMMISSIONER PETERSON: Maybe you start up a new
11 nuclear plant in some rural part of New York and shut down
12 Indian Point.

13 COMMISSIONER MARKS: What I am saying is this is a
14 very, very critical discussion, in my view, that we are having
15 now, and it is one that I know we have raised. Cora has
16 raised it before, and I think it is very, very critical.

17 CHAIRMAN KEMENY: Ted?

18 COMMISSIONER TAYLOR: I find it incredible that
19 this Commission can come up with a set of recipes that have
20 any numbers in them about what an emergency plan should
21 consist of.

22 I think what we can do and should do is to recommend
23 strongly that an assessment of various situations be carried
24 out as a basis for setting up these plans.

25 Let me give an example. I think that one possible

1 quote, catastrophic accident, at least with the potential
2 for being catastrophic is to have a core meltdown. What
3 is done under those circumstances once it becomes clear that
4 that is going to happen or is very likely to happen or has
5 started to happen; this is not a bingo, all of a sudden it
6 happens event in some cases. Those circumstances have to
7 be analyzed thoroughly and carefully to determine what is
8 the rational response in terms of evacuation criteria and
9 so on.

10 What I am suggesting is that various classes of
11 things leading up to a decision to evacuate be examined
12 thoroughly, that we have not done so but that they be
13 examined as a basis for, as one of the bases for setting up
14 formal emergency response plans which I would say are not
15 going to be simple rules of thumb about 20 miles or 10 miles
16 or 2 miles or 200.

17 What is going to have to be part of the emergency
18 response will be to very quickly respond to the actual
19 circumstances of a real accident and then respond accordingly.

20 COMMISSIONER MARRETT: That is what I had understood
21 from your earlier point to be as well, that what this accident --

22 COMMISSIONER TAYLOR: I am sorry. I guess I was
23 not here.

24 COMMISSIONER MARRETT: The accident demonstrated
25 for the first time some of the problems with the assumptions

1 made about preparation of plans. We have not subsequently
2 been able to determine what should be the bases, but it is
3 obvious something needs to be done differently from what
4 was going on before, and that is fundamentally all I think
5 we are trying to indicate, and given that there are, I don't
6 know, about 50 or 60 different groups right now coming up
7 with questions about establishment of bases, what he was
8 suggesting is that if you are going to use a technical
9 consideration about what is going on in the plant you have
10 got to do a lot more work than has gone on before, and that
11 seems to me to be the kind of conclusion we are all agreed.

12 COMMISSIONER TAYLOR: Is it fair to sum it up by --

13 CHAIRMAN KEMENY: Excuse me, could I add one thing
14 to that because I did understand, and I agree with Tom's
15 point. I think Ted is adding a possibly new point which seems
16 also, important to me, namely, that in addition to what Tom
17 said, we should not want the trend in the future of having
18 a single evacuation plan, but having a sort of series
19 depending on the seriousness of the accident.

20 COMMISSIONER TAYLOR: Does it sum it up to some
21 extent to say that what is needed is work to develop an
22 emergency response plan, not an emergency plan, that the
23 key word is response?

24 CHAIRMAN KEMENY: And the response keyed to what
25 the actual conditions are.

1 COMMISSIONER MARKS: And it cannot be limited to
2 just thinking in terms of evacuation.

3 CHAIRMAN KEMENY: That is correct.

4 COMMISSIONER TAYLOR: Absolutely.

5 COMMISSIONER PETERSON: Or to something within 10,
6 20 miles of the plant.

7 CHAIRMAN KEMENY: Yes. I think that is an
8 interesting set of ideas to bring together.

9 COMMISSIONER PETERSON: The way I see this thing
10 coming down now toward tomorrow's meeting, we have already
11 been told that a 45-minute or hour longer delay in turning
12 on the high pressure injection pumps would have led to a
13 major core meltdown, and now we are talking about if there
14 had been a major release we would have had these other
15 considerations.

16 So, now, tomorrow we are going to consider on the
17 basis of the assumptions made today what is the probability
18 of going from major meltdown to a release, right?

19 COMMISSIONER PIGFORD: Right and how long do you
20 have, how many days before you have to decide or hours, or
21 seconds or microseconds?

22 CHAIRMAN KEMENY: Can I ask a question? I know
23 Bruce Babbitt would ask it if he were here because he spoke
24 to it at an earlier meeting, but I think we have a good
25 approach to emergency planning here or to the kind of

1 recommendation we should make. Is the Commissioner, also,
2 willing to consider some statement on siting of future
3 plants, if any, because I think it, also, has implications
4 for that?

5 COMMISSIONER TAYLOR: One comment, and that is
6 don't forget that the sites for 160 plants are already
7 determined, and so if we are going to talk about new siting
8 policy, we are talking about the next round of reactors
9 beyond --

10 COMMISSIONER MC PHERSON: Right, unless we say
11 something radical, which is to say that new siting
12 considerations should apply to those to whom construction
13 permits have already been granted; in other words, that the
14 site at which they were authorized to construct --

15 COMMISSIONER TAYLOR: That means revoking the
16 license and siting consideration.

17 COMMISSIONER MARKS: I understand John's statement
18 in here is sort of to make sure we don't forget that point.
19 I would vote strongly to keep it there.

20 COMMISSIONER HAGGERTY: Let me suggest that we have
21 the same problem and that is that is that it is, I think,
22 entirely feasible that we can arrive at a set of recommendations
23 with respect to future siting; then the problem is transitional
24 again, and I think that will prove to be much more difficult.

25 COMMISSIONER MARKS: I just want to say something.

1 We may only arrive at a process for restructuring the siting
2 considerations rather than the actual definition of a
3 restructuring.

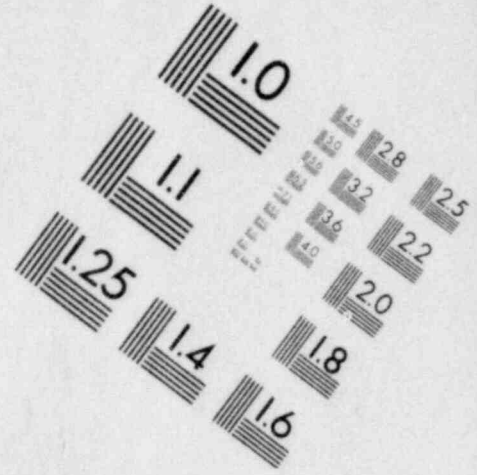
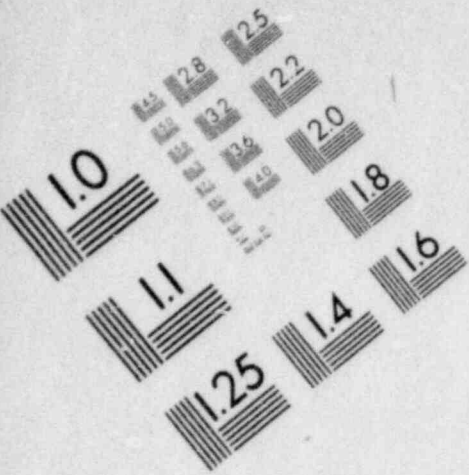
4 COMMISSIONER TAYLOR: If the purpose of this
5 discussion is to boil up issues on which there is a big
6 difference of opinion, I think we have got one right here.
7 I would like to make the case which I think was, also, made,
8 perhaps not directly by Bruce London, as I interpreted it,
9 against siting out in the boondocks, and that is to attain
10 public confidence in the system.

11 COMMISSIONER LEWIS: Stick in the middle of Columbia
12 University.

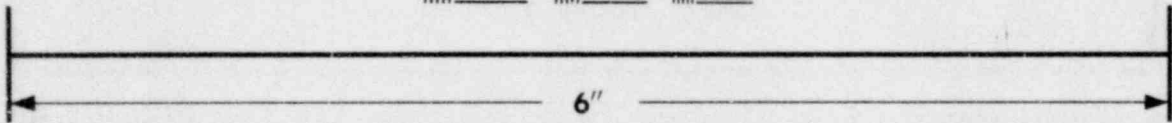
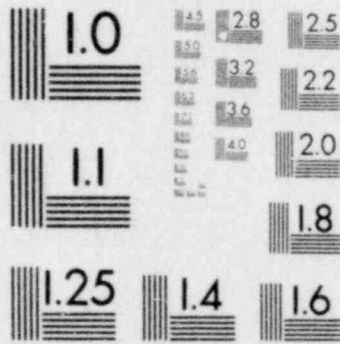
13 COMMISSIONER TAYLOR: No, I did not say that.
14 If we go in the direction of large, isolated plants that are
15 guarded and sort of a fortress, that we are, at least, tending
16 in the direction of removing from immediate view and
17 involvement by ordinary people this activity that is going
18 on.

19 To me, this smacks of the old AEC and the things
20 going on behind closed doors.

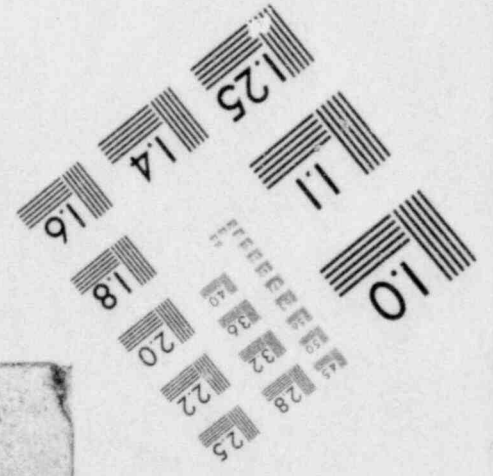
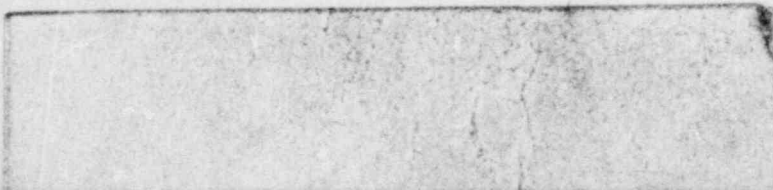
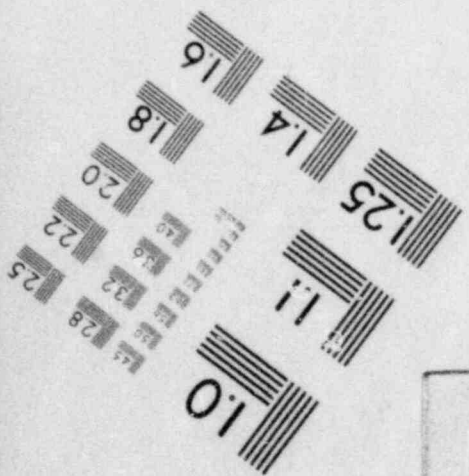
21 COMMISSIONER MARRETT: My feeling is that I think
22 siting, and I think I said this before, is a critical sort of
23 issue, but I am not prepared to know exactly what should be
24 the resolution of the issue, and I think the suggestion
25 earlier seems reasonable, simply to indicate that there are



**IMAGE EVALUATION
TEST TARGET (MT-3)**



MICROCOPY RESOLUTION TEST CHART



1 a number of issues centering on siting because you could go
2 one way or the other about what the location should be.

3 COMMISSIONER TAYLOR: The question is are we going to go
4 one way or another, because if we are, then I think now is
5 at least one time to get some different viewpoints.

6 COMMISSIONER LEWIS: I think this requires a lot
7 more in-depth discussion.

8 COMMISSIONER TAYLOR: When are we going to have it?

9 COMMISSIONER LEWIS: Isn't it part of our NRC
10 debate?

11 Do you want to do it now?

12 CHAIRMAN KEMENY: No, in a way it comes out to me --
13 to me it comes out of the emergency planning. May I say why
14 I stuck it here? Because my worry about siting is on the
15 emergency planning, and that does not necessarily mean
16 sticking it in the middle of the desert, but on the other
17 hand there is the Indian Point problem. So, what it raises for
18 me is whether if one recommends certain kinds of approaches
19 to the emergency planning, does that not eliminate some
20 sites without determining what the right sites are?

21 I have a feeling in my mind that there are certain
22 places I would not put a nuclear power plant, and if that is
23 the case, I would be prepared to vote for somebody's good
24 recommendation on that subject, and then I even have some
25 worries about some of the plans that are now in the CP stage.

1 COMMISSIONER PETERSON: And the one recommendation
2 that I have been toying with is our recommending that the
3 government set up a new Commission agency with some authority
4 over the siting of nuclear plants, and they would weigh these
5 various factors. For example, we have the plants on line.
6 We have the 92 in the pipeline, and we have an interest in
7 building others. It might make sense, for example, to hurry
8 up and finish the construction of one plant someplace in order
9 to shut down Indian Point, to illustrate it, but we cannot
10 make that decision here, but maybe if we promoted a mechanism
11 for coping with it in the months ahead that would be a worth
12 while contribution.

13 CHAIRMAN KEMENY: Yes, Tom?

14 COMMISSIONER PIGFORD: I really think that about
15 all we can say -- this is separate from the recommendation
16 but in terms of conclusion on siting is that this new point
17 of view on emergency planning will obviously affect siting
18 and should be taken into account.

19 I don't think we have any investigation that goes
20 any beyond that. We cannot mention any findings beyond that.

21 COMMISSIONER MC PHERSON: I reach a personal one.
22 I agree with you that we have not done enough. We have not
23 got the backup, but it seems to me that it is the third leg
24 of the stool, one being design and equipment; one being
25 a change in attitude and training and so on, and the third

1 thing is to get the things away from population centers,
2 on the assumption that despite the success of the first two,
3 there will be accidents and that the further they are away
4 from large numbers of people the better.

5 CHAIRMAN KEMENY: Okay, but Tom, as I understood
6 him only says that we cannot have a finding to that, but we
7 could attack it with a recommendation.

8 COMMISSIONER PIGFORD: Obviously we can go beyond
9 in the recommendation, but Harry, let us be specific. Does
10 it mean move Three Mile Island away from the population
11 center? I don't know any basis we have for that. Certainly
12 the facts there show that they were prepared to evacuate at
13 the levels that we are talking about if somebody finally
14 decided to do it. We don't know if --

15 COMMISSIONER PETERSON: Wait a minute now. I don't
16 know how you got to that conclusion, but I just did not buy
17 what you just said.

18 COMMISSIONER MARRETT: They have the plans. I guess
19 where we are having problems is --

20 COMMISSIONER PIGFORD: Yes, they had developed
21 the plans, but we are told by the Governor and so forth that
22 they could have evacuated if they wanted to.

23 COMMISSIONER LEWIS: Not as far out as necessary.

24 COMMISSIONER PIGFORD: Oh, is that right?

25 COMMISSIONER MARRETT: No, they did not have any

1 plans for some of those communities they were then talking
2 about by the time it was really getting critical, and there
3 is a discrepancy between what those, say, at the governor's
4 level and those in, say, the Middletown area Civil Defense
5 agree on what they could have done during the time.

6 COMMISSIONER PIGFORD: What I am getting at is
7 whether they could have developed those plans and carried
8 out the evacuation if they had had the proper planning or on
9 the other hand is Three Mile Island in a place where you just
10 could not evacuate in some one of these accidents like this
11 one. I don't know that we can conclude that. Therefore, I
12 would not suggest that Three Mile Island necessarily is a
13 site that should be moved, and I don't know what to suggest
14 about other sites.

15 I think all we can do is suggest this is an
16 important consideration, and somebody else looking at siting,
17 existing and future ones is all I can see.

1 COMMISSIONER MC PHERSON: It seems to me terribly
2 important to the future safety of nuclear power, and I do not
3 know, I am sure that we do not have the basis, the data, to
4 make any firm recommendations about it.

5 CHAIRMAN KEMENY: Could I suggest we come back to
6 this in the stage of arguing about recommendations, particularly
7 since I know Bruce Babbitt, at least at one time, felt strongly
8 about this issue.

9 COMMISSIONER MC PHERSON: Does he feel the same way
10 about the MX missiles? In order to get friendly with it, we
11 ought to have it in downtown Washington?

12 CHAIRMAN KEMENY: I think you misunderstood which
13 direction he feels strongly.

14 COMMISSIONER LEWIS: That is an idea, get a movable
15 nuclear plant.

16 COMMISSIONER TAYLOR: Well, I will tell you this,
17 that it seems to me that if the general conclusion is that you
18 cannot build it in Middletown, that leads me to tend in the
19 direction of saying that says you cannot build them anywhere.

20 COMMISSIONER MC PHERSON: Well, I would respond to
21 that in the same way that I think we did to Harold Denton when
22 he said if you do not want me to go ahead with licensing, I
23 have already got 72 plants on line, what are we going to do
24 about those? It is illogical to stop the licensing process.
25 I find that logic of a bureaucrat.

1 COMMISSIONER TAYLOR: I am saying something quite
2 different, that if it is unacceptable in Middletown, it is
3 unacceptable anywhere. That is different.

4 COMMISSIONER LEWIS: I agree with you, I will agree
5 with your statement. That is exactly what I just said.

6 COMMISSIONER MC PHERSON: You mean because Middle-
7 town is as far away from a population center as you are likely
8 to get?

9 COMMISSIONER TAYLOR: No, because the distance from
10 a population center, there is not a magic distance from a
11 population center, if you are going to make siting -- there are
12 some aspects of siting that certainly need attention. You do
13 not want to put them on an earthquake fault and there are lots
14 of other considerations, I am not suggesting that.

15 With respect to --

16 COMMISSIONER MC PHERSON: Distance from population is
17 of no consequence?

18 COMMISSIONER TAYLOR: No, I did not say that. I
19 picked Middletown, I am not sure about Indian Point, Indian
20 Point is an anomaly -- there was a fairly careful study.

21 CHAIRMAN KEMENY: Aren't there sites where there is
22 water and where there is not any city of the size of 100,000,
23 let us say, within 50 miles?

24 COMMISSIONER TAYLOR: Not in New England.

25 COMMISSIONER LEWIS: Not in the East.

1 COMMISSIONER TAYLOR: I am sorry, not in Connecticut,
2 Massachusetts and Rhode Island.

3 CHAIRMAN KEMENY: That is what I was afraid, because
4 I am afraid I know places where there are --

5 COMMISSIONER TAYLOR: Well, I do not want to
6 contaminate those with cesium, either, whether there are
7 people there or not.

8 CHAIRMAN KEMENY: Neither do I, Ted.

9 I think we are getting too far off our subject. Let
10 us come back to this when we try to formulate the recommendation.

11 COMMISSIONER HAGGERTY: Let me suggest that as a part
12 of it that you read the Carol Wertz(??) thing -- that is why
13 I brought it in -- because if you are willing to jump beyond
14 the present sites and the present plants and all the rest of
15 that, and if you are willing to imagine that we may have to
16 have an option of using nuclear energy 15, 20 years from now,
17 I have not seen the studies, he refers to them, of putting
18 plants underground.

19 Now, there are lots of places where plants could be
20 put underground. There were studies made about putting them
21 underground, and my recollection of those studies is that,
22 you know, they were fairly favorable from the safety standpoint.
23 Nobody would talk about doing it because of all the previous
24 conceptions.

25 But if what we are really -- I wanted to use it as a

4
1 different kind of illustration about our own mindsets and the
2 business of keeping open, because we talk -- the President
3 proposed spending 80 billion bucks just to get started on
4 synthetic fuels.

5 Well, for God's sake, I mean you could spend quite a
6 few billion with much more certainty on already developed
7 plants, putting them underground, and get further with
8 generating energy. The thing is that we have to be very
9 careful about our own mindsets, even if we conclude that the
10 present ones are not safe.

11 COMMISSIONER LEWIS: What happens to the radiation
12 when they are underground?

13 CHAIRMAN KEMENY: I think Pat is on to something
14 important, but let me try to broaden that, that there is a
15 tradeoff here between siting and how much you are willing to
16 spend on the plans to be a lot surer to contain your radiation
17 than you now are, and I think the what if group is going to get
18 into that.

19 That is, I think, what Len told me, that they have got
20 some ideas of perfectly practical things that -- you know, it
21 is never 100 percent -- but that could make it vastly more
22 likely that even a core meltdown would be contained. There are
23 interesting tradeoffs here.

24 COMMISSIONER PETERSON: John, following up now on what
25 Pat said a minute ago concerning whether we should put nuclear

1 plants underground and so on. There is another part of this
2 analysis, how much we could do by conservations, who would need
3 that nuclear plant, or how much we can get from renewable
4 sources of energy, or whether we should use coal, an alternate
5 solution to building the nuclear plants underground.

6 For example, just using a caulking gun in our homes
7 is calculated to be equivalent to building five nuclear plants,
8 so I think when you get to that concern about burying the
9 plants, there are a hell of a lot other higher priority things
10 to work on.

11 COMMISSIONER PIGFORD: Pat, are you suggesting we
12 do anything about this?

13 CHAIRMAN KEMENY: No, I think what Pat was leading
14 to, as I understand, what Pat is suggesting is that all we can
15 recommend in this area is that others should take a serious look
16 at this problem and that there are a number of options that
17 should be serious explored. Isn't that what you --

18 COMMISSIONER HAGGERTY: That is exactly right.

19 CHAIRMAN KEMENY: It is in the same spirit that I
20 threw in, you know, core catchers, or whatever, that there are
21 a number of other things that somebody ought to explore to see
22 what can be done here.

23 COMMISSIONER PIGFORD: I guess I would just add that
24 there have indeed been lots of analyses undergrounding, and there
25 is a good reason why no one has then come out with a clear

1 conclusion, because the conclusions are not clear.

2 COMMISSIONER HAGGERTY: And the answer is, in some
3 places it is a very good idea, probably, but some other places
4 it is not.

5 COMMISSIONER MARRETT: Where are we in the document?

6 CHAIRMAN KEMENY: Yes, could we take the paragraph
7 that starts at the bottom of page 18 and covers the first third
8 of page 19 and stop there.

9 COMMISSIONER MARKS: Where are you now, John? Sorry.

10 CHAIRMAN KEMENY: The paragraph, it is a long
11 paragraph, it is the bottom third of page 18 and top third of
12 page 19, but I would like to stop there for a reason.

13 COMMISSIONER HAGGERTY: Well, that really deals with
14 response --

15 COMMISSIONER MARRETT: With reference to the top of
16 page 19, we are back to this matter about the assumptions that
17 were made, etcetera, it may be that in some of the cases there
18 was an assumption that there would be accidents. The problem
19 was that some of those who were planning did not really know
20 the nature of any such accidents, so they were not assuming that
21 there were not going to be anything, but their understanding
22 of the possibilities might have been limited.

23 COMMISSIONER PIGFORD: I agree with you. I think
24 that last statement, in fact, too many individuals assumed that
25 accidents cannot occur. I am sorry, I find that in the reports

1 from the utilities, when they are themselves working out
2 evacuations, they seem to take it seriously. It is just that
3 they do their own thing, they limit it to the design basis
4 accident. So, I think the fact of it, as I know it, is not
5 that they assume that the accident did not occur, but, again,
6 they were just limited by the concentration of a large break
7 design basis accident. That is it.

8 COMMISSIONER PETERSON: And they have no responsibility
9 really, for the general public. They have a myopia, really.
10 You cannot say we can rely on utilities to protect the
11 community from nuclear energy. That is, I think, what John is
12 saying here, is that too many individuals and organizations,
13 he means all of us, not just utilities.

14 CHAIRMAN KEMENY: Yes, as a matter of fact, I did not
15 mean the utilities.

16 COMMISSIONER MARRETT: No, he was talking, I thought,
17 there especially about the public officials in Pennsylvania
18 and in the county, but even there the existence of the plan
19 from the Bureau of Radiological Health from the State suggested
20 that they really did think there was a possibility.

21 The only thing is, they just were not sure about the
22 dimensions of those possibilities and were not planning in terms
23 of certain kinds of actions that might occur.

24 CHAIRMAN KEMENY: We will change that.

25 Let's see, now, on the last paragraph on that page,

1 I would rather not take it up in its form, because it seems to
2 me this is the one that is shorthand for what should be a
3 whole section, and that is the missing section.

4 COMMISSIONER MARKS: Right. You want to rewrite
5 something there?

6 CHAIRMAN KEMENY: If you would be willing to come
7 up with a draft for something here, I would be very grateful.
8 You know, I fudged this, as you say, by saying we have made
9 recommendations concerning procedural changes that are necessary,
10 as well as long range studies. You see, what I am doing -- it
11 really is a reminder which I stuck in somewhere that we need
12 something good on this.

13 COMMISSIONER MARKS: What you say here, I think, is
14 good --

15 CHAIRMAN KEMENY: It just needs to be expanded.

16 COMMISSIONER MARKS: Expand another paragraph.

17 CHAIRMAN KEMENY: And I really think you are right,
18 it does not belong to emergency planning. It should be a
19 separate section on health questions.

20 COMMISSIONER MARKS: Also, deal with the issue of
21 the cooperation and collaboration among federal agencies with
22 radiation-related responsibilities.

23 CHAIRMAN KEMENY: That applies not just in an
24 emergency, but outside, so that is why I think it does not
25 really belong in this chapter, but should be expanded into a

1 section by itself. You know, we are doing the same thing in
2 terms of the separate chapters, and I should have followed the
3 same format here. We have a chapter on health consequences
4 of the accident, we have another health chapter, and an
5 emergency chapter, and I think I cannot avoid having the same
6 thing in the overview.

7 So, if you would be willing to draft something --

8 COMMISSIONER MARKS: Well, I will work on that tonight.

9 COMMISSIONER MARRETT: Just one other comment in the
10 part of handling the emergency, I think this came up once
11 before, this right now is referring to the handling by the
12 public officials, although, as Tom has continued to mention,
13 there was some handling that was going on inside the plant,
14 handling the accident in that sense, and I guess if we are
15 going to keep it with the public, we just have to make sure
16 that it is clear that that is the part that is being talked
17 about.

18 We are not even addressing in here the part that the
19 plant was playing in responding, or in informing the public
20 officials about what was going on. It might not be necessary,
21 since all that is in the chapter --

22 COMMISSIONER PIGFORD: Well, Cora, I do think that in
23 the whole section on emergency planning we have to include the
24 planning that is carried out by the utility and reviewed by
25 the NRC. That part of the planning does affect the siting and

1 so forth, unless the kind that will affect it in the future.
2 So, don't you think that needs to be added?

3 COMMISSIONER MARRETT: I would prefer to see it in
4 here about the utility's plans for -- well, you, first of all,
5 say the plan was having to do with the design question -- but
6 in terms of an accident, what did the plan look like and what
7 was the response?

8 It seems to me that is appropriate in this section.
9 I was trying to see whether it is in the section on the
10 utility, but I do not think it is.

11 COMMISSIONER MC PHERSON: I would just like to quote
12 at that point from an article in Fortune, called The Way to
13 Save Nuclear Power, by someone in the NRC staff, named Brighton.
14 It says the absurdity of the previously held notion that a
15 utility company could develop the resources necessary to protect
16 large populations against the hazards of massive releases of
17 radioactivity, which could easily extend over many states in
18 several decades of time, has now become apparent -- the
19 absurdity has become apparent.

20 COMMISSIONER TRUNK: I would just like to ask one
21 question. It has been bothering me, and I have not gotten an
22 answer. What happens, what emergency response do we have for
23 people who are contaminated? You know, had we gotten dosed in
24 Middletown, what would have happened to us? Do you know, Paul?

25 COMMISSIONER MARKS: Well, first of all, it depends

1 on the level and the nature of the contamination, but -- in
2 other words, if your clothes had been contaminated or --

3 COMMISSIONER TRUNK: What I mean is, a shower will
4 not clean off contamination. I mean we got more than a shower
5 can take off.

6 COMMISSIONER MARKS: Oh, you mean if you got more than
7 changing your clothes and a shower would take off.

8 CHAIRMAN KEMENY: Paul is saying that there could have
9 been a lot more radiation and still a shower and changing
10 clothes could have taken care of it.

11 COMMISSIONER MARKS: Oh, yes. Well, it could have
12 taken care of a lot of it. Now, the -- so any external
13 contamination, you know, a great deal could be done. If it was
14 internal, the only mitigating procedure we have available to us
15 is for iodine in the thyroid, and that would be the administra-
16 tion of potassium iodide in advance of or, I think, the best
17 thinking right now is it is probably useful up to three hours
18 after exposure.

19 For other kinds of exposure to radiation in terms of
20 ingestion and consumption, we have no means of mitigating the
21 response to it.

22 CHAIRMAN KEMENY: Can you treat the symptoms?

23 COMMISSIONER MARKS: Well, you can treat symptoms of
24 acute radiation poisoning and I think that certainly in -- with
25 modern approaches a good deal can be done to -- in fact, on

1 record I think there have been individuals in a nuclear plant
2 accident, I think in Yugoslavia I know about, who have received
3 what are considered ordinarily lethal doses of radiation, and
4 I think at least one of three, or maybe two of three, were
5 treated and survived.

6 That is one extreme, that is a very extreme case.
7 The other thing you have to remember is that the data to date
8 indicates that a relatively small proportion of people exposed
9 to a given dose show clinically adverse effects of that
10 exposure.

11 COMMISSIONER TAYLOR: It depends on the dose.

12 COMMISSIONER MARKS: No, of the sublethal, sub -- you
13 know, acutely toxic. I mean the long range dose effects. In
14 other words, but levels significantly higher than, obviously,
15 anybody experienced in the accident, the consequence of the
16 accident at Three Mile Island.

17 So, the answer to your question, unfortunately, is
18 very complicated, complex. There is no one simple answer,
19 because it depends on the nature of the exposure, the amount
20 of exposure --

21 COMMISSIONER TRUNK: Well, let us say we had a core
22 meltdown and the government decided to evacuate us, but it was
23 too late, and we got really highly contaminated. Would they --
24 I am sure they would not let us go out of Middletown. Just
25 what happens to the people like in a catastrophic accident?

1 What happens to the people who are close to the plant?
2 And they have been dosed very well.

3 COMMISSIONER MARKS: Well, if you are talking about
4 acute radiation illness, in other words, you have been dosed to
5 the point where you get the effects of acute radiation illness,
6 then I think that in addition to thorough external decon-
7 tamination, you treat the effects of radiation, which may or
8 may not develop even at a given dose level in a given
9 individual.

10 They are what we would call symptomatic or remedial.
11 You cannot do anything to essentially prevent radiation that has
12 reached inside the body at a site. We can treat the effects
13 of it. Am I answering your question?

14 COMMISSIONER LEWIS: Isn't there a risk to those who
15 do the treating at some point? I mean isn't there a point at
16 which a decision has to be made that this person is so
17 heavily dosed that you have to write him off and you are not
18 going to risk medical personnel to treat him?

19 COMMISSIONER MARKS: No, I do not think so. I think
20 that a doctor can always approach the patient -- now, a doctor
21 may be risking something approaching the same, but not the
22 patient.

23 COMMISSIONER TAYLOR: Paul, isn't it fair to say that
24 the range of exposure within which, if you do not do something,
25 something very bad is likely to happen to the person, and the

1 point at which you really cannot do anything is a relatively
2 narrow range, from a few 10's of R to a few 100's of R; that is,
3 a factor like 10, compared to the difference between the dose
4 levels at which you would want to evacuate, and the point at
5 which you start getting clinically observable results.

6 In other words, the likelihood of getting an amount
7 of radiation, such that medical treatment is important, except
8 for the potassium iodide, is quite small. In other words, the
9 difference between getting enough to sort of kill you for sure
10 and make you very sick is not a huge range, compared to the
11 difference between the 1 R per hour, or something like that,
12 which -- whatever it is -- when evacuation is clearly signalled,
13 and those clinically observable effects.

14 COMMISSIONER MARKS: I do not really have any idea
15 how severe the accident would have to be to reach levels of
16 contamination in, say, five miles, so that you would be faced
17 with acute radiation illness problems. Do you have any idea,
18 Tom?

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TMI
9-29-79
Tape 19

1 COMMISSIONER PIGFORD: What kind of a release would
2 you like to have? Tens of r per hour?

3 COMMISSIONER MARKS: Yes.

4 COMMISSIONER PIGFORD: Well, I think we don't have
5 a scenario, but let's just imagine one. Let's imagine some-
6 thing happens to violate the containment and so you distribute
7 the strontium around, the plutonium and the cesium and it is
8 certainly going to be tens of r per hour. What does Von
9 Hipple's compilation show?

10 COMMISSIONER TAYLOR: It is going to take awhile to
11 get it.

12 CHAIRMAN KEMENY: But I think the answer to your
13 question is that as you go the range what you actually got
14 was really negligible. Ten times that much would not penetrate
15 bad. One hundred times that would have been really serious.
16 At a thousand times, you are just beginning to get to the
17 borderline. At ten thousand times, you need serious medical
18 treatment and at a hundred thousand times that, you are dead.
19 Okay. So, what you said, there is a very, very wide range
20 in which you don't get it, in which you don't even need medi-
21 cal treatment and by the time you need medical treatment, you
22 are approaching that range.

23 COMMISSIONER TAYLOR: Well, I don't think we ought
24 to leave an impression that in that wide range from say a few
25 tenths of r per hour to tens of r per hour, we don't do

1 anything. The reasoning for that is that then there is this
2 statistical statement about how many people eventually will
3 die from cancer. They can't come to you and say you are going
4 to die from cancer if you don't do something. But there is a
5 statistical statement about some number of people per thousand
6 that are likely to get cancer.

7 COMMISSIONER MARKS: The other way of putting it,
8 the concern about acute radiation illness -- in other words,
9 being so contaminated so that you cannot be evacuated is a
10 concern relevant to only a really -- Tom is looking it up,
11 but it is a very unusual rate, which would allow that degree
12 of contamination in the environment. But the much below that,
13 the exposures are significant in terms of long term effects
14 and that is a statistical thing.

15 COMMISSIONER TAYLOR: Some unidentifiable fraction
16 of the population. You can't say you and you and you are going
17 to be affected, but some fraction of all of you will be.

18 COMMISSIONER MARRETT: But I thought where Anne
19 when she raised the question earlier, too, was asking at that
20 level of acute radiation illness, what would have happened in
21 Middletown if you have the few doctors who are left; they have
22 been irradiated. Is anybody going to come in to provide the
23 treatment to people in the area or as I gather they were con-
24 cerned about at the time, is somebody just going to block off
25 Middletown and say you can't get out.

1 COMMISSIONER MARKS: I would say that it depends --
2 the strategy there depends in part of the state of Middletown
3 in the event of such a catastrophe.

4 COMMISSIONER TAYLOR: I do think that Anne has a
5 good point.

6 COMMISSIONER MARKS: She has a very good point.
7 That is why I am struggling with it. I don't feel that I am
8 doing it justice.

9 COMMISSIONER TAYLOR: We have a specific statement
10 somewhere -- I forget where -- to the effect that National
11 -- were told that at a certain level, which is what we are
12 talking about, then you wouldn't have to go in to help anybody.

13 COMMISSIONER HAGGERTY: That is not true and subse-
14 quently been proved since then.

15 CHAIRMAN KEMENY: We have had a letter on that com-
16 plaining about --

17 COMMISSIONER TAYLOR: That is not true?

18 CHAIRMAN KEMENY: I think it was exaggerated. Let's
19 put it that way. I don't believe that under those circum-
20 stances, would somebody have stopped Anne from getting into
21 a car and driving out of there.

22 COMMISSIONER MARKS: No, but I assume that -- no,
23 I don't think they would because the fact that an individual
24 is contaminated doesn't necessarily mean that individual is
25 going to contaminate anybody else.

1 COMMISSIONER TRUNK: That is what the people of
2 Middletown think.

3 COMMISSIONER MARKS: Then we ought to clarify that.

4 CHAIRMAN KEMENY: I assumed that she would have been
5 allowed to get out and get out of the area and go to a hospi-
6 tal.

7 COMMISSIONER MARKS: If you were so terribly con-
8 taminated that you were a potential danger to a person near
9 you, that would be a type of contamination that could be
10 markedly diminished by changing your clothing or taking a
11 shower and so on because what you already have in your body
12 is not going to be a source of danger to anybody else, so to
13 speak. If you are well enough to get in your car and drive
14 that would be the only criteria.

15 COMMISSIONER TAYLOR: One example, someone in an
16 accident about 10, 12 or 15 years again got 10 times the dose
17 that would kill somebody. They died 48 hours later, but in
18 the course of that they were in a hospital bed, with nurses --

19 COMMISSIONER MARKS: No, in this Yugoslav accident,
20 which you referred to, these workers received lethal doses;
21 yet, they were able to be transported from Yugoslavia to Paris
22 to be treated and all the people that have to come in contact
23 with them, you can imagine. Getting them into the airplane,
24 flying them there, getting them off the airplane, getting them
25 to the hospital. And I think two survived and one died.

1 CHAIRMAN KEMENY: But I think that the key question
2 and you can tell your neighbors, no, that does not mean --
3 as a matter of fact, they would tell you to get out of there.
4 I mean, take a shower, change your clothes and get out of
5 there.

6 COMMISSIONER TRUNK: Well, I know that we had road
7 blocks. The cops on the Turnpike had geiger counters. They
8 were checking us. And I heard them College -- before you can
9 go into that town, you had to be monitored or they wouldn't
10 let you in. So, I just wanted to know.

11 COMMISSIONER LEWIS: Well, Anne, this is an anecdote.
12 I got back from our visit to Harrisburg, I found that
13 people said, hi, Carolyn and stepped back several feet. So,
14 I said, what are you doing that for and they really thought
15 that I -- did you get the same thing, Cora? They admitted
16 that they thought that I was radiating contaminated radiation
17 and they didn't want to be near me. So, we are really all
18 very ignorant about it.

19 COMMISSIONER MARKS: That you can reassure your
20 neighbors on. That is not going to be a problem.

21 COMMISSIONER MARRETT: That is what I think will be
22 one of the important outcomes of this kind of inquiry because
23 that is very much of a concern that a lot of people have, not
24 just Middletown. And in some way -- I don't know how exactly
25 you get it into the document, but it seems important to me.

1 COMMISSIONER HAGGERTY: Isn't it correct that even
2 at Hiroshima or those that were killed by the blast and the
3 burn and all the rest of that that the actual increase in the
4 number of people who were that ill -- it is a lot of people,
5 but it is a small percentage, even there.

6 CHAIRMAN KEMENY: Yeah, but I think Anne's point
7 should be somewhere -- maybe in the health chapter we should
8 speak to this point because if enough people believe that, it
9 is important somewhere in one of the health chapters to add-
10 ress this.

11 Okay, could I suggest that we move on in the document
12 and fortunately the next section is totally a non-controversial
13 -- I am being funny because every time we have gotten to this
14 particular topic we have had a huge argument within the Com-
15 mission. That is why I made the remark.

16 COMMISSIONER TAYLOR: The first sentence in the
17 second paragraph. We don't find there was a systematic attempt
18 for coverup by the sources of information. I agree with that;
19 however, one thing that concerned me a great deal during the
20 accident, before this Commission came into existence was that
21 information that I knew was in the heads of people in NRC, at
22 least, about the nature and extent of core damage that they
23 had already convinced themselves had taken place didn't find
24 its way into the general news media, was not discussed in any
25 of the open meetings of the Commission for the next two weeks --

1 the NRC Commission and I found that mysterious. And I think
2 there is some evidence that people didn't want to talk about
3 the amount of zirconium that had been involved, the extent
4 of the involvement of the zirconium and so on. Now, I am not
5 passing judgment on whether that holding back of information
6 was justified or not.

7 COMMISSIONER LEWIS: The argument under questioning
8 I think in the depositions, a lot of these guys said, well
9 nobody ever asked us, so we didn't offer the information. This
10 is the typical kind of bureaucratic fudge on it. Now, whether
11 you want to call that a coverup or not. They did not offer
12 that information and if any of the reporters who were there,
13 who obviously didn't know what to ask, had asked, they would
14 have told them. So, I think there is a question whether --
15 I don't know whether you would call that quite a coverup.
16 Withholding of information might be more precisely what they
17 were doing of important information.

18 CHAIRMAN KEMENY: But I tried to put in the informa-
19 tion that we got from Dave Reuben's group report two sentences
20 later that there was an attempt to minimize the significance
21 in spite of substantial evidence that it was serious. Later
22 that week, the opposite would occur.

23 COMMISSIONER TAYLOR: Going a little bit further
24 and saying that 10 days following, following March 28th, there
25 was still no statement by NRC, that I am aware of -- and I

1 have looked very hard for it -- or by the utility giving their
2 picture that they had at that time of what had happened to
3 the core. And that was still in the minds of many people and
4 it was a question. How high did temperatures get? Did it
5 come close to melting and so on? We now know that there were
6 a number of calculations that said that temperatures got up
7 in the range of several thousand degrees. There was some
8 speculation at that time that it might have exceeded the melt-
9 ing point. And this was not in the newspapers. I can't say
10 why it wasn't. All I know is that I looked very hard for it
11 and have looked since then for it and couldn't find it. But
12 I do know that it was in people's minds.

13 COMMISSIONER MARRETT: I thought that the overview
14 chapter is, in essence, to give some sense of what the rest of
15 the report is going to look like, the kind of supporting mater-
16 ial from there. If we don't have that kind of information
17 in the part on public information, it becomes somewhat difficult,
18 doesn't it, to talk about it here of the failure of the press
19 to --

20 CHAIRMAN KEMENY: I was trying to summarize here, but
21 in maybe too brief of a form --

22 COMMISSIONER TAYLOR: Is that observation then
23 really not in the staff report?

24 CHAIRMAN KEMENY: You see, they basically looked
25 at the coverage for the first week.

1 COMMISSIONER MARRETT: That is right.

2 COMMISSIONER LEWIS: John, may I make a suggestion.
3 I think the key word in what you have written is correct, that
4 there wasn't a systematic attempt to coverup. But maybe we
5 could add a phrase that says, although some individuals did
6 not offer significant information to the media. In other words
7 there were examples of people who knew that that core was un-
8 covered and did not -- we have that in our timeline and we
9 have that in the depositions. In other words, we are not say-
10 ing there was a systematic attempt to do so, but certain in-
11 dividuals said, well, we weren't asked, so we didn't tell any-
12 body, which is an individual decision that that information
13 was not anything you wanted to let out.

14 CHAIRMAN KEMENY: If the Commission wishes to, I
15 will be glad to put it in. It wasn't in your findings.

16 COMMISSIONER PIGFORD: Would you put in some did?

17 COMMISSIONER LEWIS: Nobody did on the core uncovering,
18 not for days.

19 COMMISSIONER PIGFORD: Somebody called me.

20 COMMISSIONER LEWIS: You are not a member of the
21 press.

22 COMMISSIONER PIGFORD: Then you want to say, did
23 not offer it to the press.

24 COMMISSIONER LEWIS: That is what I am talking about,
25 to the media. Oh yes, we were talking about -- that is

1 exactly what Ted was saying, that this was not offered to the
2 press. It was on the site. They knew that the core had been
3 uncovered, but it was not offered to them.

4 COMMISSIONER MARRETT: What was your statement again?

5 COMMISSIONER LEWIS: I think that John's point that
6 there was no systematic attempt to cover up -- in other words,
7 the operative word being "systematic" although some individuals
8 failed to offer significant information to the media -- failed
9 to pass on --

10 COMMISSIONER PIGFORD: That effectively says that
11 they were covering up. The way that you have put it in the
12 same sentence and I don't know that they were covering up
13 or not. There can be so many reasons why they didn't offer
14 it.

15 COMMISSIONER LEWIS: Well, but in the testimony
16 they said, yes, we knew that. Asked why didn't you offer it,
17 most of these people said, because nobody asked.

18 COMMISSIONER HAGGERTY: That doesn't even prove
19 that they were around the press.

20 COMMISSIONER TAYLOR: Well, on the public's right
21 to information is a question about how much information is
22 prudent for the public to know. It is established that at
23 the time that the decisions were being made the following,
24 April 2, 3 and 4, how do we go to a sort of long term conduc-
25 tive cooling mechanism, there were very serious discussions

1 about whether various schemes would work because of the se-
2 vere damage that had led to a belief that -- to a concern that
3 there would be serious blockage of the flow of the water and
4 that was not made public. I guess, I believe it should have
5 been.

6 COMMISSIONER PIGFORD: The first sentence is about
7 coverup. Do we have any evidence anybody covered up, system-
8 atic or not? Coverup has a clear meaning, I think.

9 COMMISSIONER LEWIS: Yes, a coverup normally is an
10 ex-post facto thing. You did something wrong and you tried
11 to hide that you did it. Maybe the use of the term is a
12 problem.

13 COMMISSIONER PIGFORD: What was sinister about it?
14 Do we know anything that anybody covered up?

15 COMMISSIONER TAYLOR: I would like to turn that
16 into a question.

17 COMMISSIONER LEWIS: Well, the utilities were less
18 than frank.

19 COMMISSIONER TAYLOR: There is something very spec-
20 ific I wanted to report and that is that if you read carefully
21 through all of the transcripts of all of the meetings of the
22 NRC Commissioners, both closed and open, to April 5, following
23 the accident, there is in that record that we have in the
24 Commission, no detailed discussion of the state of the core.
25 I have gone through that very carefully trying to find it.

1 COMMISSIONER PIGFORD: What does that have to do
2 with a coverup? A coverup is some willful concealing of
3 information. Is it established?

4 COMMISSIONER TAYLOR: No, but what I think is es-
5 tablished is in all of the transcripts of all of the meetings
6 of the NRC Commissioners, there was not discussion of this
7 subject, which seems to me incredible that it should not have
8 been discussed.

9 COMMISSIONER LEWIS: You are suggesting that they
10 did discuss it in private, but knowing that that tape recorder
11 was on -- I mean, that is your implication.

1 COMMISSIONER TAYLOR: I am not sure. I am concerned
2 about the fact that it is not in the transcript.

3 CHAIRMAN KEMENY: Okay. I suggest that the improve-
4 ment might come down.

5 COMMISSIONER MARRETT: So I gather though that there
6 was some real hesitation in support of the followup statement.

7 COMMISSIONER LEWIS: Yes. I agree that it wasn't
8 systematic but there were some individuals who just simply with-
9 held certain information.

10 COMMISSIONER HAGGERTY: Well, some of those indivi-
11 duals weren't at the press conference.

12 COMMISSIONER LEWIS: The whole question is that that
13 is information that should have been passed on to the people
14 who were informing the press if you are going to agree that
15 the press ought to know --

16 COMMISSIONER HAGGERTY: No, no. What I am worried
17 about is going from your statement that some people knew things
18 and their response was, they weren't asked. It doesn't hold
19 that they were in any sense trying to keep it from anybody. It
20 just doesn't.

21 CHAIRMAN KEMENY: If I may it to a bit of an extreme,
22 I am sure both Tom Pigford and Ted Taylor knew things during
23 that accident that the press didn't know, and yet, to the best
24 of my knowledge neither one of them issued statements to the
25 press. Yet, I wouldn't accuse either one of them of cover up.

1 COMMISSSTIONER TAYLOR: Well, as a matter of fact I
2 did.

3 CHAIRMAN KEMENY: Oh, you did? Sorry.

4 COMMISSIONER LEWIS: You were one of those confusing
5 sources.

6 COMMISSIONER TAYLOR: I was called by a reporter on
7 the Detroit Free Press on the Tuesday following the accident
8 and there was a three-way conversation, a conference call,
9 Carl Walsky, the President of the Industrial Forum, and myself
10 and this reporter. He said that he understood from somebody,
11 I don't know who it was, that I was arguing on the basis of
12 what had been said about the hydrogen bubble that somewhere
13 between a quarter and a half zirconium had been consumed to
14 produce that hydrogen and he had never heard that before and
15 was quite interested in the subject. Now, that was news to
16 him. I also found by reading the Post, the Washington Post and
17 New York Times that there was no reference to anything like a
18 quarter to a half of the core having in effect lost it and I
19 thought that was a very important matter.

20 CHAIRMAN KEMENY: Well, could we wait on this matter
21 till Dave comes down because there are two questions, one,
22 were people talking to the press who knew things that they with-
23 held, and two, even if that is true, do we have it in the
24 evidence that the task force collected? And I can't answer
25 either of those questions.

3
1 COMMISSIONER MARRETT: But I do have a small one on
2 that first statement where it says, the sources of information,
3 I was clear until our discussion I had thought that that was
4 talking about the official spokesmen from NRC and the utility --
5 official spokesmen to the press and, thus, it was not talking
6 about just any source of information that a reporter might have
7 used. Then in terms of the official spokesmen to the media
8 from NRC and the utility there was no evidence that they covered
9 up anything systematically. Is that the interpretation?

10 COMMISSIONER LEWIS: Well, you see the problem is for
11 the guys who were briefing the press had to rely on the experts
12 at the scene --

13 COMMISSIONER MARRETT: All right.

14 COMMISSIONER LEWIS: Now, if the experts at the scene
15 decided they wouldn't pass the information on to the press,
16 there was no way the press was going to get that information.
17 Is that a cover up? Or is it just saying, you know, that was
18 not a question that was being raised?

19 COMMISSIONER MARRETT: But where we got into a prob-
20 lem a while ago is in talking about what the experts -- what
21 we mean by experts that what Pat had said earlier is that there
22 were some experts who knew particular things and the information
23 never got to the media. One explanation is that there was no
24 direct line to them in terms of the media. My concern was
25 making a distinction between those experts who had official

1 responsibilities --

2 COMMISSIONER LEWIS: Official expert sources then
3 may be a better way to put this whole thing.

4 COMMISSIONER PIGFORD: One word of this I just hate
5 is expert. I don't think we have found an expert yet and I
6 think it is an elusive thing. And we lay an awful lot to the
7 feel of experts without knowing even what they are talking
8 about.

9 COMMISSIONER LEWIS: Why don't we say some of the
10 official news sources?

11 COMMISSIONER TAYLOR: Were confused?

12 COMMISSIONER LEWIS: Were themselves confused, isn't
13 that right? I mean the NRC in Bethesda was saying different
14 things.

15 COMMISSIONER PIGFORD: And then you can say there were
16 major disagreements among the officials.

17 COMMISSIONER LEWIS: Yes, right.

18 COMMISSIONER PIGFORD: Among some officials. You
19 can't go too far because I am not sure that some of it is not
20 disagreements.

21 COMMISSIONER LEWIS: I said some of the official
22 news sources, I agree with you.

23 COMMISSIONER MCPHERSON: We could use some phrases
24 dear to the hearts of editors like so-called, and self-pro-
25 claimed.

5
1 COMMISSIONER LEWIS: While it is true on the first
2 day of the accident there was an attempt by the utility and the
3 local NRC officials -- I think we need to be more precise there
4 because I think you left it a little loose.

5 COMMISSIONER PIGFORD: Well, that bothers me. You
6 are saying that there was a conscious attempt to minimize --

7 COMMISSIONER LEWIS: Yes, there was.

8 COMMISSIONER PIGFORD: Do we have that?

9 COMMISSIONER LEWIS: We do.

10 CHAIRMAN KEMENY: On Met Ed we do. I am not sure
11 whether the local NRC people were then talking. That again is
12 why I would like Dave to be here to be safe on this.

13 COMMISSIONER LEWIS: No, that is true.

14 COMMISSIONER PIGFORD: But they could be seeing what
15 Met Ed was saying without themselves consciously attempting to
16 minimize.

17 COMMISSIONER LEWIS: The utility we know was because
18 they admitted that themselves.

19 COMMISSIONER MCPHERSON: The second half of that
20 sentence I don't quite follow. Was there later that weekend
21 an opposite phenomenon? Was that an attempt to maximize the
22 significance?

23 COMMISSIONER HAGGERTY: That isn't quite accurate.
24 I am sure what you are saying is that there was a lot of
25 agitation with no or little basis, whereas, early there was

6 1 little agitation when there was some basis.

2 COMMISSIONER TAYLOR: Well, I don't think that is
3 quite fair because the story we got consistently from everybody
4 was that no one was terribly worried about the accident, most
5 people, until Thursday evening. And it was Friday morning
6 when we had our first hearing when all the phone calls started
7 going out and at that point people got very serious. They were
8 not worried particularly until Thursday afternoon, late Thursday
9 afternoon.

10 COMMISSIONER PIGFORD: I don't know what that means.

11 CHAIRMAN KEMENY: All I was trying to say really --
12 it should be rewritten -- that you may feel that in the early
13 stages there is some evidence that people were holding it down.
14 But actually a few days later news was given out that in that
15 respect turned out to be nighly exaggerated.

16 COMMISSIONER MARRETT: Yes, but the inconsistency
17 there is that we sort of stuck in about the first day the ti-
18 lity spokesmen were minimizing the significance. And the
19 utility spokesmen didn't change towards the --

20 COMMISSIONER PIGFORD: Are you saying that some of
21 this other source consciously exaggerated it towards the end?

22 CHARIMAN KEMENY: No.

23 COMMISSIONER PIGFORD: That is what maximize means,
24 if minimize means --

25 COMMISSIONER MCPHERSON: Different people were doing

1 the minimizing than the maximizing.

2 COMMISSIONER LEWIS: That is right.

3 CHAIRMAN KEMENY: All I was trying to get across here
4 is that it is not a case where all through this people are
5 playing it down of playing it up but that early in the week
6 we have some evidence --

7 COMMISSIONER HAGGERTY: That they were playing some-
8 thing down and playing it up too. And that is what I really
9 think was going on. I think that is something different from
10 minimizing.

11 CHAIRMAN KEMENY: David, can you join us?

12 COMMISSIONER TAYLOR: I think the problem with this --
13 we keep saying it, what was not taken seriously before the
14 presence of the hydrogen was recognized generally, had to do
15 with the core uncovering and the recognition by a few people
16 that an exaggeration had developed. It is not that people
17 reversed themselves on that. It is that a new subject came up,
18 maybe the hydrogen bubble because there was not a reversal then
19 about maximizing, or saying much more alarming things about
20 the state of the core. I am objecting to the fact that that
21 didn't persist and come out publicly. The hydrogen bubble is
22 another subject.

23 COMMISSIONER HAGGERTY: Then there had to be dis-
24 satisfaction with what was being reported on Wednesday and
25 Thursday because of the feeling of lack of information and

sq 8
1 misinformation right along. That is all I am saying and I
2 think there is some basis for that.

3 CHAIRMAN KEMENY: David, could we ask a couple of
4 factual questions? We are going through the public information
5 section here and that was actually written before I saw your
6 final version. The first question was, I had the sentence some-
7 thing like, while it is true that the first day of the accident
8 there was an attempt to minimize its significance in spite of
9 substantial evidence that it was serious -- that goes to the
10 utility doing it, but was there anybody besides the utility
11 doing it?

12 MR. RUBIN: On Wednesday?

13 CHAIRMAN KEMENY: Yes.

14 MR. RUBIN: Most of the utility on Wednesday and
15 Thursday to some extent, the NRC Region I people were on site,
16 Higgins, although Higgins was more forthcoming than the Lieu-
17 tenant Governor.

18 COMMISSIONER MCPHERSON: What about the Chairman to
19 Congress on Thursday:

20 MR. RUBIN: Chairman Henry to Congress on Thursday,
21 I would have to go back and look through the records.

22 CHAIRMAN KEMENY: There is a second question that
23 came up a little earlier, I quoted something that came out at
24 least in the earlier version, that you did not find a systematic
25 attempt for a cover up by sources of information and then I

9

1 follow that by saying but they did minimize the importance the
2 first day. The question came up whether there were any indi-
3 viduals where you have evidence that they withheld information
4 from the press. And I couldn't answer that.

5 MR. RUBIN: I have been wrestling with the language
6 to put this into and I will just tell you the problem and you
7 will have to make the decision. You know, the line between a
8 cover up or the willful withholding of information you know to
9 be true, versus the ability to deceive yourself as to what may
10 be happening I think is a delicate line. A number of utility
11 people admitted to us that they were reluctant throughout the
12 accident to disclose what they knew to be pessimistic infor-
13 mation. And we found a number of instances in which what you
14 might view as optimistic information was more forthcoming from
15 the utility than pessimistic information.

16 The reason that the gave was that given that it was
17 pessimistic information, or if you will, information that may-
18 be utility's position was not good and would be alarming, they
19 said that they wanted to be absolutely sure that that was the
20 case, such as the extent of the core damage, they wanted to
21 be very sure before releasing the information. So that the
22 question then is how sure is sure and mixed up in all this is
23 the fact -- and I think this is something Commissioner McPher-
24 son mentioned the last time we were all together, and some
25 things that some reporters have pointed out, that maybe you

10
1 can't expect the utility to be as forthcoming, or any business
2 to be as forthcoming as we would like with that sort of infor-
3 mation.

4 Now, we, as we outlined in the timeline, there were
5 instances in which Met Ed people knew, or thought they knew
6 about core damage and the extent of it just as early as a
7 variety of NRC people knew. Yet NRC people were more forth-
8 coming with the information. Now, does that mean that Met Ed
9 people were covering it up, or does it mean that for insti-
10 tutional reasons they were less willing to admit it to them-
11 selves, or does it mean that they honestly felt that the infor-
12 mation was not nailed down enough to make public, or does it
13 mean that they were covering it up?

14 COMMISSIONER HAGGERTY: When was this, Dave, that
15 NRC people were more forthcoming with the core damage?

16 MR. RUBIN: Pretty much Thursday that that was hap-
17 pening.

18 COMMISSIONER TAYLOR: If you have examples of state-
19 ments made either at press conferences or primarily appearing
20 in newspapers about the character and extent of the core damage
21 as of Friday, I would be very interested in seeing it because
22 I looked for that all through the accident and found none. But
23 if you have some I would be very interested in seeing that.

24 MR. RUBIN: I think we do.

25 COMMISSIONER TAYLOR: Not just the extensive core

11

1 damage but the character of it, what they really thought was
2 happening and talk of temperatures of several thousand degrees,
3 and so on.

4 COMMISSIONER MARRETT: David, one of the people who
5 said that, and you are much more familiar with this -- I remember
6 reading about it, who said that they knew that the core was
7 uncovered or something but they didn't tell the media because
8 they weren't asked --

9 MR. RUBIN: No. The comment about not telling the
10 media because they weren't asked was in relation to radiation
11 reasons --

12 COMMISSIONER LEWIS: Oh, okay, I understand.

13 MR. RUBIN: And that happened on Wednesday. I don't
14 know if the statements we have are going to be as specific as
15 the ones you are looking for but I will see what we have.

16 COMMISSIONER MCPHERSON: Could I raise again a ques-
17 tion that I raised sometime ago, that is, what we think about
18 the obligation of people in positions such as Denton's to
19 fully advise the public through the press of what they think is
20 going on, what they are recommending. If we adopt a public
21 has the right to know everything view, we are saying that if
22 Denton and Madsen, the senior staff of the NRC believed on
23 Friday that there is a hydrogen build up and possibly an oxygen
24 build up, a potential for an explosion, but they are not sure
25 they are very concerned about that, that is, in fact, at say,
ten o'clock in the morning the state of their minds, the state

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1 of their beliefs and they are asked about that by the press, in
2 some way someone gets hold of them, what do we think their obli-
3 gation is? The public needs information for its safety --

4 COMMISSIONER LEWIS: Who is going to decide what you
5 are going to tell them?

6 COMMISSIONER TAYLOR: He is raising a very important
7 question.

8 COMMISSIONER MCPHERSON: What I am trying to do is
9 to try to get our view of what should be done in these situations
10 where there is a good deal of confusion. Now, if you know very
11 well that there is an explosive situation you are certainly
12 under an obligation to say so and to tell the governor, and
13 get everybody moving as quickly as possible. But here they
14 thought that was the case, they were not sure.

15 COMMISSIONER HAGGERTY: Now, let me put it in a dif-
16 ferent frame. You are standing at the rear of a theater, the
17 doors are locked, there is a way of telling of people if you
18 see a fire starting. Do you yell fire? When you know what is
19 going to happen? Or do you go and do something else so they
20 can get out?

1 COMMISSIONER HAGGERTY: You tell them eventually
2 you don't yell, "Fire." I mean look you just cannot answer the
3 question except in the circumstances.

4 COMMISSIONER LEWIS: The circumstance is one of the
5 things the public had the right to know was that the experts
6 did not know anything, and I think that that piece
7 of information was vital for them to know, and if we say
8 that the confusion should not be made public until all these
9 guys get their act together then I think --

10 COMMISSIONER HAGGERTY: It seems to me that the
11 governor and Hendry, that stuff, I saw it in the paper on
12 Thursday. That is one of the reasons the President called
13 that they said that their information was abysmal.

14 Now, it is a little hard to say -- you have to
15 conclude from that people did not know. One of the things
16 that was surprising to me was those statements that they did
17 not know. I am a little puzzled.

18 COMMISSIONER MARRETT: It seems to me though we are
19 identifying slightly different issues. The case you are
20 talking about, you might have the information. You have to
21 ask what is the appropriate behavior; what is going to be
22 the response to it when you give out this information.

23 COMMISSIONER HAGGERTY: The answer is it all depends.

24 COMMISSIONER MARRETT: What you are talking about is in
25 a case where you really only have guesses. You think this

1 might be the case, and what is your obligation or commitment
2 to pass on what, in essence are suppositions about what might
3 happen, and I am not at all certain about how I would stand
4 either.

5 COMMISSIONER TAYLOR: Can I make a specific
6 example of this, because I think you have got a good question.
7 Suppose that there had been an instrument that would measure
8 the water level in the core the afternoon following the
9 accident.

10 COMMISSIONER MC PHERSON: Wednesday afternoon?

11 COMMISSIONER TAYLOR: No, Wednesday afternoon when
12 decisions were being made about evacuating, not evacuating
13 and so on. Suppose that there had been an instrument that
14 recorded that at that time, at 3 o'clock that afternoon the
15 core was uncovered, should that information have been made
16 public? Just to make a very specific question.

17 COMMISSIONER MC PHERSON: As such without any
18 elaboration of what that meant?

19 COMMISSIONER TAYLOR: No, but with some appropriate
20 elaboration, but should that fact have been made public if
21 it had been known to be a fact.

22 CHAIRMAN KEMENY: Let me express an opinion on that.
23 I don't think it should be made public until somebody could
24 explain to the general population what kind of danger this
25 represented.

1 COMMISSIONER TAYLOR: If at that time they did not
2 really know, should it have been made public, that is what
3 this really meant in detail?

4 CHAIRMAN KEMENY: My inclination would be to say
5 that we have a serious situation on our hands, and as soon
6 as we have a thorough analysis of it we will give you just
7 how serious it is.

8 COMMISSIONER TAYLOR: You are saying that they
9 should not.

10 CHAIRMAN KEMENY: I am saying that bold fact, seven
11 months ago that would have meant nothing to me without knowing
12 a great deal more.

13 COMMISSIONER LEWIS: You should always put it in
14 context. I mean I think that is what John is saying. That
15 is understood.

16 CHAIRMAN KEMENY: It is not just context, but you
17 have a bold fact there which to Ted Taylor means a great deal
18 because he can calculate what it is likely to be. I don't
19 know without somebody at least seven months ago, I would not
20 have known without someone being able to tell me does this
21 mean the place is going to blow up within an hour or does it
22 mean that within the next two weeks something has to happen
23 or it means you can control it completely and not be worried
24 about it?

25 COMMISSIONER MC PHERSON: In fact, six months later,

1 five months later we are waiting for a what if committee to
2 tel? us.

3 COMMISSIONER TAYLOR: I raised that particular
4 question because it happens that as far as I know there has
5 been no analysis during that period that says what the
6 implications of that for evacuation would be because that
7 part of the analysis is now so difficult and so complicated
8 and involves so many assumptions that we, for example
9 have not done it. As far as I know, no one else has.

10 To me that would be very important if I were living
11 in Middletown, and I will say I just hot-tailed it out of
12 there as fast as I could go.

13 COMMISSIONER TRUNK: But if I did not know what it
14 meant --

15 COMMISSIONER TAYLOR: No, if you did know that what
16 that brings up is the possibility of higher fuel temperatures
17 and a core meltdown, and you don't know what is going to
18 happen after that, and you get discussions unresolved, what
19 would you do? Then that bears on the question of whether it
20 would affect your behavior, and you think you have a right to
21 that knowledge that would affect your behavior, then it
22 follows that if you think you should know, then everybody
23 should know.

24 I am not necessarily making a case for all the
25 information being made public, sort of on line, but I think

1 we need to explore that question because it has a great deal
2 to do with what we recommend, what we talk of, say, about
3 one information source as opposed to lots of possible
4 information sources and so on.

5 It is a vital issue.

6 COMMISSIONER MC PHERSON: I think we would all agree
7 that the utility and the regulators ought not to lie, but
8 what is their positive obligation in a state of confusion?
9 They are themselves confused, and when, if they take the
10 dark scenario, they could cause a panic.

11 COMMISSIONER HAGGERTY: Or think they could.

12 COMMISSIONER MC PHERSON: I would assume that
13 somebody might have thought there was going to be a China
14 syndrome any minute and might have said so. There is one of
15 our members who thinks that. Now, should that be expressed
16 in the press?

17 COMMISSIONER LEWIS: You see, the problem is if
18 you leave the public in the dark until the confusion is
19 straightened out it could then be too late. I mean you have
20 this problem of timing. As it is it took them many, many
21 days to figure out what was happening, and they kept finding
22 new risks and new dangers, and they were divided.

23 Now, the question is, you know, I feel, frankly,
24 that people ought to know as much as they can know, and those
25 who are dealing with a situation that has potential danger to

1 the public ought to tell, and if what they say is, "I don't
2 know," or "We are still working on it," I think the public
3 has a right to know that. I really feel on principle that
4 we should not treat the public as a bunch of fools. You know,
5 we should let them make the judgment, let them have the
6 information in context, and then let them decide how they
7 evaluate that information.

8 COMMISSIONER MC PHERSON: Is there an analogy to be
9 made for what the weather bureau says or announces with
10 respect to a hurricane? If you are living in Corpus Christi,
11 Texas, and the hurricane is 150 miles away, and it is headed
12 due north; it is going to miss you; then it turns and hits
13 northwest --

14 COMMISSIONER LEWIS: At least you know one is
15 coming.

16 COMMISSIONER MC PHERSON: And that information is
17 given to you in a hurry. So, the corollary I guess is that
18 you be provided facts about hurricanes, such facts as you
19 know.

20 COMMISSIONER TAYLOR: With respect to hurricanes,
21 as far as I know, it is the exact situation and the
22 uncertainties, I believe, are made public all the time
23 right on line, however, bad it may be if they miscalculate,
24 and Corpus Christi is evacuated or buttoned up, and it
25 hits nowhere near Corpus Christi. That has happened.

1 We accept that, and I think more than that with respect to
2 hurricanes we demand it. Now, what is the difference between
3 that and a state of uncertainty about a core melt?

4 COMMISSIONER PIGFORD: Mr. Chairman, I have been
5 trying to follow this discussion, and where is it relevant
6 here? Which sentence are we talking about?

7 COMMISSIONER TAYLOR: A missing sentence about our
8 views of what the public needs to know.

9 COMMISSIONER MC PHERSON: I think this is kind of
10 essential. It is a value judgment by us as to how the NRC
11 and the utility and others should have responded, and to use
12 words like cover-up or confusion and what they told the public,
13 all that has to be judged, it seems to me in terms of what
14 we think they should have said given the light of their
15 knowledge.

16 COMMISSIONER PIGFORD: Are you ready to propose some
17 changes in this?

18 COMMISSIONER MC PHERSON: I am trying to get you and
19 everybody else here to say what we think the standard ought
20 to be.

21 COMMISSIONER MARRETT: I will make a statement.
22 I don't think we are going to be able to reach any conclusions
23 about a standard. I am willing to take our description of
24 the situation; this is what happened. Now, it may be we
25 are thinking of some evaluative things, but I have difficulty

1 knowing exactly how that kind of evaluation would fit into
2 the document. So, I am much more willing to go with what
3 the findings from those staff reports are saying with reference
4 to the way information was processed.

5 COMMISSIONER HAGGERTY: Aren't we being sort of
6 silly? We know that very responsible people, including the
7 governor, right or wrong were confused and themselves gave
8 conflicting stories. Now, how the hell under those
9 circumstances -- I mean I just cannot see the trying to make
10 a big case out of a cover-up. It is confusion and all the
11 rest of that.

12 COMMISSIONER LEWIS: That is not what Harry is
13 raising.

14 Harry is extrapolating. I know what you think.
15 Often the results of the truth and the truth of this
16 situation was confusion are dangerous or potentially
17 dangerous, and I agree with you. How much people know about
18 a situation can be extremely dangerous, and I think, however,
19 anything which suggests that there should be rigid self-
20 censorship or imposed censorship to me is even more
21 dangerous because then you leave yourself open to who is
22 going to make that decision of what should be withheld, and
23 I think I would rather risk the fact that people are going
24 to be somewhat confused.

25 I think very strongly that if you have a press that

1 knows how to handle this information, misinformation, it would
2 have helped to evaluate it and put it into some kind of
3 context, and if the sources had been better at communicating,
4 but you are asking the question that one answer to me is
5 totally objectionable and I don't know what you think should
6 be done. Do you think if these guys think there is a potential
7 for danger they should withhold it until they are sure?
8 How do you feel about that?

9 CHAIRMAN KEMENY: Could I back up Harry's hurricane
10 analogy because I think it is a good one, and I have been
11 thinking about it? It seems to me that the weather bureau
12 announces it when they are fairly sure there is going to be
13 a hurricane and they can give some useful information as to
14 where it is heading and who is in danger. I mean if they
15 simply announced that the barometric pressure has now dropped
16 to such and such level at such and such degree longitude
17 and such and such degree latitude, I don't think it would
18 be very helpful to the citizens.

19 COMMISSIONER TAYLOR: They do announce that. They
20 do announce the very beginnings of a hurricane, any suspicion
21 of a development of a new tropical storm, and it is finally
22 given a name, and so on. Just to put a focus on this, I would
23 like to make a specific proposal and that is that we say
24 that at least in the case where there is a delegated official
25 who is supposed to know the important things about what is

1 going on, the public has a right to know everything he knows,
2 at the time he knows it, given whatever one has to say about
3 the mechanics of getting the information out.

4 COMMISSIONER MC PHERSON: It is Denton Friday
5 morning at 10 o'clock. He knows that he, Stello and Mattson
6 think there is enough oxygen around to have an explosion
7 pretty soon, but others, Hendry and his boss do not think
8 so, and he has called a bunch of laboratories around to
9 run some tests or run some models and give him their answer.

10 Now, Denton is the spokesman. He walks out and the
11 press says, "What is the state of this thing? What is going
12 on in the reactor?" Does he say, "Well, three of us think
13 it is going to blow up, but our boss does not think so"?

14 COMMISSIONER TAYLOR: I would say, "Yes."

15 COMMISSIONER MC PHERSON: You would say, "Yes."

16 COMMISSIONER LEWIS: Of course, we have a right to
17 know the truth, and that is the truth of their estimation.

18 CHAIRMAN KEMENY: David Rubin wanted to say something,

19 MR. RUBIN: My point was not on the point just made.
20 I don't know whether you want to get off, but I was just
21 going to say I like the hurricane analogy, and I think
22 it is going to be a useful one, but it means the next question
23 you need to grapple with is what is the equivalent of the
24 US Weather Service for this sort of an accident, because that
25 is, I gather, a pretty credible institution, and people would

1 believe it on hurricanes.

2 COMMISSIONER MARKS: I don't know what the hurricane
3 analogy is. I think that is a failure to understand the state
4 of the science and also, the state of public information about
5 the science. I think the public is much more likely to
6 understand changes in barometer and temperature and even
7 wind direction and speed, et cetera, and the significance
8 of those in terms of hurricanes than they will where there is
9 so much oxygen or temperature and the primary coolant has
10 reached a certain limit. I mean that does not mean a thing
11 to the public right now, and I really don't think there is an
12 easy answer to this, but I think the public has a right to
13 know. There is no question about it, but also, don't you
14 think the public really wants to know something they can use?

15 COMMISSIONER LEWIS: Absolutely, it should be put
16 into some meaningful context.

17 COMMISSIONER TAYLOR: I don't think it is quite
18 clear to say that this is all out of context and the public
19 does not know what to do with the information because it seems
20 to me it would have happened under those circumstances if
21 everything that is intelligible was said to the public, that
22 it would, also be said that we have three people who say
23 that we should instruct or advise the governor of the State
24 of Pennsylvania to order an evacuation out to so many miles,
25 and we have two people who say, "No, we should not say that."

1 I think that is a level of information.

2 COMMISSIONER MARKS: First of all, that is mixing
3 apples and oranges a little bit.

4 COMMISSIONER TAYLOR: That is part of it.

5 COMMISSIONER MARKS: What Harry was saying had to
6 do with estimates of what was going on in the containment,
7 okay, specifically, not the implications with regard to
8 evacuation.

9 COMMISSIONER TAYLOR: No, I think the implications
10 have to be -- I mean that is part of his story.

11 COMMISSIONER MC PHERSON: Yes, that would be, and
12 what were you saying?

13 COMMISSIONER TAYLOR: Not to say that they are
14 x Curies of some obscure isotope in the atmosphere.

15 COMMISSIONER MC PHERSON: That is meant to include
16 the rest.

17 Just where do you come down on that
18 situation where Stello, Denton, Mattson think there is a danger
19 of imminent explosion and Hendry thinks not?

20 COMMISSIONER TAYLOR: I think the public should know
21 that at the time when that discussion is going on.

1 CHAIRMAN KEMENY: As I remember, it is Denton and
2 Mattson who think so, and Stello and Landrie who do not.

3 COMMISSIONER LEWIS: Then the public can say I trust
4 these guys and I do not trust these guys, or I am not going to
5 take the chance until they figure out which is right and which
6 is wrong, and I think that is a decision that people should have
7 a right to know, rather than waiting for these guys to get their
8 act together.

9 COMMISSIONER TAYLOR: People not understanding the
10 meaning of gamma rays and dose levels and so on, we have gotten
11 ourselves into a situation --

12 COMMISSIONER HAGGERTY: We are surely making damned
13 simple moral judgments about people without taking the whole
14 situations into consideration. It always all depends, and it
15 depends on how uncertain they are and so forth.

16 COMMISSIONER TAYLOR: You say the more uncertain they
17 are, the less --

18 COMMISSIONER PIGFORD: It is an unresolvable point.
19 Why don't we conclude the point is unresolvable by us?

20 COMMISSIONER PETERSON: It would seem to me that the
21 community needs to have some mechanism for deciding when they
22 are going to evacuate, some authority who ought to decide that,
23 and it ought to be premediated mechanism instead of waiting
24 until --

25 COMMISSIONER HAGGERTY: The business of response, as

1 Tom brought it in various kinds of acts and various stages,
2 that is a completely different situation, and that I agree
3 with.

4 COMMISSIONER PETERSON: Maybe we ought to be
5 recommending some kind of a mechanism for doing this. Well,
6 the Supreme Court makes much more important decisions on a
7 5 to 4 vote than whether or not we are going to evacuate.

8 COMMISSIONER HAGGERTY: I thought that was all part
9 of the response, that you really had to work on your response
10 situation, and that it depends on the kind of accident and
11 the place you are, and all the rest of that.

12 COMMISSIONER TAYLOR: How much of the truth of what
13 is going on you actually tell the public depends on all that?

14 COMMISSIONER HAGGERTY: It depends on the consequences
15 of what is the truth.

16 COMMISSIONER LEWIS: The truth is a divided opinion,
17 that is the truth, and that should be understood.

18 COMMISSIONER TRUNK: I do not want to know what the
19 reporter thinks, and I do not want to know what the NRC thinks.
20 When he knows that it is explosive, that is when I want to know.

21 COMMISSIONER HAGGERTY: That is different.

22 COMMISSIONER MC PHERSON: Suppose two guys think it
23 is and two guys think it isn't, of the main guys in the NRC.

24 COMMISSIONER TRUNK: Then they should just say we
25 have a serious accident here at the plant. Be prepared for

1 something, but I cannot see being scared. I know on Friday,
2 this is from my friend, the first thing they did when they
3 heard the spout of radiation, they went for their guns and they
4 started moving. Now, that scared a lot of people and they were
5 just worried and they thought, well, I am going to get out of
6 here one way or another, even if I have to shoot my way out.

7 That scares me when the press is giving you
8 information that, you know, frightens me, and I am going to be
9 set in motion to run.

10 COMMISSIONER LEWIS: Supposing the bubble was
11 explosive and they had withheld that information, and then it
12 had blown up? I mean the fact is, you know, we are darned lucky
13 it turned out the way it turned out, that those guys were wrong
14 and it was not possible and so on, but I think --

15 COMMISSIONER HAGGERTY: Well, I do not know if you
16 can say we are lucky or not.

17 COMMISSIONER LEWIS: I mean we are lucky that that
18 particular disaster was never possible.

19 CHAIRMAN KEMENY: But, Caroly, you are overlooking a
20 very important fact here. Even those that believed that it
21 could happen, did not believe it would happen in five minutes.
22 So, therefore, they felt they had some time to try to check
23 on these facts.

24 COMMISSIONER TAYLOR: Say that.

25 MR. KANE: Then nobody has time enough to recommend

1 evacuation. You want to use that time to move people.

2 COMMISSIONER TAYLOR: We will give you an advisory.
3 We do not know. If they really believe, if they are reasonably
4 sure that the most pessimistic calculations, information, is
5 that it cannot possibly do anything for two days, tell people
6 that, and we are desperately trying to find out whether it is
7 two days or two weeks or infinite, and as soon as we know, we
8 will make that known.

9 COMMISSIONER MARKS: I guess the problem I am having
10 with this is that we are assuming that the transmission of
11 whatever anybody is thinking at the moment is a good and has
12 no danger.

13 COMMISSIONER LEWIS: I did not say that.

14 COMMISSIONER MARKS: Well, but the point is, somebody
15 is going to have to exercise judgment the minute you do not say
16 that, and judgment is what we are talking about. If you say
17 that public officials, given the responsibility either because
18 they are elected or appointed, are not to exercise any
19 judgment, but they are to give you the reading off the meters,
20 there is something that is dangerous about that. It is not
21 without danger.

22 It is just like the discussion we had the other day.
23 Let me just finish, please. It is like the discussion we had
24 the other day where David had great trouble accepting the
25 concept that maybe the presence of 500 press was contributing

1 to an increase in the severity of the accident and couldn't
2 we consider some recommendation that would -- without limiting
3 the public's access to information -- limit the number of press
4 on site.

5 At first it was my impression your reaction to this
6 was out of the question, okay? So, I am saying the same thing
7 here. There is a judgment, you know, and I think that I elect
8 my public officials and I like to see the public pay for the
9 Dentons in this world to the extent that they are doing their
10 job, and part of their job is not to withhold information, but
11 to exercise judgment as well.

12 And where does that fit into this thing?

13 COMMISSIONER TAYLOR: Was that exercised appropriately
14 by Harold Denton?

15 COMMISSIONER MARKS: That is another issue, Ted, and
16 do not get off this one, please. Let us deal with this one.
17 That is another issue, whether Denton personally exercised good
18 judgment. That is not the question you are asking.

19 COMMISSIONER PETERSON: Mr. Chairman, could we go back
20 to what Dave Reuben said before, he asked the question, what is
21 the agency which is the counterpart of the weather service?
22 It seems to me we need such an agency.

23 CHAIRMAN KEMENY: That is an important issue. Could
24 we try to resolve this by a show of hands? It seems to me the
25 issue we are coming to is there is one group that feels -- I do

1 not know the size of the two groups -- one group that feels
2 that the public officials have knowledge of certain information,
3 even if others disagree with it, they have to release that
4 information as quickly as possible.

5 The other group feels that they have a right to use
6 judgment to release it at the time --

7 COMMISSIONER MARKS: I not only think they have got
8 a right, I think they have got a responsibility to use it, and
9 it has got to be good judgment.

10 COMMISSIONER LEWIS: That is a very loaded way to
11 raise that question.

12 COMMISSIONER TAYLOR: John, I think this is not an
13 either/or. I certainly do not want to vote against people
14 exercising good judgment. That is not the question. The
15 question is, should information be withheld until there is some
16 official unanimity about what the implications of that
17 information --

18 SPEAKER: No, no.

19 COMMISSIONER TAYLOR: Well, then, what is the issue?

20 COMMISSIONER LEWIS: Well, Harry, you are the one who
21 raised it, come on.

22 COMMISSIONER MARRETT: I cannot vote on the issue,
23 not just because of the way it is phrased, but because, again,
24 I am not quite sure how it fits into where much of what we are
25 doing -- we are at a very philosophical set of questions right

1 now, and it would help me a lot more if we had some precise
2 examples from the TH1 case that we are talking in the context
3 of. What are the instances where the officials had information
4 which they did not pass on that had consequences for the
5 public? I could deal a lot more easily --

6 COMMISSIONER MC PHERSON: Well, the point is, it was
7 not right information, but it was information. It was believed
8 by the majority of the NRC staff that there was a danger of an
9 explosion.

10 COMMISSIONER LEWIS: And Henderson got that information
11 and, you know --

12 COMMISSIONER HAGGERTY: Well, take the rest of the
13 sequence, the confusion for two days, the governor says,
14 know, who is there. He calls the head of the NRC. All of
15 this happens in an hour in a context where this is not supposed
16 to be that vital from time, and gets a different answer, you
17 know.

18 When you take the real situation, people were trying
19 to use judgment. You can argue about their judgment, but they
20 were trying to use judgment. I agree, that is what you expect
21 from a public official, is judgment.

22 COMMISSIONER PETERSON: The next question is, if in a
23 public official's judgment, a public official who has
24 responsibility for safety of the public in the case of a nuclear
25 energy incident, if in that person's judgment something has

1 happened which is hazardous to the public safety, then I
2 believe that person should make that information available to
3 the public.

4 But before that person arrives at making a judgment,
5 then I think he could do more harm than good by speculating.

6 COMMISSIONER TAYLOR: For how long? How long is he
7 going to speculate?

8 COMMISSIONER HAGGERTY: He has to decide whether he
9 has any information that merits calling the public's attention
10 -- I do not see how any person can just say I heard a rumor that
11 so and so happened. You cannot go around telling that, can you?

12 COMMISSIONER LEWIS: I think Russ has got a point.
13 We are not saying here that you should blab everything that
14 goes through your head. I mean this is silly going through
15 this little dialogue about judgment. Obviously there is some
16 judgment you exercise in what you think, at the moment, is to
17 tell.

18 COMMISSIONER TAYLOR: Well, let's just be specific.
19 Suppose somebody had called up Victor Stello on Wednesday
20 afternoon, some reporter, and said I understand that you think
21 that the core was uncovered. Should he tell the reporter, yes,
22 I thought it was uncovered, yes or no?

23 COMMISSIONER LEWIS: Absolutely.

24 COMMISSIONER HAGGERTY: I think it all depends.
25 I think it all depends on whether, by agreement, his boss was

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1 supposed to give the information or not, because there are
2 other factors in addition to that which have to be weighed.
3 I do not think every guy out there has to answer -- in fact, I
4 think one of the worst things possible is if everybody in the
5 whole situation is supposed to respond to every damned newspaper
6 reporter that gives them a telephone call.

7 COMMISSIONER LEWIS: Pat, I can see where you are
8 coming from. You are drying up all my sources.

9 MR. REUBEN: It seems to me that you cannot identify
10 within the various organizations we are talking about people
11 who have risen to a high enough level such that they are supposed
12 to be able to exercise judgment and, as a result, are the ones
13 who ought to be knowing how to give this information out, how
14 much should be given out, and basically they should come into
15 it with a mindset that the public has a right to know everything
16 that they need to know to protect their safety, and that is an
17 awful lot, from my perspective.

18 Now, the more that those people are saying to the
19 media and to the public, the more visible they are, the more
20 they are out there, and I am talking at people like Denton and
21 Stello and Mattson and Hendrie and Irvine and all those people,
22 the more they are out there, and they are paid, it seems to me,
23 to do this, that go to the 90,000 a year salary, the more they
24 are out there, the less the press wants to go to the people
25 that Commissioner Haggerty is talking about, lower level people,

1 because they have got sources that they can trust. But that is
2 not what was happening in the first few days of this accident.

3 As a result, if the press cannot talk to Stello, and
4 Denton does not exist for the press until Friday, and Irvine
5 is being obtuse and also not very much available, they have no
6 other choice and they do go to other sources, and Commissioner
7 Haggerty is right, often these sources only see part of the
8 elephant and as a result, that is what they talk about.

9 COMMISSIONER HAGGERTY: I have no difference of
10 feeling about what you have said whatsoever. We are having some
11 stupid philosophical arguments here, trying to make judgments
12 in the absence of the specific circumstance.

13 CHAIRMAN KEMENY: Let us take the section on evacuation.
14 That seems to be a crucial test case. The Governor of
15 Pennsylvania has the constitutional responsibility to decide
16 that. The question is, as long as the Governor is given all
17 the facts and he is making judgments, should individuals who
18 disagree with the current judgment of the Governor making
19 statements about evacuation. If the Governor says we do not
20 need an evacuation at the moment, should somebody who feels
21 otherwise come out and make a statement, yes, we do?

22 COMMISSIONER LEWIS: Well, how are you going to
23 muzzle somebody? I mean, you know, that is the point, John.

24 CHAIRMAN KEMENY: It is not a question of muzzling.
25 The question is -- I thought I heard the argument that if

1 Denton felt that there should be evacuation, he should have said
2 that to the press, and I feel he had absolutely not business
3 doing that, because that was the decision of the Governor of
4 the State of Pennsylvania.

5 COMMISSIONER HAGGERTY: That is right, and he is the
6 man who was responsible. That is my whole point, it all
7 depends.

8 COMMISSIONER LEWIS: Well, if you look at the
9 recommendations, which I think you all were given, that we
10 were proposing, if you want to get the thrust of it, and I was
11 being facetious before, what happened at Three Mile Island
12 should never happen again. I mean, you know, everybody should
13 have told everything there, because there were no confirmed
14 sources and nobody knew what the heck was happening, so we have
15 been proposing that there be three key sources of information
16 in the future, one for radiation, one for evacuation, and one
17 for utility, each of them which would have a specialty and a
18 special knowledge and, therefore, if you have a situation where
19 the press knows that I am going to get the right information
20 on radiation here, and the right information on what is going
21 on inside the reactor here, and the right information on
22 evacuation there, they are not going to bother calling up all
23 these other people.

24 This is not what occurred at Three Mile Island the
25 radiation information was not even dispensed, so that you

1 really left yourself open to a situation where people were
2 calling up anybody who would tell them.

3 COMMISSIONER HAGGERTY: But isn't there a danger --
4 this is something you can talk about -- but I would point out
5 that there is a possibility there, if somebody is responsible
6 for evacuation, the radiation information, without being fitted
7 in to that responsibility, can be a problem, too. You cannot
8 just say that, Carolyn.

9 Since radiation can be the determinant on evacuation,
10 and you are saying there are going to be two different outputs,
11 I think you really have to say if somebody is responsible for
12 making the decision on evacuation, then the information that
13 is related to that, that is the man who has to couple that in.

14 You have some difficulty in separating that.

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1 COMMISSIONER LEWIS: Except that the state officials
2 basically do not really --

3 COMMISSIONER HAGGERTY: Now you are defining who it
4 is. You have got to have a system. I am really not quarreling.
5 I think you are going to beat this thing by how you set it up.
6 But I really think that when you say that a man has a piece of
7 information he should give it out, it is somebody else who is
8 supposed to be responsible for that evacuation thing, and he
9 has not yet had a chance to call him for whatever reason, then
10 you really have to be very careful about that. If he knows he
11 has provided this --

12 COMMISSIONER LEWIS: Well, there is no reason why
13 somebody cannot say that I am going to check with somebody else
14 and I will get back to you. No one is saying you should blab.
15 We have not even suggested that. There has to be some sense
16 of responsibility. If you absolutely know that a core is un-
17 covered and you do not bother to tell press, I think that may
18 be a little bit --

19 COMMISSIONER TAYLOR: I think that is the point.
20 We have gotten into a big discussion about how many people should
21 we tell and how many people is it appropriate for the press
22 to be able to call and get "official" information. That is a
23 separate issue. As I understand it, the issue that was raised
24 is if there is uncertainty or some facts in people's minds
25 that in one way or another are established as the official

1 source of information -- say, Harold Denton who was established
2 by the White House as the guy to ask. Suppose he knows certain
3 things about the state of the core at the time of a press con-
4 ference that suggest considerable uncertainty about what is
5 going to happen next and he does not know, I am arguing that he
6 should make that clear to the press. There are the following
7 things about the situation out there; here is what we understand
8 and here is what we do not understand. We are trying to figure
9 out what to do. We do not yet know and we will tell you as
10 soon as we can.

11 COMMISSIONER HAGGERTY: Can I ask you a question?
12 Let's say that this conference comes at a moment when he has
13 got this uncertainty. One side of it immediately calls for
14 evacuation. On the other side of it, it doesn't. He has not
15 yet had time, for whatever reason, to give that information to
16 the man who in fact has to make the decision to evacuate or
17 not. Should he tell them that then or should he postpone the
18 news conference?

19 MR. RUBIN: Yes. Actually, that is what happens
20 very often.

21 COMMISSIONER HAGGERTY: That is what you do; you use
22 judgment.

23 MR. RUBIN: The press was kept waiting. They do not
24 mind too much.

25 COMMISSIONER HAGGERTY: That is the same thing as

1 not telling them.

2 MR. PUBIN: You do not keep them too long. It takes
3 15 minutes to call the Governor and say, "I am about to go out
4 and say this."

5 COMMISSIONER TAYLOR: I think that is not a fair
6 scenario for the following reasons. If one is in the situation
7 of calling a press conference, there is something about the
8 mechanics of getting the press. I had these two uncertainties
9 facing me. If we evacuate and, on the other hand, if we do
10 not evacuate. If I have not communicated that to the Governor,
11 I hold up the press conference and call the Governor and then
12 I would openly say what I just told the Governor. But I do
13 that forthwith.

14 COMMISSIONER HAGGERTY: I think that all depends on
15 whether you do it forthwith. It also depends on what the Gover-
16 nor has to do and what the consequences of his decision would
17 be. This may take two hours.

18 COMMISSIONER TAYLOR: No, because I can see that going
19 on indefinitely.

20 COMMISSIONER HAGGERTY: Let's say that the decision
21 to make an evacuation will take 40 minutes. Let's say though
22 that for this to be safe, it means that police have to get
23 into position, fire, doctors and the whole business. If it
24 starts the same business as in a theater when you yell fire
25 and everybody jams up and gets killed at the door, do you want

1 to take that responsibility. That is the Governor's responsibi-
2 lity.

3 COMMISSIONER TAYLOR: That is not the analogy with
4 Three Mile Island. That is too extreme.

5 CHAIRMAN KEMENY: Let me try a different view of
6 approaching the problem. It is clear that what we are talking
7 about is not relevant to what is now in the text. I thought
8 it might be relevant to recommendations.

9 Carolyn, I need to be convinced. I have just quickly
10 reread your recommendations. Let us not get into the question
11 of whether there are two sources or three. I do not want to
12 get into that. But, given this, is there anything in your re-
13 commendation to which our present discussion is relevant?

14 COMMISSIONER LEWIS: We have not dealt with this
15 philosophy.

16 CHAIRMAN KEMENY: It seems to me that I could vote
17 for your recommendation with the slight hesitation that there
18 should be two or three sources without having to resolve the
19 issue we are now facing.

20 COMMISSIONER LEWIS: Right. I think Harry raises a
21 question that maybe should be part of our deliberations. I
22 tried to put that in. I think the public has a right to know
23 everything. The question is at what point in time does it have
24 a right to know.

25 COMMISSIONER KEMENY: Excuse me. It is Ted who

1 raised the question that Harry was responding to.

2 COMMISSIONER TAYLOR: I thought I was responding to
3 Harry's question: What is the public's right to know?

4 COMMISSIONER MC PHERSON: I am trying to get us to
5 agree on standards by which we would judge the performance of
6 all these people.

7 COMMISSIONER LEWIS: Do you suggest, Harry, that we
8 should make a statement of what the public's right to know is
9 in the recommendations?

10 COMMISSIONER TAYLOR: That is certainly strongly
11 implied in the determining the public's right to know. The
12 President implied that we say something about the public's right
13 to know.

14 COMMISSIONER MC PHERSON: It needs to be stated. I
15 think Dave did the best job I have heard anybody do so far. I
16 hope it is on the tape so we can get it back.

17 COMMISSIONER PETERSON: What did you say, Dave?

18 MR. RUBIN: I said that I think that it would be good
19 and necessary for the Commission to come up with a strong view
20 on the public's right to know. My own view is that they have a
21 right to know everything. They certainly have a need to know
22 some things more than others. For example, the notion of radia-
23 tion release is very high on the list of what they need to know,
24 because that relates directly to their safety.

25 I think we can make it clear that there are individuals

1 at the various institutions, that we are going to recommend
2 exist and that will come out of all this, who have as part and
3 parcel of their job the clear and major obligation of serving
4 these public information responsibilities. We expect that they
5 will exercise the good judgment they have or they would not have
6 reached those positions. But their mind set ought to be that
7 the public has a right to know everything about this accident,
8 or at least a good explanation of why it is not known at this
9 point; and where they do not know the answers, they should say
10 they do not know the answers. The more visible these people
11 are and the clearer they are as credible sources to the press,
12 the less likely it will be that the press needs to go to or does
13 go to sources lower down, who may not have the same view of what
14 is happening or as clear a view or have as good information or
15 as good judgment. As a result, if we can identify the sources
16 who have this responsibility of providing information, I think
17 what the public has a right to know and need to know will more
18 likely be served.

19 COMMISSIONER LEWIS: - think number 19 really goes
20 to this. David has done a much better explanation of it. Do
21 you have the list of our recommendations? The public has the
22 right to know everything. What is most important for people to
23 know is information on radiation and on the possible need to
24 evacuate. The technical details are of less immediate signifi-
25 cance to the local populace in terms of health and safety, but

1 they must be made available just the same.

2 So, what we are trying to do here is say they have a
3 right to know everything, but the things that are going to di-
4 rectly affect the health and safety are the things they most
5 need to know. This goes to what Ann is suggesting. In other
6 words, if you set an order of priority in an emergency situation
7 of the things you really ought to get out fast and the things
8 that are likely to endanger the people's health, then you can
9 go into the technical details lower down. It seems to me that
10 if there is a core uncovering and that has the potential for health
11 risk, the fact of the potential of health risk is the thing
12 they have a right to know immediately. But there are other
13 things lower down that may have to wait until we find out the
14 engineering principles at stake.

15 COMMISSIONER MARRETT: I would like to emphasize the
16 need to know, because it is consistent with the document on
17 emergency preparedness. The argument there is that the public
18 needs to know enough information so that members of the public
19 can make decisions about how they are going to behave. So, in
20 a general sense, it is not of whether they have a right or not,
21 but it is a need to get information on which to base responses.
22 I think that is consistent with what we are talking about now.

23 COMMISSIONER LEWIS: Does that help to clarify?

24 COMMISSIONER MC PHERSON: I will say just a few more
25 sentences. I am prepared to rest with that; that is fine. It

1 leaves unanswered the question that I posed. I think that
2 question is a real one for people in the position of a Harold
3 Denton or a Joe Hendry in a situation like this. I do not know
4 if we can offer them any particularly sage advice.

5 My guess is if the situation had been reversed and
6 Hendry thought on Friday that there was a real danger of imme-
7 diate massive release of radiation and the other commissioners
8 did not and his main staff did now, and if he under this rubric
9 of the public having the right to know everything if he then
10 said, "Nobody else in the Commission thinks so, but I think that
11 this area is in danger of a massive catastrophe at any moment",
12 there is no question what would happen. Everybody would run
13 like mad, even though it is only one guy who thinks so.

14 I am assuming that he has the judgment. He has risen
15 to this august position because he has judgment not to say that.
16 He will say, "We are studying the situation. There could be a
17 bad problem. At the moment, the majority of those who are
18 looking at it think there is none." That would be the judgment
19 that he would exercise, instead of saying "I think there is
20 going to be a catastrophe." I do not believe he would do that.

21 COMMISSIONER PETERSON: What if it is the other way
22 around, Harry. If his whole staff says there is going to be
23 one and he does not think so, what should he say?

24 COMMISSIONER HAGGERTY: It all depends on why he
25 does not think so.

1 COMMISSIONER LEWIS: While you are all dithering it
2 could blow. That is what bothers me.

3 COMMISSIONER HAGGERTY: It all depends on why he does
4 not think so.

5 COMMISSIONER PIGFORD: I suppose this can be settled
6 by some vote.

7 CHAIRMAN KEMENY: That is what I am trying to get.

8 COMMISSIONER PIGFORD: I am not going to move this
9 formally, but I think it is non-resolvable. We might conscious-
10 ly conclude that it is unresolvable. It is an important issue.
11 If it is useful, I would move that.

12 COMMISSIONER TAYLOR: You want to move to move on, I
13 think.

14 COMMISSIONER MC PHERSON: I am not going to protest
15 it, if you are all satisfied with recommendation number 19 here.
16 It covers a lot of my concern, but not all. But I will abandon
17 the rest of it and I will not raise it as an issue.

18 COMMISSIONER PIGFORD: Are you asking us to accept
19 19?

20 COMMISSIONER MC PHERSON: I thought you were prepared
21 to do so.

22 CHAIRMAN KEMENY: No, Tommy is trying to argue for
23 the position that this Commission is not going to resolve the
24 issue of whether the public has the right to know everything.
25 That is what I understand.

1 COMMISSIONER LEWIS: The public does have a right to
2 know.

3 COMMISSIONER MARKS: But the public does not know
4 what we are doing here.

5 (Laughter.)

6 COMMISSIONER LEWIS: Yes, they will.

7 COMMISSIONER MARKS: They will, but they don't now.
8 If somebody were to ask you as you walked out the door, would
9 you tell them? If a newspaperman came up.

10 COMMISSIONER TAYLOR: There is a reason for the pre-
11 sent situation. As far as I know, nothing that we are delibe-
12 rating about here has to do with an immediate issue of danger
13 to the public health and safety.

14 COMMISSIONER MARKS: That is a judgment you are making.
15 That is what we are talking about. It is a very difficult
16 thing to put in here; but without it, it is not the real world.
17 People are always making judgments. I think if we want to make
18 a recommendation that is a guideline, I think it has to be
19 structured.

20 This is a wonderful statement and one that I would
21 like to be able to include in the recommendations to be imple-
22 mented. But, in fact, by the time you get all through it, it
23 really will not be. What do we really want that can be imple-
24 mented? Because the public has a right to know everything.

25 DR. LEWIS: We do not say at what point though. That

1 is the question. Obviously, it has to be left to judgment.

2 COMMISSIONER MARKS: Okay, well then we are coming
3 together. I am inclined to agree with David that we ought to
4 resolve it. I was going to vote for Tom, but I think this is
5 something we could try to resolve and it is very important.

6 CHAIRMAN KEMENY: Okay, let me try resolving it by
7 a ruling from the Chair and you can overrule me if you wish.
8 I rule that this subject has gotten as much discussion as is
9 useful at this stage. We should return to it when we consider
10 Carolyn's proposed set of recommendations. Given that the
11 issue has been left open, we will try to proceed at least
12 finish the end of the section. Is there any objection?

13 COMMISSIONER PETERSON: I think, Mr. Chairman, we
14 have a right to know what item 15 through 18 is in Carolyn's
15 document. We skipped from 14 to 19.

16 COMMISSIONER LEWIS: I am sorry. You are right. I
17 was so tired when I was writing this.

18 COMMISSIONER PETERSON: You are not covering up?

19 (Laughter.)

20 COMMISSIONER TAYLOR: Are they just out of sequence
21 or are they missing?

22 COMMISSIONER LEWIS: No, none are missing, but I
23 was missing when I was typing this because I was so tired.

24 COMMISSIONER PETERSON: So you are talking about
25 number 15 then?

1 COMMISSIONER LEWIS: Yes, that is really 15. I am
2 sorry about that.

3 CHAIRMAN KEMENY: Okay, could we take up from "due
4 to misinformation" and in one case the hydrogen bubble to the
5 Commission of Scientific Errors, et cetera. Is the rest of that
6 paragraph all right?

7 COMMISSIONER LEWIS: We are on page 20.

8 COMMISSIONER MARRETT: Again, to follow up on the
9 bottom of page 20, Tom's earlier statement is that we need to
10 hesitate with the use of experts and probably the precision
11 on to whom we are referring here.

12 COMMISSIONER PIGFORD: Official sources.

13 COMMISSIONER MC PHERSON: It is the third line from
14 the bottom on page 20, the word "expert".

15 COMMISSIONER PIGFORD: It begins on the second sen-
16 tence of the thing. I would be happy with "official sources"
17 and "disagreements among those officials".

18 CHAIRMAN KEMENY: Okay, let's note generally that
19 instead of experts, we will say "official sources".

20 COMMISSIONER MC PHERSON: Is the Met Ed official?

21 COMMISSIONER LEWIS: They were made officials.

1 COMMISSIONER MARRETT: Not necessarily public

2 officials -- any officials who --

3 CHAIRMAN KEMENY: I was only trying to make two
4 terribly small points here, which seemed relevant. That one,
5 in the early stages people were underemphasizing the accident
6 and in the later stages that there were statements being made
7 by official spokespersons who, which as we now know the fact,
8 made the situation look worse than it actually was. This is
9 all part of the context that newspaper reporters were getting
10 information that was not accurate. That is the only point.

11 Yes, Dave.

12 MR. RUBIN: The sources in charge were Met Ed and
13 the NRC. They didn't need to be expert. They were simply in
14 charge.

15 COMMISSIONER PIGFORD: In the third sentence, we
16 have already pointed out that a --

17 CHAIRMAN KEMENY: No, no. That is going to be all
18 changed.

19 COMMISSIONER LEWIS: Yes, you have interchanged
20 those.

21 CHAIRMAN KEMENY: Okay. So, this was giving out
22 bad information. The next point I am trying to deal with,
23 which is a major point in the information thing is that even
24 when they were giving the right facts, they were expressing it
25 in a way that the press couldn't reasonably be expected to

1 understand. And I will change experts.

2 COMMISSIONER PIGFORD: Expertise is okay. When
3 you say the true experts, some different noun is needed there.

4 CHAIRMAN KEMENY: False experts.

5 COMMISSIONER PIGFORD: What do you want to call them?
6 Officials, spokesman --

7 COMMISSIONER TAYLOR: Where are we?

8 CHAIRMAN KEMENY: On page 21, the first full para-
9 graph. What I am trying to say here and we need here
10 slightly different wording, there are two kinds of things
11 happened as the report says, that first of all, it is often
12 the people who would speak to the press had not briefed by
13 those who had the knowledge. And even then, those who sup-
14 posedly had the knowledge spoke, spoke in a way that the press
15 couldn't understand.

16 COMMISSIONER LEWIS: Why don't you say that when
17 those who did have the knowledge spoke?

18 COMMISSIONER PIGFORD: Just say, their statements
19 were often couched, because their refers to the previous sen-
20 tence, doesn't it?

21 CHAIRMAN KEMENY: No. The previous sentence is
22 those who did most of the briefing.

23 COMMISSIONER PIGFORD: Oh, all right. I understand.

24 CHAIRMAN KEMENY: This is a Denton reference, when
25 Denton comes on the scene and presumably knows it, we are

1 told from the study that he will use jargon to the point where
2 the press couldn't reasonably understand.

3 COMMISSIONER PIGFORD: So, then, those who did have
4 the knowledge.

5 CHAIRMAN KEMENY: The rest of the paragraph, try to
6 work in a point you made a couple of times.

7 COMMISSIONER MC PHERSON: Without making a judgment
8 of our own. Is that correct? As to which was better or worse.

9 CHAIRMAN KEMENY: I think he said it flew in the
10 face of a long tradition of the press of checking facts from
11 multiple sources.

12 COMMISSIONER LEWIS: -- centralizing. It stopped
13 the confusion.

14 COMMISSIONER TAYLOR: The first sentence in the
15 last paragraph, it says, nor are the media themselves totally
16 blameless. There is a different meaning there that somehow --
17 it suffers just a little exception. They were blameless nor
18 were the media themselves blameless.

19 COMMISSIONER LEWIS: Yeah. That is right. It is
20 redundant.

21 COMMISSIONER PIGFORD: On the last sentence of that
22 paragraph, where it says and some of the visual images used
23 in reporting tended to be sensational, I would suggest that
24 the some tended to be sensational and others were downright
25 fraudulent.

1 COMMISSIONER LEWIS: Downright what?

2 COMMISSIONER PIGFORD: Fraudulent, incorrect:

3 COMMISSIONER LEWIS: What are we referring to here?

4 COMMISSIONER PIGFORD: Technically, others conveyed
5 false information. Is that a better way?

6 COMMISSIONER TAYLOR: Why is the steam coming off.

7 COMMISSIONER LEWIS: What are we referring to --

8 COMMISSIONER TAYLOR: Water vapor coming off the --

9 COMMISSIONER PIGFORD: Others conveyed false inform-
10 ation. I would like to say it very nicely.

11 COMMISSIONER LEWIS: Contained false impressions,
12 I think --

13 COMMISSIONER PIGFORD: Information. I gave you one
14 where they had these bright spots which are presumably the
15 radiation taking --

16 COMMISSIONER LEWIS: Oh, yeah. That was --

17 COMMISSIONER MARKS: In the sentence before that --

18 CHAIRMAN KEMENY: I would just as soon have it in
19 the factual base --

20 COMMISSIONER LEWIS: Tend to be misleading.

21 COMMISSIONER MARKS: Given the circumstances the
22 media showed restraint overall, rather than remarkable.

23 CHAIRMAN KEMENY: Okay.

24 COMMISSIONER LEWIS: We think it is remarkable to
25 find the -- that is what Harry wanted in there.

1 CHAIRMAN KEMENY: I would like to make an addition
2 to the first sentence. These were written before the findings.
3 The first sentence should have added to it and did not have
4 available to them people who could explain this -- something
5 like that.

6 COMMISSIONER TAYLOR: What does excellent press
7 mean?

8 COMMISSIONER PETERSON: Where?

9 COMMISSIONER MC PHERSON: Good story.

10 COMMISSIONER TAYLOR: Page 22. We, therefore,
11 conclude that the media coverage made excellent press.

12 COMMISSIONER LEWIS: Good story, good copy, good
13 reading.

14 COMMISSIONER TAYLOR: I guess I don't know what
15 that means. What is good copy?

16 COMMISSIONER HAGGERTY: Sold a lot of papers.

17 COMMISSIONER MC PHERSON: I think it is probably
18 unnecessary.

19 COMMISSIONER TAYLOR: I don't know -- is that a good
20 thing about the press or a bad thing about the press that we
21 are saying or what is the substance.

22 COMMISSIONER MC PHERSON: Neutral and meaningless,
23 really.

24 COMMISSIONER TAYLOR: We know that it sold newspapers.

25 CHAIRMAN KEMENY: Okay. I am taking it out. We

1 therefore conclude that while the extent of the coverage
2 would justify the combination of confusion and weakness in
3 the sources of information and lack of understanding on the
4 part of the media resulted in the public being poorly served.

5 COMMISSIONER MARRETT: I have one question on this.
6 Does much of this -- the first sentence on this page says,
7 even the national media, but much of the orientation seems to
8 be towards the national audience and not whether the public
9 in Middletown was getting information. I don't know whether
10 it makes a difference in the way it is presented. But how
11 well, for example, was the public information of the local
12 population.

13 COMMISSIONER MC PHERSON: I thought that the radio
14 study was very interesting and I think it is worth a sentence
15 in here.

16 COMMISSIONER LEWIS: I think we should put that in.

17 CHAIRMAN KEMENY: That was the trouble. I had to
18 write this section early and I didn't have the late results.

19 COMMISSIONER LEWIS: We have some recommendations
20 on that.

21 COMMISSIONER MARKS: Also, I would say there is
22 nothing in here, John, about the role of the public relations
23 officers of the NRC and the utilities.

24 CHAIRMAN KEMENY: I guess I lumped them together in-
25 to the official sources here.

1 COMMISSIONER LEWIS: On this, do we want to get
2 into that.

3 CHAIRMAN KEMENY: I mean, there will be a whole
4 chapter after all.

5 COMMISSIONER HAGGERTY: -- that phraseology is
6 turned around to fit your paragraph. It does say something
7 about the public information.

8 COMMISSIONER PIGFORD: Are you ready for the third
9 paragraph on 23?

10 CHAIRMAN KEMENY: Um hum.

11 COMMISSIONER PIGFORD: The fourth line, application
12 of nuclear power, I suggest energy instead of power.

13 COMMISSIONER MC PHERSON: In a fear that existed
14 in a human being with respect to nuclear energy --

15 CHAIRMAN KEMENY: That is what I meant --

16 COMMISSIONER MC PHERSON: Third line of that para-
17 graph, vitally important to remember the innate fear with re-
18 spect to nuclear energy.

19 COMMISSIONER LEWIS: Innate sounds like a warning.

20 CHAIRMAN KEMENY: I don't mean innate here. I meant
21 to be clear or something like that.

22 COMMISSIONER HAGGERTY: Just remember the fear or
23 something like that.

24 COMMISSIONER PIGFORD: We aren't going to debate
25 the last part of that.

8
1 CHAIRMAN KEMENY: I tried to doctor the issue by
2 recognizing the problem here and at least arguing for signi-
3 ficant advance preparation and then saying in this case it
4 did not occur.

5 COMMISSIONER PIGFORD: I think it is a good state-
6 ment. It has been experimentally verified.

7 COMMISSIONER MARKS: Do you think if I moved accept-
8 ance of the next section --

9 COMMISSIONER TAYLOR: The NRC?

10 CHAIRMAN KEMENY: It might be since we are running
11 late maybe we can do the NRC first thing tomorrow morning
12 and let's see, we have discussed the limits of the investiga-
13 tion and that now goes into the prologue. I don't have any-
14 thing on the transition. One-third of a page is on transition,
15 just to remind you that sometimes you may or may not want to
16 deal with that issue. So, the only thing left is if you think
17 it is worthwhile putting in something like the concluding
18 few pages here.

19 COMMISSIONER MARRETT: You said about the NRC, we
20 would take up tomorrow. There is the utility in here, too.

21 CHAIRMAN KEMENY: Oh, I skipped that. I am terribly
22 sorry. I did not mean to skip that at all. I turned too
23 many pages.

24 COMMISSIONER MARRETT: Page 29.

25 CHAIRMAN KEMENY: I am very sorry. They are all the

1 same color.

2 COMMISSIONER MC PHERSON: -- filling in.

3 COMMISSIONER MARRETT: Oh, I don't know. I thought
4 we had gone over it.

5 COMMISSIONER LEWIS: John, could I just make one
6 little interpolation that Dave has suggested on page 22, the
7 coverage was full of mistakes and statements so garbled as to
8 make the stories useless as a source of information. We are
9 really sort of giving a rap to everybody. Toward the end of
10 the first paragraph on page 22.

11 CHAIRMAN KEMENY: Oh, of course, yes.

12 COMMISSIONER MARRETT: What was the change?

13 COMMISSIONER LEWIS: To make most of the stories --
14 or many.

15 COMMISSIONER TAYLOR: You could get the fact that
16 there were not dangerous doses of --

17 COMMISSIONER LEWIS: They didn't put it in context.
18 It was a severe flaw about all the media, many of the stories.

19 CHAIRMAN KEMENY: It is a more careful finding that
20 there were almost none that did not have serious misstatements --

21 COMMISSIONER LEWIS: In terms of putting it in
22 context. The facts were right, but they were not meaningful.

23 COMMISSIONER TAYLOR: Suggest that it would have
24 been better if nothing had been published.

25 COMMISSIONER LEWIS: No, no. Obviously not.

1 CHAIRMAN KEMENY: Are you willing to go to the
2 utility?

3 COMMISSIONER PIGFORD: On the first sentence on
4 page 29, I think the idea is important, but literally the
5 utilities didn't treat nuclear power just like conventional
6 power plant organizations. For example, quality assurance
7 was forced upon them in a far more rigid structure than ever
8 seen before. And they were required to set up separate organ-
9 izations on that. And there are a few other things. They
10 were required to have an in-house committee to review safety
11 and so forth. So, there are differences.

12 COMMISSIONER HAGGERTY: Not sufficient, but there
13 were differences and they vary like heck among the companies,
14 too.

15 COMMISSIONER MARKS: You could say it quite differ-
16 ently. You could say that they were placed in the hands of
17 the existing electric utilities who did not treat organiza-
18 tionally these new responsibilities on a commensurate --

19 COMMISSIONER PIGFORD: You haven't found that. You
20 can only look at Three Mile Island.

21 COMMISSIONER HAGGERTY: There are all kinds of --

22 MR. KANE: For whatever it is worth, I just read --

23 COMMISSIONER PIGFORD: You can make the point and
24 you would be right philosophically over all, but it is not
25 right completely.

1 COMMISSIONER MARRETT: It seems that it would take
2 so much to try to fix up the plant to qualify it, but maybe
3 the points that we want to get to are really beginning in the
4 next paragraph about the division of responsibility for deci-
5 sion making. I know it is a different thing.

6 COMMISSIONER HAGGERTY: I think that you could say
7 that it would appear that there is an inadequate amount of
8 attention.

9 COMMISSIONER PIGFORD: I agree with that, but I
10 think we must limit it to Three Mile Island unless we have
11 some data from another utility.

ENWOOD
TAPE 25

1 CHAIRMAN KEMENY: If, again and again in their
2 positions and testimony that people felt that this was one
3 of the problems and I may not have stated it quite correctly
4 here.

5 COMMISSIONER MARKS. Right, it is in that article,
6 too.

7 So, at least I think we should make it specific
8 to Three Mile Island and then we should put a few caveats
9 because it is a little too sweeping.

10 COMMISSIONER MARRETT: How would you do that?

11 CHAIRMAN KEMENY: I agree it is too sweeping, but
12 how do you make it specific to Three Mile Island?

13 COMMISSIONER PIGFORD: I think you might, for
14 example, drop the first sentence and say, start with the
15 second sentence, "In the creation of nuclear power, of a
16 commercial generation of energy, utilities tended to treat
17 this new source of power as another fuel similar in many
18 respects to coal and oil," and I think probably we are
19 talking about a tendency.

20 On the last, the third sentence, from observing
21 the GPU organization there appears to be insufficient
22 attention paid to the development of a massive support
23 system of scientists and engineers. Nuclear power requires
24 management qualifications and attitudes of a very special
25 character. You might say that --

1 COMMISSIONER TAYLOR: Can't that be the first
2 sentence?

3 COMMISSIONER PIGFORD: Sure, but at least that is
4 the way I would structure it making statements that are either
5 obvious or else specific to Three Mile Island.

6 CHAIRMAN KEMENY: Yes, I think specific meaning
7 drawn specifically out of Three Mile Island but not necessarily
8 limited to it because you said, "From our examination of
9 GPU."

10 COMMISSIONER PIGFORD: Yes, sir, that is right.

11 COMMISSIONER HAGGERTY: Again, I think you can quote
12 sources. That is all right.

13 CHAIRMAN KEMENY: I am trying, in effect, to build
14 a background here for what has been suggested as a possible
15 recommendation.

16 COMMISSIONER TAYLOR: Is the thought here really
17 that what happened in the TMI case that to first approximation
18 an ordinary utility which had been in the business of producing
19 power with fossil fuels which sort of delivered a nuclear
20 steam supply system and then tried to fit it in to their
21 previous way of doing things, I mean is that the thought?

22 CHAIRMAN KEMENY: The first approximation, yes.
23 I mean I am guessing that some were ready for that and some
24 were not.

25 COMMISSIONER TAYLOR: What I am concerned about is

1 that any utility, I might add, could come back and say, "Look,
2 here, we have got a whole room full of documents indicating
3 that in the licensing process and our decisions, where to
4 build the plant and transfer into the moisture creek and so
5 on, nuclear, nuclear, nuclear affected what we did, and we
6 were not treating this as just another slightly modified
7 fossil fuel plant."

8 So, the question is what is the important message
9 we are trying to get across?

10 COMMISSIONER HAGGERTY: Perhaps not enough emphasis
11 on the use of it. I think you can say some things like that,
12 but you have great difficulty with overdraw. They are not --

13 COMMISSIONER TAYLOR: We can get a long tale of
14 woe, I think much of which is well taken about an unending
15 series of meetings with ACRS and the licensing people and
16 so that would have never come up if they had been burning
17 coal. The question is what is a real point, and I guess part
18 of it is centered around to some extent the control room.

19 CHAIRMAN KEMENY: Operator training is where I am
20 putting my major emphasis here.

21 COMMISSIONER HAGGERTY: Look, John, we have picked
22 up Ted's point. Again, to say, "They treated it the same,"
23 their regular utility operators don't have to go through
24 two years of training to get a license.

25 The point is these flat statements, they can say,

1 "You don't know what you are talking about. That is not the
2 point." Whatever they have done, it has been insufficient
3 to --

4 COMMISSIONER TAYLOR: I am wondering if we can take
5 a more positive pointof view, and that is to say that nuclear
6 energy is special. It concentrates a capacity to produce a
7 great deal of energy from a small amount of material. It is
8 associated with radioactive products. That is what we mean
9 by special, and therefore it needs to be managed for what it
10 is, that is something quite different from fossil fuels.

11 With that as a lead in -- pardon me?

12 COMMISSIONER PIGFORD: I think trying to justify it
13 is going to be so hard.

14 COMMISSIONER TAYLOR: Trying to justify what?

15 COMMISSIONER PIGFORD: You know, why it should be
16 treated differently.

17 COMMISSIONER TAYLOR: Oh, I think that is another
18 thing.

19 COMMISSIONER PIGFORD: John's approach just stating
20 it needs to be treated differently.

21 COMMISSIONER TAYLOR: If everyone will accept that,
22 it will be fine.

23 COMMISSIONER PETERSON: Why don't we reverse this,
24 as someone suggested and start like this, nuclear power requires
25 management qualifications and attitudes of a very special

1 character, as well as a massive support system of scientists
2 and engineers. We feel that an insufficient attention was
3 paid to this by the utilities. There was a tendency to treat
4 this new source of power as simply another fuel similar in
5 nature to coal or oil.

6 COMMISSIONER PIGFORD: I agree until you said was
7 treated by the utilities. We have not examined the other
8 utilities enough to conclude that.

9 COMMISSIONER PETERSON: Okay, by TMI.

10 COMMISSIONER PIGFORD: By GPU.

11 COMMISSIONER PETERSON: By GPU. Fine, that is better.

12 COMMISSIONER MC PHERSON: Do we have depositions or
13 other testimony or other evidence to justify saying that
14 about GPU?

15 COMMISSIONER TAYLOR: It is not literally true;
16 that is the thing that troubles me.

17 COMMISSIONER MC PHERSON: That GPU treated nuclear
18 as if it were just another plant, an electricity producing
19 plant, no different essentially from coal and oil.

20 MR. ROCKWELL: I would say that the thrust of the
21 depositions is that they did treat it differently, but they
22 not treat it differently enough.

23 COMMISSIONER PIGFORD: But that is Russ' statement
24 that not sufficiently.

25 COMMISSIONER PETERSON: We feel that insufficient

1 attention was paid to this by GPU.

2 COMMISSIONER MC PHERSON: It is that middle sentence,
3 I guess, we are all balking a little bit about. There was a
4 tendency to treat it as just a new source of simply another
5 fuel.

6 COMMISSIONER PETERSON: I thought you could tag it
7 in in the end, but obviously we have to leave it out.

8 COMMISSIONER MC PHERSON: I heard that from a whole
9 bunch of people, but it has been speculation or --

10 COMMISSIONER HAGGERTY: It is not really true, but
11 insufficient attention to the differences is clear.

12 COMMISSIONER PETERSON: I visited quite a few of
13 these plants when I was at CEQ, and the management of those
14 utilities would make that point, how I came up in the ranks
15 of the utility business and I hired this guy who knows
16 something about nuclear energy to take care of this. So that
17 just permeates the whole industry, and there is a common
18 discussion among them about the fact that they have put most
19 of their management, key people who came up through the ranks
20 in the old utility business.

21 COMMISSIONER MC PHERSON: That is what Schlesinger
22 told us.

23 COMMISSIONER TAYLOR: You cannot say that about
24 Wisconsin Electric, for example.

25 COMMISSIONER PETERSON: Yes, I can because a neighbor

1 of mine who is now head of Wisconsin Power and Light Company
2 took me around in his helicopter, and he was one of the guys
3 who made that statement. He came up through the ranks as a
4 coal-fired power plant operator.

5 COMMISSIONER TAYLOR: But not his executive
6 VP, Sol Bernstein.

7 COMMISSIONER PETERSON: I know, but he is not the
8 head guy. This guy was telling me that key parts of their
9 company were oriented toward coal-fired plants, and they had
10 to get more nuclear scientists into their organization. That
11 is the point he was making.

12 COMMISSIONER TAYLOR: But that is a completely
13 different thing. That could be just as well used as
14 justification that they recognized it was different.

15 COMMISSIONER PETERSON: Oh, yes, they recognized
16 it was different.

17 COMMISSIONER TAYLOR: That is the point, really.
18 I just don't think that they perhaps recognized it enough.

19 COMMISSIONER PETERSON: Schlesinger, the point that
20 I got from him at our very early meeting was that the
21 people at the top of the utilities tended to be veterans of the
22 coal-fired or oil-fired system or financial people, that the
23 nuclear people were hired experts to run that, but they did
24 not have the standing in the entire utility that these other
25 guys did, and so far as the commitment of resources as being

1 able to call on the resources of the entire utility for the
2 special needs of the nuclear entity, that was insufficient
3 in the case of many utilities.

4 COMMISSIONER TAYLOR: That could be quite reasonable
5 to say that a utility does not want to hire somebody who
6 grew up in the postwar period as a reactor engineer to put
7 into the context of running the utility which requires a whole
8 lot of other talents not known to any reactor engineer.

9 COMMISSIONER PIGFORD: Let us look at the system
10 we have data on, GPU. At the head is a nuclear engineer,
11 I think, DeCamp. So, already we are confronted with some
12 exceptions to what we are seeing.

13 COMMISSIONER HAGGERTY: Herbein is in between.
14 His president, Kreitz, was weak and not knowledgeable, but
15 on both sides they really work.

16 I think all we are really saying is we should not
17 generalize this much.

18 COMMISSIONER TAYLOR: In summary, though we cannot
19 even say the same thing about, make the point about -- let us
20 not make it then.

21 COMMISSIONER MARRETT: I thought originally Russ'
22 statement was moving from we feel that insufficient attention
23 was paid to this fact by GPU to then going back consequently
24 GPU did not have enough technical expertise available for
25 handling the accident which occurred at TMI so that we are

1 not talking about the industry in general, but then that last
2 question I don't know. Are we saying that, that GPU, Met Ed
3 did not have sufficient engineering capability to handle the
4 accident?

5 COMMISSIONER PIGFORD: I think so, particularly
6 the people on board during the day of the accident. We have
7 already made conclusions that they were not properly trained.

8 COMMISSIONER MARRETT: If we do that we don't have
9 to get into whether or not this was the result of a tendency
10 to treat coal and nuclear.

11 COMMISSIONER PETERSON: In other words, we say
12 that nuclear power requires management qualifications and
13 attitudes of a very special character, as well as a massive
14 support system of scientists and engineers, and we feel that
15 insufficient attention was paid to this by GPU.

16 COMMISSIONER PIGFORD: Massive is maybe --

17 COMMISSIONER HAGGERTY: Extensive?

18 COMMISSIONER PETERSON: Okay. Massive has got a
19 peculiar type of concept. It certainly takes an extensive
20 system.

21 COMMISSIONER MC PHERSON: Is it a result of the
22 above, of the first paragraph that there is a divided system
23 of decision making?

24 CHAIRMAN KEMENY: I thought so, in that we heard
25 again and again the GPU did not have it on their own. So, they

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1 had to contract here, and they had to contract there.

2 COMMISSIONER HAGGERTY: It is a divided system.

3 COMMISSIONER PIGFORD: This divided system exists
4 even if they did follow their own engineering like Goodwin
5 does because Duke still relies upon B&W, and so the second
6 paragraph is not really a result of what we said in the
7 first paragraph.

8 COMMISSIONER HAGGERTY: There is a divided system.

9 COMMISSIONER PIGFORD: There is a divided system
10 of decision making.

11 CHAIRMAN KEMENY: Incidentally I just looked back
12 at the Wilson article which goes much further than my
13 original statement, in case you want to know. I mean he has
14 explicit examples of where they treated it just like non-nuclear
15 power and said, for example, that the control room problem
16 goes there and that they have no recognition that this is
17 very different from coal power or oil power.

18 COMMISSIONER HAGGERTY: But that is quite different
19 from saying -- you see, we are making the statement -- I think
20 he can be wrong. You can make him wrong, too, when you say
21 that they treated them the same. They did not treat them the
22 same. They did not treat them differently enough which is
23 quite a difference.

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1 COMMISSIONER PIGFORD: Now, I think if we are on 30,
2 the first full paragraph -- oh, I am sorry, returning to the
3 previous page, I hope the second sentence might be made a
4 little more explicit that it refers to GPU because -- I am sorry,
5 the third sentence, saying, our report contains a number of
6 examples in the case of GPU, because the first two sentences
7 are generalities which I think are correct.

8 COMMISSIONER HAGGERTY: TMI rather than GPU. That
9 involves GPU but I think it was always under TMI.

10 COMMISSIONER PIGFORD: All right. Now, on page 30,
11 carrying this same thought --

12 CHAIRMAN KEMENY: I have already changed the second
13 sentence, however, Met Ed did not --

14 COMMISSIONER PIGFORD: All right.

15 COMMISSIONER HAGGERTY: Then again, the same thing,
16 they do not have sufficient place to carry out the training
17 program --

18 CHAIRMAN KEMENY: Yes, I just changed that.

19 COMMISSIONER HAGGERTY: All right.

20 COMMISSIONER MCPHERSON: John, what is our basis for
21 saying that B&W felt no responsibility for quality control of
22 the total training program?

23 CHAIRMAN KEMENY: They testified to that in consi-
24 derable detail that what they did was, they carried out what
25 they were contracted to do. They contracted not in any way --

1 COMMISSIONER MCPHERSON: Could we underline total?
2 Maybe it is all right.

3 COMMISSIONER HAGGERTY: I think there is a problem.
4 Your statement is absolutely true but there is an implication
5 that they should have been responsible and the truth is they
6 are only responsible --

7 CHAIRMAN KEMENY: No, no. I didn't mean to say that.
8 I am trying to say the opposite, that B&W does have the ex-
9 pertise but they did not get a chance to look overall as to
10 what the training program --

11 COMMISSIONER HAGGERTY: Why not say they had no
12 responsibility instead of they felt none, they had no responsi-
13 bility for quality control--

14 CHAIRMAN KEMENY: That is fine.

15 COMMISSIONER TAYLOR: And underline total, I think
16 that is important.

17 COMMISSIONER HAGGERTY: There is a comment at the
18 end about the simulator. I think, I mean I have no hesitation
19 in my own judgment with respect to the simulator training
20 being inadequate and not properly set up. I am not sure though
21 about the significance of it not being exactly the same that
22 this putting it in this fashion doesn't put more emphasis on
23 that point than, in fact, it justifies. I would say something
24 else that gets the point across -- being exactly similar isn't
25 nearly as important that the functions have been simulated and

3
1 the actions and reactions that are involved in a variety of
2 things, the fact that they are exactly the same wouldn't make
3 much difference.

4 CHAIRMAN KEMENY: The conclusion I come to is that
5 the same data differs in certain significant ways.

6 COMMISSIONER HAGGERTY: Well, I am not sure of that.
7 I think what the problem really is that the simulator program
8 doesn't simulate the actions and reactions that are involved
9 in certain kinds of accidents. I don't think the significance
10 is that there are some differences between the arrangements in
11 the simulator and the arrangements in the control room.

12 COMMISSIONER PETERSON: Since they hadn't envisioned
13 this chain of events.

14 COMMISSIONER HAGGERTY: See, I think they can be
15 quite different in physical location, and all the rest if, in
16 fact, the man was trained in the actions and reactions. That
17 would have been much more important than that they were similar.

18 CHAIRMAN KEMENY: Let me ask you, I mean is it really
19 good to say that a B747 pilot -- that in a simulator it wouldn't
20 be important that the controls are in the same place as in the
21 cockpit?

22 COMMISSIONER HAGGERTY: Well, you have a different
23 situation I think. You know, I don't think that is nearly as
24 important as the other one, John.

25 COMMISSIONER LEWIS: Well, why don't you add the

1 other point? It seems to me this is one point. It is not the
2 same.

3 COMMISSIONER MARRETT: It is a subject of a lot of
4 controversy right now over how to design simulators for dif-
5 ferent kinds -- whether the design has to be exactly the same
6 as someone will encounter and generally the functions have to
7 be such that --

8 COMMISSIONER LEWIS: Well, I think it is just a state-
9 ment of fact that it is different.

10 COMMISSIONER HAGGERTY: You see, the problem would be
11 if this is so important, you really have to either make them
12 all alike or you have to build a new simulator every time if
13 they have to be alike. What is important is that the functions
14 be all duplicatable and that these actions and reactions are
15 programable and are programmed. That is where really there is
16 a deficiency.

17 COMMISSIONER TAYLOR: Well, we looked at some simu-
18 lators for Westinghouse and Western Engineering, and so on, to
19 get some idea whether this is unusual.

20 COMMISSIONER HAGGERTY: You know that a lot of the
21 plants don't have simulators. They only have the simulators
22 that they can rent. Now, that situation is changing. So it
23 stands to reason that they are not identical. I can't say
24 anything about whether they duplicate functions adequately or
25 not. But since the plants aren't identical, and there isn't

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1 one simulator for every plant, there would have to be some
2 differences.

3 COMMISSIONER TAYLOR: Well, we can make the observation,
4 it is an important one that for various reasons there are
5 significant differences between the simulator, the B&W simu-
6 lator and the TMI control room. What that tells me is some-
7 thing about operator training that goes beyond procedures, and
8 so on, so that in spite of that difference they know enough
9 about what is going on so that those differences are not im-
10 portant. That suggests something about an additional aspect
11 of the training, not that there should be an identity --

12 COMMISSIONER PIGFORD: I think that is really what
13 I am trying to reach for. I am not objecting to making the
14 point that there are differences. That, if anything, makes it
15 even more important to say something about what the real in-
16 adequacy is --

17 CHAIRMAN KEMENY: That it was not programmed.

18 COMMISSIONER PIGFORD: That is right.

19 MR. JOHNSON: I think it was established that part of
20 the training also occurred at Three Mile Island there they are
21 supposed to get detailed familiarity with the actual layout.

22 COMMISSIONER TAYLOR: What we are looking at is not
23 the room but the control desk you happen to be sitting at. I
24 think they are called consoles. I have been toying with the
25 possibility of recommending that there be a simulator at every

1 power plant.

2 CHAIRMAN KEMENY: Frankly, so was I.

3 COMMISSIONER LEWIS: How much do they cost, do you
4 know?

5 MR. ROCKWELL: About three to five million.

6 COMMISSIONER LEWIS: Three to five million?

7 COMMISSIONER TAYLOR: This is in the context of
8 another aspect of recommendation, and that has to do with the
9 whole character of what is going on.

10 CHAIRMAN KEMENY: Frankly, so was I and that is why
11 I was interested in that point.

12 COMMISSIONER MARKS: On page 31, the top paragraph,
13 and, therefore, the theoretical content of the instructional
14 program -- couldn't we just say, and therefore, the content,
15 because I think it is probably both theoretical and practical
16 that was deficient.

17 COMMISSIONER MCPHERSON: Isn't that situation mirrored
18 in the NRC too? That the training office is sort of out of
19 the way of the main stream?

20 CHAIRMAN KEMENY: I know our NRC findings have it.
21 I now forget if my NRC section here has it. But we certainly
22 make a major point of that in the NRC findings.

23 COMMISSIONER MDPHERSON: It seems to me that ought
24 to be --

25 COMMISSIONER TAYLOR: You mean that related to the

eg 7 1 understanding of physics and engineering principles, and so
2 on?

3 CHAIRMAN KEMENY: Theoretic is the phrase someone
4 suggested before in the overall understanding of the operations.

5 COMMISSIONER PIGFORD: You might say the content of
6 the instructional program does not lead to sufficient under-
7 standing.

8 COMMISSIONER HAGGERTY: I agree.

9 CHAIRMAN KEMENY: Because it does do other things.

10 COMMISSIONER MARKS: You want to add at the end of
11 the next paragraph that no mandatory licensing, something like
12 that? That no continuing -- I think it is a very important
13 aspect of the quality of operations to have a continuing pro-
14 cess of evaluating the performance of operators.

15 CHAIRMAN KEMENY: That is it. The problem is they
16 have a mandatory requalification exam but they just don't
17 monitor it very much.

18 COMMISSIONER MARKS: We could say -- where you say
19 the licensing --

20 CHAIRMAN KEMENY: Let me come up from our findings
21 with a sentence for relicensing. Okay? Because one has to be
22 careful. It is required it just is not very good.

23 COMMISSIONER PIGFORD: I would suggest, we are talking
24 about the second paragraph on 31, that you also add something
25 that says that NRC in evaluating the training of operators to

1 carry out emergency procedures has not adequately evaluated --
2 has not recognized the basic faults in those procedures at TMI.

3 CHAIRMAN KEMENY: Well, I think -- let me see, the
4 next paragraph I hope deals with that because I do know that
5 that is a major point.

6 COMMISSIONER PIGFORD: I don't see it.

7 COMMISSIONER MARRETT: Doesn't that really belong in
8 the section on the utility?

9 CHAIRMAN KEMENY: Well, maybe I missed your point.
10 What is your point?

11 COMMISSIONER PIGFORD: Well, the second paragraph on
12 31 doesn't deal with NRC. So my point is that when they
13 evaluate the training program they have it on record that they
14 evaluate -- one of the things they do is evaluate the ability
15 of the operators to carry out emergency procedures, which
16 means they have to look at emergency procedures. And they
17 found no fault with them. We found an enormous fault.

18 CHAIRMAN KEMENY: I see.

19 COMMISSIONER HAGGERTY: Which is the real trouble.

20 COMMISSIONER PIGFORD: Sure. So here is our old
21 case where they claim they have evaluated that the operator
22 training is all right to carry out procedures, no problem with
23 the procedures, and yet we know there is a problem. So they
24 missed that one there.

1 COMMISSIONER HAGGERTY: The last paragraph, I think
2 we can make the same criticism. I think NRC and industry would
3 both say of course all electric utilities do not automatically
4 have the necessary technical expertise. I think the thrust of
5 what you are saying is the standards ought to be higher than
6 they are. There is no debate about it.

7 Turn it around the other way, that on the basis of
8 our examination, our findings, we are forced to conclude that
9 the standards need to be higher than they are.

10 CHAIRMAN KEMENY: Obviously my last sentence is
11 guessing as to whether we come out with a recommendation like
12 one you once proposed, and if we do not, I will take it out.

13 COMMISSIONER HAGGERTY: Higher standards implies
14 that, it seems to me. If we say standards need to be higher
15 than they are, I suppose we are going to say something --

16 COMMISSIONER MC PHERSON: I hate to raise for the
17 thirtieth time today the danger and risk issue, but I would
18 think that the word "potentially" ought to go before dangerous
19 high technology plant in that context.

20 COMMISSIONER PETERSON: But isn't it always
21 dangerous?

22 COMMISSIONER MC PHERSON: Well, that is why I hate to
23 raise it again. For the public reading this, it means, when you
24 say a dangerous plant, most dangerous things ought to be gotten
25 rid of, done away with.

1 COMMISSIONER PETERSON: Well, that is the whole
2 question right now about this.

3 COMMISSIONER MC PHERSON: That is right, and that is
4 why I want to say potentially.

5 CHAIRMAN KEMENY: Well, to me, frankly, dangerous
6 and potentially dangerous say the same thing, so I would be
7 happy to put dangerous in there.

8 COMMISSIONER MC PHERSON: Could I raise a question,
9 a question I do not know enough about, and I do not know
10 whether we have enough material to justify the sentence. I
11 have the feeling, I have heard that until Three Mile Island
12 the industry did not consider suspension of decommissioning
13 a serious threat from the NRC, virtually no matter what
14 happened -- of course, outside the earthquake fault suspensions.

15 Is that so, and would it have gotten the attention
16 of the industry toward correcting safety defects or short-
17 comings, generic safety issues, and so on, if there had been a
18 greater threat of suspension or decommissioning?

19 In other words, I do not know where the question --
20 where it belongs -- either on the NRC or utility side, but it
21 seems to me it is something that I have heard about and most
22 people have heard about, and probably would be expecting us to
23 say something about, whether there are teeth in the NRC's
24 regulations, the regulatory supervision of this industry.

25 COMMISSIONER PIGFORD: Well, do we have any evidence

1 on that subject?

2 COMMISSIONER MC PHERSON: I am asking.

3 CHAIRMAN NEMENY: We know about the suspension of --

4 MR. GORINSON: I do not remember specifically. I
5 do not think there has been --

6 CHAIRMAN NEMENY: There has been either zero or one
7 suspension of an operating license before the ones this year
8 that were for earthquake reasons. I forgot if there was zero
9 or one before then, but I know it was not more than one before
10 that.

11 COMMISSIONER TAYLOR: The difficulty I have with that
12 is that it is hard to disconnect that with the standards and
13 so on within NRC, because if there is a suggestion that NRC
14 really knows what they should do, and has been lax in doing
15 something very vigorous because they do not abide by the rules,
16 there is a long list of violations, mostly minor, of NRC rules,
17 and I think anything that carries the suggestion that if somehow
18 there had been, or there were, some license revocations or
19 something, that then everything would be all much better.

20 It carries the suggestion that NRC's regulations, if
21 abided by, are plenty. I am just worried about getting that
22 point across.

23 COMMISSIONER HAGGERTY: The real problem -- it is
24 hard to put your finger on that having been the real problem
25 here. The real problem here is that same conceptual one, again.

1 Not doing anything about people, really not, you know -- it is
2 not the matter that they saw something wrong and let it go
3 on when they had officially an objection to that --

4 COMMISSIONER MC PHERSON: Except for the generic
5 safety issue.

6 COMMISSIONER HAGGERTY: Well, that is a postponement
7 kind of issue.

8 COMMISSIONER LEWIS: If you notice in the Rolph book
9 they switch the AEC to the NRC. The reason was they wanted all
10 those generic safety issues settled, and they are still sitting
11 there on somebody's desk.

12 COMMISSIONER HAGGERTY: Well, I think some of them
13 have been.

14 COMMISSIONER MC PHERSON: Every federal regulatory
15 agency has some revocation of license power. They do not
16 exercise it much. FCC takes somebody's radio station license
17 away from them because they have nothing but hard rock, or
18 perform some other indecency, and the CAB will jerk somebody's
19 license because they have not been serving, so will the ICC
20 for truckers.

21 The NRC --

22 COMMISSIONER TAYLOR: Is what you are getting at
23 something like this, this is also a thought about a possible
24 kind of recommendation, and that is by analogue with automobile
25 driver licenses, in some states like Maryland, a tally is kept,

1 weighted by the severity of your violations, and at some point
2 you lose your license. It is automatic. Everybody knows what
3 that is. It seems to me that something with that flavor, but
4 in a context in which the regulations are rational and the
5 management of NRC is appropriate and so on, it seems to me --

6 COMMISSIONER HAGGERTY: The absence of some kind of
7 identifiable reliability system, I mean evaluation of LER's,
8 goals, all the rest of that, to me, that is the deficiency.

9 CHAIRMAN KEMENY: We did not know what to do with
10 that one. I think we did not put it into the major findings,
11 as I remember. We did put in something that there is a great
12 deal of evidence and a quote from GAO, namely, that even
13 its fine-giving powers were hardly used, and at a very low
14 level. We did put that into the major findings, because that,
15 in a way, is very telling, I think.

16 COMMISSIONER HAGGERTY: I really think that one of
17 the overwhelming ones, though, is the absence of any kind of
18 organized and continuing approach to measuring quality.

19 CHAIRMAN KEMENY: Talking about quality, I realize
20 one topic I left out since I drafted this before I saw one set
21 of findings. There is a major omission here. I have to add
22 a paragraph. It is on quality control at the plant. We have
23 got now very good data on the lack of quality control --

24 COMMISSIONER MARRETT: That had been the question I
25 had, because in reading through the section on the utility,

1 there is the first part that mentions the limitations with
2 reference to management. Then it talks about operator training
3 and a lot of the rest is on NRC, and if we want to build a case
4 about managerial problems in the utility, it seems we now have
5 several findings that have to do with quality control, with the
6 failure to follow through on information about what was going
7 on in other plants, and those things seem to be specific to
8 the utility.

9 CHAIRMAN KEMENY: My problem is I could not close the
10 cycle for myself. I did this before we did the findings, and
11 I did not have a chance, then, to go back as to what major
12 things, but one that just hits me, that we have very strong
13 stuff on quality control which is not mentioned here at all.

14 There may be others.

15 COMMISSIONER HAGGERTY: Remember the absence of the
16 systematic one. Each utility would have had a great problem
17 in developing an adequate one, but the industry as a whole, or
18 NRC, could have and clearly should have. The thing that
19 struck me from the beginning, the first time we talked to the
20 Commissioners, is that nobody said to us that the industry is
21 safer than it was for the following reasons.

22 I mean our measure of this is, you know, so many
23 incidents of this grade and these are the things we are doing
24 to reduce them, and it has had this impact on it. Then we could
25 argue about whether those were sensible or not, or adequate,

1 but the complete absence of it, to me, was shocking.

2 CHAIRMAN KEMENY: Okay, are you willing -- I promised
3 we would break at 7:00, no matter what -- are you willing to
4 spend 10 minutes on the last section, and I do not know what
5 happens to it in light of this, but I think there is a point
6 to be made there.

7 Remember we had talked about the limitations section --

8 COMMISSIONER HAGGERTY: You mean page 37?

9 CHAIRMAN KEMENY: Yes, 37.

10 COMMISSIONER MARKS: We are finished with this?

11 CHAIRMAN KEMENY: I hope so, yes, and the limitations
12 section we talked about in great length and it will be a
13 different form in the prologue.

14 COMMISSIONER HAGGERTY: Do we anywhere reference
15 the other reports that we are talking about here in our
16 Volume II?

17 CHAIRMAN KEMENY: Well, the problem is a new one
18 comes out every day -- I mean these are the ones since TMI 2.

19 COMMISSIONER HAGGERTY: I understand, but we are
20 making a very general statement and I do not know the specifics
21 of the findings, I am not sure I would disagree. I know that
22 the first one from NRC was very limited and so on.

23 All I am getting at is I suspect what you say is
24 completely true.

25 CHAIRMAN KEMENY: Yes, and I would feel more

1 comfortable at the beginning of the second paragraph, we have
2 an overriding concern about some of the reports we received so
3 far.

4 COMMISSIONER HAGGERTY: Then do we, in our Volume II,
5 identify those reports?

6 CHAIRMAN KEMENY: I do not know that.

7 MS. JORGENSON: As a matter of fact, I think the idea
8 of this was that this was an area that we had talked about we
9 wanted to somewhere put in the report and did not know exactly
10 where to put it. It was a point we wanted to make, but it did
11 not fit anywhere.

12 CHAIRMAN KEMENY: Yes, I meant the problem here is
13 that precisely what people will ask us, well, have you looked
14 at all the reports in great detail, and to what extent have
15 they already recommended what you are recommending and so on,
16 and there is no way we can review all the reports that are
17 coming out one a week.

18 So, the question is whether we want to stay mute on
19 that subject, or at least say something about it.

20 MR. JOHNSON: Some of them are referenced.

21 CHAIRMAN KEMENY: Some of them are referenced.

22 COMMISSIONER MC PHERSON: Are we in a position to
23 say they do not come to grips with the basic problem?

24 COMMISSIONER HAGGERTY: If they are in our data, I
25 am perfectly willing -- I mean I will put anything in, but I

1 think we have to be very careful about the statements that are
2 not in our Volume II or anything, that is all.

3 COMMISSIONER MC PHERSON: Mr. Chairman, I would urge
4 that, having been at this for a long time, that we not wrestle
5 with this tonight. I think the point is makable in that we
6 can say that there will be, either have been or there will be,
7 a lot of recommendations for changes, and we welcome them to
8 the extent that they will improve safety, but unless they
9 address --

10 CHAIRMAN KEMENY: That is what I am trying to say.

11 COMMISSIONER PETERSON: Mr. Chairman, there is one
12 thing up here. You say the nation will be all the better
13 served. I suggest you delete that, because it will be all the
14 better served if the conclusions are right, and all the poorer
15 served if they wrong.

16 But the next sentence takes care of that anyway,
17 doesn't it? Several groups have the same conclusion.

18 COMMISSIONER HAGGERTY: Well, really, doesn't this
19 have to be rewritten to make it -- I think Harry's approach is
20 the right one. You have it here for that purpose rather than
21 these paragraphs anyway.

22 COMMISSIONER PIGFORD: In the rewriting at least I
23 would like to point out a sentence here which I think maybe
24 we should reconsider. In the second paragraph, on page 38, it
25 says we have not found sufficient cause to recommend the

1 elimination of nuclear power. I think that will hang us up
2 so badly -- it implies we have investigated the issue --

3 CHAIRMAN KEMENY: Yes, we are now treating that
4 completely differently. Our whole approach to that has changed.

5 COMMISSIONER HAGGERTY: I think we are running out
6 of suggestions. I think we ran out awhile back.

7 COMMISSIONER PIGFORD: Bill Stratton wanted me to
8 mention to you that he has left here his writeups on the
9 what if. Did you want to distribute them tonight?

10 CHAIRMAN KEMENY: What is your wish on that? Do you
11 want to try to read what if tonight? Look, why don't those of
12 you who wish to have -- are there copies run off? There are
13 some upstairs. You can pick them up if you like, and in any
14 case we are asking him tomorrow to make a verbal presentation.

15 COMMISSIONER MC PHERSON: What time are we meeting
16 tomorrow?

17 CHAIRMAN KEMENY: Nine o'clock.

18 There is a suggestion that in deference to Sunday,
19 we meet at 9:30 tomorrow. It did not come from me.

20 COMMISSIONER PETERSON: Mr. Chairman, our sub-
21 committee is going to meet at 8:00. We would prefer to meet
22 at some time in the middle of the day if you had an hour break,
23 like 12:30?

24 CHAIRMAN KEMENY: Yes. As a matter of fact, we hope
25 tomorrow to break -- I should mention this -- we hope tomorrow

1 to break at 3:00 p.m., partly because we are going to give you
2 a whole bunch of stuff to read and partly the NRC subcommittee
3 is meeting with a group of consultants and the only time we
4 could get them in was --

5 COMMISSIONER LEWIS: Where is that meeting going to
6 be?

7 CHAIRMAN KEMENY: I will tell you. I do not know at
8 the moment, but I will tell you.

9 We will break for today, so I suggest you can -- I am
10 suggesting that you use that period for reading or subcommittee
11 meetings specifically.

12 We have to break about 3:00 for the day, because
13 of the NRC thing.

14 COMMISSIONER PIGFORD: Can you tell me a little bit
15 about Monday, because it affects my schedule for tomorrow?
16 What is the schedule for Monday?

17 CHAIRMAN KEMENY: Look, could we -- let me suggest,
18 since this is only a question of when to get together next,
19 let me adjourn the meeting officially at this time, and we can
20 straighten out our schedule.

21 The meeting is adjourned.

22 (Thereupon, at 6:57 o'clock, p.m., the meeting was
23 recessed until 9:00 o'clock, a.m., Sunday, September 30, 1979.)