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NUCLEAR REGULATORY COMMISSION

COMMISSION MEETING

PUBLIC MEETING

DKT/CASE NO.

TITLE DISCUSSION OF SAFETY GOALS AND STAFF
EVALUATION PLAN

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
DISCUSSION OF SAFETY GOALS AND STAFF EVALUATION PLAN
PUBLIC MEETING

Nuclear Regulatory Commission
Room 1130
1717 H Street, N.W.
Washington, D.C.

Wednesday, January 5, 1983

The Commission met, pursuant
to notice, at 10:05 p.m.

COMMISSIONERS PRESENT:

- NUNZIO PALLADINO, Chairman of the Commission
- VICTOR GILINSKY, Commissioner
- JOHN F. AHEARNE, Commissioner
- THOMAS ROBERTS, Commissioner
- JAMES ASSELSTINE, Commissioner

STAFF AND PRESENTERS SEATED AT COMMISSION TABLE:

- SAM CHILK, Secretary
- LEONARD BICKWIT, General Counsel
- WILLIAM DIRCKS
- JOHN E. ZERBE, OPE
- DENNIS RATHBUN, OPE
- THOMAS MURLEY, NRR
- VIC STELLO

AUDIENCE SPEAKERS:

- HAROLD DENTON, NRR
- BOB BERNERO

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P R O C E E D I N G S

1
2 CHAIRMAN PALLADINO: Good morning, ladies and
3 gentlemen. Our meeting this morning is on the subject
4 of safety goals.

5 Since we last met in July on this subject,
6 several drafts of the policy statement have been
7 circulated to Commission offices, and each Commissioner
8 has been given the opportunity to provide comments. The
9 latest draft, which is circulated under date December
10 16, 1982, has been revised to incorporate Commissioner
11 comments received up to that time.

12 In addition to the revised policy statement,
13 we have also received from the Staff what I will call an
14 evaluation plan for assessing the safety goal during the
15 next two years. I would point out that when we received
16 the Staff's December 14, 1982, proposal, the use of the
17 term "evaluation period" had not yet been proposed.

18 I believe that this morning's meeting should
19 have two purposes. The first is to determine if the
20 Commissioners have reached a consensus regarding the
21 general direction in which we should proceed regarding
22 safety goals. The second is to allow discussion of the
23 details of the Staff's evaluation plan.

24 To accomplish the first purpose, I propose
25 that we have Jack Zerbe summarize the major changes that

1 have occurred in the policy statement since our July
2 meeting. After we have discussed these changes, I would
3 like to poll the Commissioners to determine if we are on
4 the right track. Then we can turn the meeting over to
5 the Staff for discussion of the evaluation plan.

6 Do any of my fellow Commissioners have any
7 other opening remarks?

8 (No response.)

9 CHAIRMAN PALLADINO: If not, I propose we turn
10 the meeting over to Mr. Zerbe.

11 MR. ZERBE: You received, as the Chairman
12 said, copies of our December 15 draft of the safety
13 goal. There is a clean copy and a marked-up copy which
14 identifies a number of changes, all of the changes that
15 have been made since the November 5 draft that you had
16 received. I will not talk about all of those, but they
17 are all there.

18 One other item. In the December 16 draft we
19 do make use of the words "trial period" and the Staff's
20 implementation program, and we would propose to change
21 those words consistent with what the Chairman said and
22 what is in the Federal Register draft to be the
23 "evaluation plan" and the "evaluation period." Those
24 changes were not made in the December 16 draft because
25 we had not come to those words yet.

1 The comments, then, that I would like to
2 specifically call to your attention that are in the most
3 recent draft that were changes from the November 5
4 draft, the first one, we have taken out reference to the
5 ALARA concept as it relates to the societal.

6 COMMISSIONER GILINSKY: Let me ask you, Jack.
7 Are you going to also address the note that we got from
8 the Chairman dated December 29?

9 MR. ZERBE: Yes, I will. We will talk -- the
10 plan was to talk about the Federal Register note after
11 Mr. Dircks reviews the evaluation plan, but I can do it
12 any time you want.

13 CHAIRMAN PALLADINO: It might be well, after
14 you have gone through the highlights on the revised
15 draft.

16 MR. ZERBE: Okay, because the Federal Register
17 notice refers to both the safety goals and the
18 evaluation plan.

19 COMMISSIONER GILINSKY: Let me tell you why I
20 raise it, because my eye was caught by a comment saying
21 the Commission cautions against comparison of the
22 results of these analyses with safety goals to develop
23 bottom line risk conclusions. You seem to be sort of
24 backing away and I had heard at the same time from a
25 number of sources that the comparison of your estimates

1 suggests that a number of plants do not meet these
2 safety goals.

3 Is that true?

4 MR. ZERBE: Well, I do not know if the Staff
5 has completed that study yet, and I do not know whether
6 Mr. Dircks wants to address that.

7 MR. DIRCKS: We have not done any, you know,
8 exhaustive studies. What we have done is take a number
9 of PRAs that have already been done, both of resources
10 and, probably more predominantly, the PRAs that were
11 done by the utilities, and we have done some comparisons
12 of those PRAs against safety goals -- whatever
13 iterations we have seen. And there have been plants
14 that in one area or another do not meet the various
15 elements of the safety goal.

16 If you want us to get you whatever the latest
17 tabulations we have, we will get them up to you.

18 COMMISSIONER GILINSKY: Yes, I certainly would
19 be interested. Is there one or another of these? The
20 safety goal is made up of a number of statements. Is
21 there one or another of these that is particularly
22 troublesome?

23 MR. ZERBE: Well, there are areas in different
24 plants. Different plants do not meet specific goals. I
25 guess of the plants that we have seen, the one that is

1 the most likely one that they might not meet would be
2 the core melt. Now that is a supplemental goal, as we
3 have it now, in the safety goal policy statement, but
4 that one is one that --

5 COMMISSIONER GILINSKY: Well, in this
6 modification you go on to refer to sort of looking
7 forward to changes in the source term. That is not
8 going to affect the core melt probability.

9 MR. ZERBE: That is right.

10 COMMISSIONER GILINSKY: So where does that
11 leave us?

12 CHAIRMAN PALLADINO: It is going to leave us
13 based on the PRAs that have been made so far. Some of
14 them will not meet the core melt criteria. However, it
15 is not clear to me that those that have been made are on
16 the consistent basis and I think one of the items that
17 ought to be examined is the basis on which they are made
18 and the uncertainty that is associated with each one.

19 MR. DIRCKS: Yes.

20 CHAIRMAN PALLADINO: That may make quite a
21 number of them look bad.

22 COMMISSIONER AHEARNE: I guess what I am a
23 little puzzled here at the moment is, are we trying to
24 devise a set of guidelines which will meet all plants,
25 or are we trying to devise a set of guidelines that have

1 some rational justification and then see to what extent
2 our analytic techniques allow us to determine whether
3 plants meet them. I thought it was the latter.

4 CHAIRMAN PALLADINO: It is the latter, at
5 least in my mind.

6 MR. DIRCKS: It is an important point, that
7 these are goals or aiming points.

8 COMMISSIONER AHEARNE: Yes, yes.

9 COMMISSIONER ROBERTS: These are as distinct
10 from requirements.

11 MR. ZERBE: They are not requirements.

12 CHAIRMAN PALLADINO: Well, I suggest that we
13 go through the safety goal. Then we can get back to the
14 Federal Register notice, and then go on.

15 MR. DIRCKS: We will pull together whatever we
16 have and outline how it was derived and point out where
17 there are deficiencies in the data base. Whatever it
18 is, I think what it was is the Staff just trying to keep
19 track of the various iterations.

20 COMMISSIONER GILINSKY: Do you have such a
21 compilation?

22 MR. DIRCKS: I am sure -- yes, we will get one
23 up to you.

24 COMMISSIONER AHEARNE: But with some care, I
25 assume. There are a lot of uncertainties both in

1 calculation and data.

2 MR. DIRCKS: Yes. There is a variety of PRAs
3 that have been done, and we keep going back to this
4 variation in PRA technique, and I think that is the
5 point that I will mention when I get into my segment, is
6 that we have got a lot of work to do with PRAs. We have
7 got a lot of work to do on how the methodology is
8 developed, and what it is now is we are doing some crude
9 estimates across the board and I think it points up the
10 need to get on with that task.

11 CHAIRMAN PALLADINO: Well, I gather one of the
12 main purposes of the evaluation period is to assess the
13 various PRAs and get a definitive basis for making
14 comparisons.

15 MR. DIRCKS: Yes.

16 CHAIRMAN PALLADINO: Well, why don't we let
17 Jack highlight what changes were made and see if at
18 least so far as the safety goal, not counting the
19 implementation plan, and see whether that has the
20 general consensus of the Commissioners.

21 MR. ZERBE: Okay. The first one I mentioned
22 was the ALARA concept has been -- comments relative to
23 that have been taken out of the societal goal, that
24 being that if we have these quantitative design
25 objectives and one would ultimately meet those, why

1 there would be no reason to continue to ratchet down on
2 the safety systems in the plant.

3 The second item I wanted to call to your
4 attention was the -- we have taken out the word "site"
5 in reference to the individual and society mortality
6 risks and used just a plant. It is on a plant basis,
7 the intent being not to penalize a multi-plant site but
8 to identify just the quantitative risks and goals that
9 we have here, design objectives, on the basis of an
10 individual plant.

11 Relative to the individual --

12 . COMMISSIONER AHEARNE: I guess Mr. Weinberg
13 would be somewhat opposed to that.

14 MR. ZERBE: Well, I am sure that some people
15 might be opposed to that.

16 COMMISSIONER AHEARNE: My point is that the
17 idea of a nuclear park, there would be some problems
18 then, because what you are essentially saying is that
19 the more that you put at one place, the higher the --

20 MR. ZERBE: The higher the risk. That is
21 right, but you are talking in terms of what, two, three,
22 possibly four plants, and that would then change the
23 risk by a factor of four, maybe.

24 COMMISSIONER AHEARNE: Yes, I understand. It
25 is just a comment.

1 MR. ZERBE: Not orders of magnitude, which is
2 where you have to get to get in.

3 COMMISSIONER AHEARNE: We get to it in
4 calculations and factors of four.

5 MR. ZERBE: And the conservatism is in. The
6 tenth percent is maybe a factor of 1,000 within the
7 noise level of the calculations, so you -- from what Dr.
8 Bernero would propose.

9 I was saying the individual prompt fatality
10 design objective is based on the average person within a
11 one-mile radius of the plant, and that stays the same in
12 here. What we have added is that if there are no people
13 in that area, then we would move out to where the first
14 person was living and take a one-mile annulus from that
15 place-out, and get the average person in that one-mile
16 annulus -- just better define how one would accomplish
17 that calculation in that evaluation.

18 We have made a statement in here specifically
19 identifying that the cost-benefit guideline is not to
20 replace the Commission's backfit rule -- existing
21 backfit rule -- in 10 CFR 50.109.

22 Now they were the major items that I wanted to
23 address. We would be happy to discuss any of the other
24 items that have been crossed out, as you might want to
25 question, from the line-in/line-out copy.

1 CHAIRMAN PALLADINO: Go ahead.

2 COMMISSIONER AHEARNE: I had a question,
3 Jack. It says on page ten of the cross-out, you have
4 dropped both "remote siting" and "emergency response
5 capabilities" and I wondered why.

6 MR. RATHBUN: I am trying to remember. One of
7 the Commissioners proposed that we do that and I
8 honestly do not remember which one, but -- in fact, I
9 think --

10 (Laughter.)

11 -- I am sorry to say -- as I recall, it was in
12 the original 0880 and the change here was in direct
13 response to a Commissioner's comment. I think that the
14 concern was that did Part 100 require remote siting or
15 something, and either yourself or Commissioner Roberts
16 objected to both of those sentences -- that sentence,
17 that concept.

18 COMMISSIONER AHEARNE: I guess I did not find
19 that in my -- I went back to the sets of comments that I
20 had made in previous versions and did not find that.

21 MR. ZERBE: Well, those comments there relate
22 to the current defense-in-depth approach which is being
23 used, and they do not take any -- I mean, leaving them
24 out does not take anything away from what is already
25 being used for site situations, and it does not add to

1 the safety goals themselves. The safety goals are
2 separate from that.

3 COMMISSIONER AHEARNE: You are right. You are
4 right. That is true. However, the striking of the
5 phrases, I was interpreting, for example, as that it
6 says we recognize the importance of mitigating the
7 consequences of core melt accident.

8 Now what do we continue to emphasize? Now is
9 that a good safety goal? You are right. But this is
10 now what we emphasize and we emphasize containment and
11 emergency planning. We no longer emphasize remote
12 siting.

13 Now I grant you that it does not mean that we
14 do not consider remote siting. I was just wondering
15 whether there was an implication that by striking at
16 least there was a judgment that we no longer were going
17 to be concerned about it.

18 MR. ZERBE: I think that was the intention.

19 COMMISSIONER ASSELSTINE: What was the
20 rationale for striking, whoever proposed it?

21 COMMISSIONER AHEARNE: That was my original
22 question. Now the answer was that --

23 COMMISSIONER ASSELSTINE: That you proposed
24 it.

25 COMMISSIONER AHEARNE: But I cannot find that

1 in my notes that I made on it. Maybe in the process of
2 the new year I have blanked that out.

3 (Laughter.)

4 COMMISSIONER ASSELSTINE: I propose we put it
5 back in, then.

6 CHAIRMAN PALLADINO: Now wait a minute.
7 Before you go too fast, do we emphasize remote siting
8 now?

9 COMMISSIONER GILINSKY: We do not emphasize
10 any siting right now.

11 (Laughter.)

12 CHAIRMAN PALLADINO: No, that is not true, but
13 we do not emphasize remote siting and it says "continues
14 to emphasize".

15 COMMISSIONER GILINSKY: Well, the Commission
16 certainly has moved over the years toward siting in
17 areas of lower population density.

18 CHAIRMAN PALLADINO: Well, I do not know if
19 that is remote siting.

20 COMMISSIONER ASSELSTINE: Well, this is siting
21 in less populated areas that is emphasized. That is
22 what the language was.

23 CHAIRMAN PALLADINO: Where is that?

24 COMMISSIONER AHEARNE: Next-to-the-last
25 paragraph.

1 COMMISSIONER ASSELSTINE: It did not say
2 "remote siting".

3 CHAIRMAN PALLADINO: No. Up here it says
4 "remote siting". I was looking up at the top.

5 COMMISSIONER ASSELSTINE: Yes.

6 COMMISSIONER GILINSKY: Well, that is what
7 remote siting means -- away from people to the extent
8 possible.

9 CHAIRMAN PALLADINO: Well, I guess if the
10 Commission wants to put it back in, it will go back in.
11 I would prefer not to put it in. I do not think we
12 continue to emphasize remote siting.

13 COMMISSIONER AHEARNE: I prefer to have it
14 in.

15 CHAIRMAN PALLADINO: What's that?

16 COMMISSIONER AHEARNE: I would prefer to have
17 it in.

18 COMMISSIONER ASSELSTINE: I think I would too
19 at the present time.

20 CHAIRMAN PALLADINO: Well, you got three votes
21 to put it back in. Well, then I am not sure, "continues
22 to emphasize" -- it is hard to say we continue to
23 emphasize remote siting because I have not been aware
24 of, particularly, remote siting. I guess remote siting
25 to me means more remote than what we have been doing.

1 COMMISSIONER GILINSKY: Well, more remote than
2 in the past. You know, we have said that we would not
3 put plants in some of the locations where they exist
4 now, and we have moved away from allowing siting in
5 areas which had been allowed previously, and that is the
6 sense of that.

7 CHAIRMAN PALLADINO: Well, I have not said
8 that. That is why I do not vote for this.

9 COMMISSIONER GILINSKY: Well, I do not think
10 you put a plant in some of the places where we have them
11 now.

12 CHAIRMAN PALLADINO: I have not made that
13 judgment.

14 COMMISSIONER ROBERTS: A lot of people read
15 this document.

16 CHAIRMAN PALLADINO: Remote siting has a
17 connotation different from what it apparently gives
18 you.

19 COMMISSIONER AHEARNE: It gives me the --
20 remote siting, as I interpret it, as Vic just described
21 it, as the Commission over the last three or four years
22 has a number of times said that we would not in various
23 places -- I think sometimes in front of Congress --
24 that, no, we would not now favorably site some of the
25 plants in population densities where we had in the past

1 approved those plants.

2 In other words, we had agreed that we would go
3 for remote siting or emphasize remote siting.

4 COMMISSIONER ASSELSTINE: I think that is even
5 more than just in Commission statements before
6 Congress. I think that has also been over the past few
7 years increasingly embedded if not in the regulations
8 then in the Reg Guides and the supporting materials.

9 COMMISSIONER AHEARNE: I grant you that it has
10 been more of an academic interest than an actual
11 practical application because of the lack of
12 construction permit applications so that the issue of
13 where the plant would be sited is more one we discuss
14 philosophically than practically.

15 But, nevertheless, I think emphasizing remote
16 siting would at least be consistent with my view.

17 CHAIRMAN PALLADINO: Let's see. You use
18 "remote siting" on the top.

19 MR. ZERBE: Right, on page ten.

20 CHAIRMAN PALLADINO: And where else?

21 MR. ZERBE: And down in the next-to-the-last
22 paragraph, in the middle there, it says "siting in less
23 populated areas is emphasized." I presume you want them
24 both back in?

25 COMMISSIONER ROBERTS: Well, let me ask a

1 question. I would prefer to have them out, but if that
2 view does not prevail, would the majority be willing to
3 use up above, rather than "remote siting", "siting in
4 less populated areas"?

5 COMMISSIONER AHEARNE: Fine.

6 CHAIRMAN PALLADINO: Yes.

7 COMMISSIONER ASSELSTINE: Fine.

8 COMMISSIONER ROBERTS: I would prefer it not
9 to be in. Don't misinterpret that.

10 COMMISSIONER GILINSKY: Where do you want to
11 put them, Tom?

12 COMMISSIONER ROBERTS: Well, where "remote
13 siting" was deleted.

14 COMMISSIONER GILINSKY: I mean the reactors.

15 CHAIRMAN PALLADINO: You just want to use on
16 the top there what you use in the middle.

17 COMMISSIONER AHEARNE: That would be okay.

18 MR. ZERBE: Well, we are leaving in the
19 section down below. That is going to be put back in
20 also.

21 CHAIRMAN PALLADINO: Where, in the second
22 paragraph under "implementation"?

23 MR. ZERBE: Yes. Siting in less populated
24 areas.

25 How about that emergency response capability

1 sentence that was deleted?

2 COMMISSIONER AHEARNE: I do not know why that
3 was taken out so I would rather have it in.

4 CHAIRMAN PALLADINO: Okay. Up on the top of
5 the page I gather we have agreement, or at least the
6 majority of the Commission agrees to put "siting in less
7 populated areas" for "remote siting".

8 COMMISSIONER ASSELSTINE: Yes.

9 CHAIRMAN PALLADINO: In the second paragraph
10 under "implementation", the sentence is crossed out that
11 says "siting in less populated areas is emphasized" we
12 are keeping in, and the next one says "emergency
13 response capabilities are mandated to protect the
14 surrounding population."

15 COMMISSIONER AHEARNE: I would prefer that be
16 in.

17 COMMISSIONER ASSELSTINE: I would, too.

18 CHAIRMAN PALLADINO: Okay. So we will keep
19 those two in. Any others on that page? Do you have
20 some more?

21 COMMISSIONER AHEARNE: No, I think that was --
22 the other one was more a comment. I think that there
23 still is --

24 MR. ZERBE: There is one that I wanted to
25 bring up and I did not on page eight.

1 CHAIRMAN PALLADINO: Why don't you just wait
2 until Commissioner Ahearne finishes?

3 MR. ZERBE: Oh, I'm sorry.

4 COMMISSIONER AHEARNE: The other is a point
5 about the possibility of confusion between -- when you
6 talk about operation. Now operation in this version now
7 includes risk from operation or risk both from accident
8 and routine operation, and I am not sure whether that is
9 really sufficiently (a) clear or (b) consistent, because
10 you do in some places talk about reactor operation and
11 in some places you talk about power plant operation.

12 And then there is one goal which is in terms
13 of accidents and the other goal is in terms of reactor
14 operation. So I just ask that you look at that from the
15 point of view is it clear and consistent in terminology.

16 MR. ZERBE: Yes.

17 CHAIRMAN PALLADINO: Other questions?

18 COMMISSIONER ASSELSTINE: I have a few and
19 some of mine are more just to understand what is
20 required, because there are a few instances where some
21 of the concerns that I had did not have majority support
22 and so are not reflected in the safety goal document.

23 The first question I have is at the top of
24 page five.

25 CHAIRMAN PALLADINO: Are you using the --

1 COMMISSIONER ASSELSTINE: I am using the clean
2 version, not the line-in/line-out -- the clean version.
3 And that is dealing with the comparative risk of nuclear
4 operation versus operation for competing electricity
5 generating plants. Is that sentence, the first sentence
6 at the top of the page, intended to require, or does it
7 require, some kind of Commission analysis of the
8 comparative risks and, if not, what is that -- how is
9 that sentence to be satisfied in the operation of the
10 goal?

11 I ask this, I guess, in particular because the
12 previous version had another sentence in there that has
13 now been taken out that I certainly agree with taking it
14 out, that had seemed to endorse studies that are not
15 even available yet, or certainly that I have not seen.

16 COMMISSIONER GILINSKY: May I add a question
17 to that one? What is meant by "viable competing
18 technologies" that are the ones to compare with? I take
19 it this means not solar, but does it mean gas-fired
20 boilers?

21 MR. ZERBE: I would think that would mean gas
22 or coal or --

23 MR. RATHEUN: Coal mainly.

24 COMMISSIONER GILINSKY: Well, that is why I
25 asked.

1 MR. RATHBUN: The NUREG-0880 had a paragraph
2 in it -- the document from last February -- that talked
3 about that very point, and basically what it came to was
4 that gas and oil, hydro and solar and such things as
5 that really were not what we had in mind as viable
6 competing technologies.

7 Rather, what it came down to was nuclear
8 versus coal.

9 COMMISSIONER GILINSKY: Well, I think you had
10 better say that because a lot of people are going to
11 have a different view of what "viable" means, and that
12 is something for the Commission to address. I do not
13 know if that is what the Commission intended when it was
14 endorsing the comparison, that it was specifically coal
15 and not other ways of generating electricity.

16 MR. RATHBUN: The document we sent up in July
17 proposed taking out the energy comparisons and in the
18 questions that we sent to the Commission on July 24 that
19 was proposed as a specific question. The majority of
20 the Commission favored leaving it in.

21 COMMISSIONER AHEARNE: And it passed it, in
22 fact, and ended up asking EDO to take some action to
23 develop risk comparison, and the EDO has responded
24 saying that we ought to wait for the CONAUS report,
25 which was due out imminently.

1 MR. DIRCKS: We sent you a note yesterday --

2 COMMISSIONER AHEARNE: That it continues to be
3 due out imminently?

4 MR. DIRCKS: -- saying it has come on hard
5 times at the Academy. In fact, I think they have
6 stopped funding of that report.

7 COMMISSIONER AHEARNE: Well, that puts the
8 ball back to you to come up with some alternatives.

9 MR. DIRCKS: Probably because they did not
10 want to touch that issue.

11 COMMISSIONER AHEARNE: Now as you recall, what
12 the Commission originally, I think, said was to
13 recommend possible alternative approaches, and you came
14 back and said well, why don't we wait and see about this
15 report.

16 MR. DIRCKS: We will have to come back with
17 something.

18 MR. RATHBUN: I think the implementation, the
19 operationalizing of this statement, would definitely not
20 go to plant-by-plant analyses and comparisons but,
21 rather, I think that was not the Staff's plan, but
22 rather to rely on generic-type study.

23 MR. ZERBE: The CONAUS report is what we were
24 going to rely on.

25 COMMISSIONER ASSELSTINE: Okay, but some kind

1 of generic comparison will have to be done. If CONAUS
2 is stopped, then somebody will have to do it, presumably
3 maybe us.

4 COMMISSIONER AHEARNE: What I think the
5 Commission will end up requesting that you do is
6 approach several places, such as the National Academy of
7 Engineering, and ask specifically.

8 COMMISSIONER ASSELSTINE: But this does impose
9 a requirement that that kind of an analysis be done.

10 COMMISSIONER AHEARNE: Yes.

11 COMMISSIONER ASSELSTINE: The next question I
12 have compares the first paragraph under the general
13 considerations, 3(a), with the middle paragraph on page
14 seven, that says the Commission adopts the 0.1 percent
15 ratio of the risks of nuclear power plant operation to
16 the risks of mortality from non-nuclear plant origin to
17 reflect the first qualitative goal.

18 And yet on page five the goal says, "Since the
19 design objectives are aiming points and not firm
20 requirements, there may be instances where a given
21 nuclear plant may not achieve all of the objectives."

22 I read the paragraph on page seven to say that
23 in essence the individual risk design objective is a
24 numerical translation of the first qualitative goal. If
25 that is the case, how could we ever accept anything less

1 than full satisfaction of the first design objective
2 unless we are admitting that we are prepared to accept
3 operation of plants that will pose a significant
4 additional risk to individuals?

5 I mean, you know, Jack, you and I discussed
6 this before.

7 MR. ZERBE: Yes.

8 COMMISSIONER ASSELSTINE: If you close the
9 logical circle, it seems to me that there is an
10 inconsistency between on the one hand saying that the
11 design objective does reflect that goal and, on the
12 other hand, saying it is an aiming point or a target.

13 COMMISSIONER AHEARNE: I would say that that
14 is only true if it is something analogous to you either
15 have a disease or you do not have a disease, that the .1
16 is that type of a threshold. If it is an on-off, then
17 you are correct. But, of course, it is not. It is an
18 approximate number and the calculations are approximate
19 and it is a very -- it is a slow slope.

20 COMMISSIONER ASSELSTINE: Okay. Then it seems
21 to me I do not necessarily disagree with that, but it
22 does seem to me that we ought to clarify on page seven
23 how these do relate because when we say that it reflects
24 the first qualitative goal it seems to me that is
25 subject to the interpretation that I gave to it.

1 CHAIRMAN PALLADINO: What was your
2 interpretation?

3 COMMISSIONER ASSELSTINE: In fact, as I
4 recall, when we first met with this, Forrest said that
5 this design objective was nothing more than a numerical
6 translation of the qualitative goal. I guess with that
7 history, that is what I am concerned about, is that we
8 are heading towards that.

9 COMMISSIONER AHEARNE: Sure, but your
10 description, Jim, seems to apply to (a) a great
11 precision and (b) that it really is a cliff, that on one
12 side of it you are in one condition and then, with a
13 slight change, then you immediately go into another
14 condition -- two statement.

15 CHAIRMAN PALLADINO: • Jim, I do not quite
16 understand your point. Can you restate it?

17 COMMISSIONER ASSELSTINE: My point is, if the
18 first numerical design objective is an aiming point,
19 that is an attempt to help us further define what is
20 intended by the qualitative goals, then it seems to me
21 we ought to say that a little more clearly than what is
22 said on page seven, because I think the fact that you
23 have got a numerical design objective that is a precise
24 number, and if you say that that reflects the first
25 qualitative goal without saying what that relationship

1 is in a little more detail, that you create the possible
2 interpretation that I gave, which is that it is a
3 precise translation and it is an on-off --

4 COMMISSIONER AHEARNE: Right. See, I think
5 Jim's point, Joe, is that at .1 percent that, we say,
6 means that they bear no significant additional risk.

7 COMMISSIONER ASSELSTINE: That is right.

8 COMMISSIONER AHEARNE: Therefore, if you
9 exceed .1 percent it must mean they bear significant
10 additional risk.

11 COMMISSIONER ASSELSTINE: That is right.

12 CHAIRMAN PALLADINO: Yes, I see.

13 COMMISSIONER AHEARNE: That is the
14 interpretation he is putting on it.

15 CHAIRMAN PALLADINO: Do you have any
16 suggestions?

17 COMMISSIONER ASSELSTINE: I do not think that
18 is the right interpretation and what I am saying is I
19 think the way this thing is written it is susceptible to
20 that interpretation and I think that bears clearing up a
21 little bit. I do not know; maybe I am the only one that
22 sees that possible interpretation of the goal.

23 MR. ZERBE: He is trying to put a quantitative
24 number to aim towards. I do not think we actually say
25 in there anywhere just exactly what you are inferring,

1 that it has to be that or you are in trouble.

2 COMMISSIONER ASSELSTINE: It says it reflects
3 the first goal.

4 MR. ZERBE: Right, and it is to try to give
5 the people that will use it a number to shoot at that
6 they can get their hands around. It is a tool.

7 COMMISSIONER ASSELSTINE: As a tool, along
8 with a variety of other tools that we use to try and
9 help us achieve that first qualitative goal.

10 MR. ZERBE: Right.

11 COMMISSIONER ASSELSTINE: If that is right,
12 why can't we say that?

13 MR. RATHBUN: I think what people are saying
14 here is that we really do not know with that great a
15 degree of precision significant risk and insignificant
16 risk, and a tenth of a percent is just a benchmark or
17 guideline or some such perspective on what might be a
18 limit.

19 But I do not think it is intended to mean that
20 if the risk is .11 percent that it is a significant
21 risk, or .09 percent that it is insignificant. It is
22 just too gray for that, too subject to uncertainty.

23 MR. ZERBE: It was set so low so that there
24 was some potential movement around it without having a
25 real problem.

1 COMMISSIONER ASSELSTINE: I do not know.
2 Maybe I am the only one that sees that concern.

3 CHAIRMAN PALLADINO: What Jim is saying, if I
4 understand him, to indicate that this is not a precipice
5 or a go-no go number, but it establishes the order of
6 magnitude for which we ought to be striving.

7 COMMISSIONER GILINSKY: Can I ask you, on the
8 basis of calculations which have been made up till now,
9 is this limit one that presses on the plants, or are the
10 plants far from this?

11 MR. ZERBE: You are talking about the
12 individual risk?

13 COMMISSIONER GILINSKY: Yes.

14 MR. ZERBE: The individual risk would be the
15 one of the two that is the toughest to meet --

16 COMMISSIONER GILINSKY: This one on top of
17 page seven?

18 CHAIRMAN PALLADINO: The one-tenth percent.

19 MR. ZERBE: The one-tenth percent on the
20 average individual near the plant, right. If you meet
21 the one on the societal risk that goes out to fifty
22 miles, it would, in general, be less difficult to meet.

23 COMMISSIONER GILINSKY: Well, naturally the
24 larger a circle you take, the easier it is to meet it.

25 MR. ZERBE: Yes. This is probably the

1 tightest one that you can meet.

2 COMMISSIONER GILINSKY: This one is?

3 MR. ZERBE: Yes.

4 COMMISSIONER GILINSKY: Not the one in 10,000
5 years for the meltdown?

6 MR. ZERBE: No, no.

7 MR. DIRCKS: That is the one that would trip
8 first.

9 MR. ZERBE: Yes, that would probably be the
10 one you would trip first, in general.

11 COMMISSIONER GILINSKY: I see.

12 MR. ZEPBE: And it could be used in that
13 regard as a trigger.

14 COMMISSIONER GILINSKY: If we had studies and
15 we had collected this information, why was this not
16 brought to us together with this material? I must say I
17 found out about this just in the last few days, and I am
18 a little miffed because I gather others have been
19 informed, and it does not seem to be a surprise to
20 people at the table.

21 COMMISSIONER AHEARNE: Wait a minute, Vic.

22 Ever since we started discussing the safety goal, which
23 is two or three years ago, the discussions have been
24 that there are, no matter what number was being
25 discussed, that you know that there are plants that are

1 not going to be able to make this or there will be
2 plants that will not make that one. It is not a new
3 thing.

4 COMMISSIONER GILINSKY: It is one thing to
5 talk about people's feelings about what might happen.
6 It is quite another thing to say that calculations have
7 been done and collected and conclusions arrived at, and
8 this has not been brought to us. I have not seen
9 anything.

10 CHAIRMAN PALLADINO: What conclusions? I am
11 sorry, I do not know what you mean.

12 MR. RATHBUN: Let me just say that this
13 NUREG-0880 actually had the question. Do plants meet or
14 do plants not meet the safety goals has come up before.
15 It came up when we prepared the paper that went to the
16 workshop and also when we did 0880, and it is sort of a
17 time-dependent problem. As time goes on, more studies
18 are done and we learn more and the like.

19 But NUREG-0880 referred in the document to the
20 Indian Point study, 0715, and that was -- Bob knows more
21 about it than I do, but that showed, I think, seven
22 plants' core melt probabilities and the like, and not
23 all of them met the safety goal then.

24 But what has happened since 0880 came out last
25 February is more studies have been done and it is a

1 continuing sort of thing.

2 MR. BERNERO: I think there is a little
3 confusion on what was done, when. For the second
4 workshop, which was held at Harper's Ferry, the safety
5 goal workshop -- it was July of '81 -- our Staff
6 prepared a preliminary estimate from available risk
7 analyses and the evening of the first day of that
8 workshop we held what you might call a seminar on that,
9 which identified available risk assessments, even
10 unpublished ones, because NRC has been a principal in
11 developing these, and identifying the core melt
12 frequencies, the fatality risks, probabilities of
13 large-scale release against the safety goal proposals.

14 So we did have -- that was part of the
15 documentation of workshop number two. And, of course,
16 as a lot more PRAs are coming available, we continue to
17 look and compare PRAs, we are now getting two PRAs on
18 the same plant, so that we can compare what did I learn
19 from one that I did not learn from the other.

20 So it is kind of a continuing thing. It has
21 not been suppressed.

22 COMMISSIONER GILINSKY: Well, I must say I
23 would have been interested had this been shared with
24 me.

25 MR. BERNERO: You were not aware, apparently,

1 of the material that was presented at workshop number
2 two, then.

3 COMMISSIONER GILINSKY: No, I was not, and
4 still am not.

5 CHAIRMAN PALLADINO: Was not some of this also
6 in 880?

7 MR. RATHBUN: Yes, sir. Again, as I say, it
8 is something that grows with time. Here, page 27 of
9 0715, core melt probability ranged from two in 10,000,
10 which is greater than the safety goal of one in 100,000,
11 which is, of course, less than -- and then it has the
12 qualifiers and says that this work is going on under the
13 IREP program.

14 CHAIRMAN PALLADINO: Well, what you would
15 like, I gather, is a summary of where we stand.

16 COMMISSIONER GILINSKY: Well, let me ask you,
17 Joe, where did you hear about it? Did you hear about it
18 from that obscure paragraph, or was it brought to your
19 attention?

20 CHAIRMAN PALLADINO: What is that?

21 COMMISSIONER GILINSKY: This material that we
22 are talking about now.

23 CHAIRMAN PALLADINO: Yes, I was aware of it.

24 MR. DIRCKS: If we have not told you, I think
25 there has been enough indications to say that all along

1 we have been collecting PRAs and we have been keeping
2 score. We have not produced any formal documents. If
3 you want a formal document, we will pull one together.

4 But, you know, this Agency churns out tons of
5 paper every day. If you want copies of everything --

6 COMMISSIONER GILINSKY: Well, I must say we
7 get a lot of insignificant paper. I would have liked to
8 have seen this one.

9 MR. DIRCKS: Well, it depends on what is
10 significant and insignificant.

11 COMMISSIONER AHEARNE: Can we perhaps try to
12 get the safety goal done?

13 COMMISSIONER GILINSKY: Sure, you can return
14 to your subject.

15 CHAIRMAN PALLADINO: We are going to come back
16 to the implementation plan, and I think if we want a
17 compilation of what exists today we can ask the Staff to
18 do it. But why don't we try to finish on the safety
19 goal?

20 COMMISSIONER ASSELSTINE: I have got a couple
21 more.

22 CHAIRMAN PALLADINO: All right. Go ahead.

23 COMMISSIONER ASSELSTINE: Top of page six,
24 there is a statement: "The design objectives should be
25 viewed as aiming points or numerical benchmarks which

1 are subject to revision as further improvements are made
2 in probabilistic risk assessment." I guess the question
3 I had is: To what extent were the design objectives
4 themselves based upon the present state of PRA, or were
5 the design objectives the aiming points for trying to
6 satisfy the qualitative goals?

7 If that is the case, why would we go back
8 later on and modify the design objectives themselves
9 based upon improvements in PRA?

10 CHAIRMAN PALLADINO: That is a good question.

11 COMMISSIONER GILINSKY: A logical question.

12 MR. ZERBE: The design objectives were not
13 arrived at by looking at the PRAs and then picking
14 numbers.

15 COMMISSIONER ASSELSTINE: I did not think they
16 were, but this would imply that they were.

17 MR. ZERBE: It was just left that way to, you
18 know, that something could conceivably develop that is
19 not known but could be developed that you might want to
20 change them up or down, I guess either way. I do not
21 know. It is leaving the thing wide open.

22 COMMISSIONER ASSELSTINE: Okay. That is what
23 confused me, because it seemed to me that certainly we
24 are looking forward to improvements in PRA, and that
25 will dramatically affect how we might use the goal and

1 particularly the design objectives after the trial
2 period. But I did not see how improvements in PRA would
3 necessarily warrant changes in the design objectives.

4 MR. ZERBE: We did not have anything specific
5 in mind and it would not hurt it to take it out, as far
6 as we would be concerned.

7 COMMISSIONER ASSELSTINE: I would suggest
8 taking it out unless there is a logical --

9 CHAIRMAN PALLADINO: You would like to take
10 out --

11 MR. RATHBUN: "Which are subject to revision
12 as further improvements are made in PRA."

13 CHAIRMAN PALLADINO: Oh, okay..

14 MR. ZERBE: That last clause.

15 CHAIRMAN PALLADINO: But they are subject to
16 revision.

17 COMMISSIONER ASSELSTINE: They are certainly
18 subject to revision.

19 CHAIRMAN PALLADINO: Subject to revision.

20 COMMISSIONER ROBERTS: Before you start the
21 deletion after the "which" is what I think the
22 Commissioner is proposing. "Which are subject to
23 revision as further improvements are made in PRA."

24 COMMISSIONER ASSELSTINE: We certainly say in
25 other places that we are going to go back and review the

1 design objectives in the goal.

2 MR. ZERBE: Maybe you want to leave in "which
3 are subject to revision" and put a period and cross out
4 --

5 COMMISSIONER ASSELSTINE: That is okay. That
6 is said other places, but that is all right.

7 CHAIRMAN PALLADINO: Cross out "as further
8 improvements are made".

9 MR. RATHBUN: Yes, sir.

10 COMMISSIONER ASSELSTINE: The next one is just
11 kind of a nit down right at the end of the first
12 paragraph under (b) on page six.

13 I guess I would prefer to say "Furthermore,
14 this risk is less than the risk that society is now
15 exposed to from each of the other activities." It is
16 not clear to me that society voluntarily accepts some of
17 those risks. In fact, there are some areas in
18 particular -- acid rain, dealing with drunk drivers --
19 where it looks to me like there are efforts to change
20 those risks.

21 MR. ZERBE: So we change "will accept" to "is
22 exposed to".

23 COMMISSIONER ASSELSTINE: "Or is now exposed
24 to", yes, or "is exposed to".

25 CHAIRMAN PALLADINO: Yes, we are constantly

1 working trying to change those.

2 COMMISSIONER ASSELSTINE: I just wondered,
3 after reading this one more time, whether when we say
4 "furthermore, this risk" it is clear what the risk is
5 that we are talking about. In fact, it was a little
6 unclear in my own mind whether we are talking about the
7 risk of individual fatalities due to accidents.

8 MR. ZERBE: Both.

9 COMMISSIONER ASSELSTINE: Well, individual and
10 societal fatalities, I guess.

11 MR. RATHBUN: You want to say "individual and
12 societal risks"?

13 COMMISSIONER ASSELSTINE: Yes.

14 MR. RATHBUN: Okay. That is good.

15 COMMISSIONER ASSELSTINE: On page eight was
16 the next question I had, right towards the last full
17 sentence on the page. That is, "If the design objective
18 for prompt fatality is met for individuals in the
19 immediate vicinity of the plant site, the estimated risk
20 of delayed cancer fatality to persons within fifty miles
21 of the plant would generally be much lower than the
22 limit set by the design objectives for cancer fatality."

23 Could you just explain to me briefly why that
24 is the case?

25 MR. ZERBE: Well, the doses are dropping off

1 as you move out. You know, that is what we were talking
2 about a little earlier, that, you know, if you meet the
3 criterion we have for the one-mile situation, then one
4 would normally expect that it is tighter.

5 COMMISSIONER ASSELSTINE: Strictly because the
6 doses really are just concentrated back there?

7 COMMISSIONER GILINSKY: Where does this fifty
8 miles come from? You know, this comparison is always
9 made at TMI also. Obviously, the larger the circle you
10 take, the more insignificant the impact of radioactive
11 releases on the population. It seems to me that fifty
12 miles is just a ridiculous circle to be taking.

13 MR. ZERBE: Well, that number had been in this
14 from, I guess, way back.

15 COMMISSIONER GILINSKY: Well, it has been in a
16 lot of Commission documents.

17 CHAIRMAN PALLADINO: Vic, you are not just
18 taking the fifty miles. If that was the only one, I
19 would agree with you, but you are putting a more
20 restrictive limit on the people close in and then you
21 are looking farther out. Now if you want to go some
22 intermediate, you could have a third one, but I question
23 the value of it.

24 COMMISSIONER GILINSKY: I just do not think
25 the fifty miles is a useful index. In other words, you

1 can get even better results by taking 100 miles, if you
2 want to. The sensible comparison is to look at the
3 affected area, and fifty miles is way beyond the
4 affected area. So you are just picking up unaffected
5 people and improving the ratio.

6 COMMISSIONER AHEARNE: What would you define
7 to be the affected area?

8 COMMISSIONER GILINSKY: Something considerably
9 less than that.

10 COMMISSIONER AHEARNE: Such as?

11 COMMISSIONER GILINSKY: Well, perhaps a
12 ten-mile circle. I do not know.

13 MR. RATHBUN: Before Bob offers his comment,
14 one of the things that we had proposed in the July 14
15 meeting -- July 12 paper for that meeting -- was
16 dropping the societal risk limit altogether, and the
17 Commission reacted very negatively to that in the
18 answers to the questions that we supplied, instructed us
19 to put in such a limit.

20 The original 0880 had the fifty miles and, as
21 you point out, the real reason for that fifty miles is
22 it just as a recurring number in a lot of the analyses.

23 The second risk limiter is societal, which
24 means, to me anyway, a substantial number of people.
25 The number of people around the plants, on the average,

1 within fifty miles is around 1.7 million. The largest,
2 I think, is 17 million. The average is 1.7 million. I
3 do not know what the smallest is, but it was an attempt
4 on our part to try and implement the Commission's wishes
5 on a societal risk limit in some way.

6 Bob?

7 MR. BERNERO: I think I might clarify what
8 Dennis just said. If you recall, trying to measure
9 individual risk based on a fraction of national average
10 individual risk, such as accidental death risk or latent
11 cancer -- cancer death risk -- you are going to get two
12 different numbers -- one-tenth of one percent of a
13 national average -- and they are not necessarily
14 compatible. That is, one can be a lot more restrictive
15 than the other.

16 And the numbers you get in this case are five
17 times 10^{-7} per year for individual early fatality
18 risk, and two times 10^{-6} per year for latent fatality
19 risk.

20 COMMISSIONER GILINSKY: Is that a typical
21 ratio?

22 MR. BERNERO: No, that will vary from country
23 to country. I checked it against the British ratio, for
24 instance, and it is different. The relationship between
25 accident death risk and cancer death risk is different

1 depending on the nation.

2 COMMISSIONER GILINSKY: I am sorry. I thought
3 you were giving in fact a ratio between prompt and --

4 MR. BERNERO: Yes. It is the ratio between
5 prompt and cancer death, and what you find is because
6 five times 10⁻⁷ is so low, if you use WASH-1400 models
7 and source terms, you will find the first limit you hit
8 is the early fatality risk, and even for the individual
9 in that first mile if they meet the early fatality risk
10 they clearly meet the latent fatality risk.

11 It is a less restrictive limit.

12 COMMISSIONER GILINSKY: What is a typical
13 ratio between early and latent?

14 MR. BERNERO: Well, in the U.S. it is the
15 simple ratio between five times 10⁻⁴ per year, is the
16 national average accident death risk, and two times
17 10⁻⁴ is the national average cancer death risk.

18 COMMISSIONER GILINSKY: In an accident, what
19 would be a typical ratio between prompt and --

20 MR. BERNERO: I do not think you can say there
21 is going to be that ratio, but I do not know any ratio I
22 can state to you for the person at one mile or the
23 person at ten miles.

24 But we have looked at a number of the results
25 that we have gotten and that other risk analyses have

1 gotten and it appears to be invariable that you hit the
2 early fatality risk first. So it is a good measure of
3 individual risk.

4 COMMISSIONER GILINSKY: Let me ask you,
5 though, can't you in some way characterize the ratio
6 between early fatalities and all fatalities in a reactor
7 accident, in the range of reactor accidents that you
8 have looked at?

9 MR. BERNERO: You have to take the population
10 radius that you are going to use for reference because
11 the ratio would be different for the first mile than it
12 is for the fifty-mile radius or for the total.

13 Now for the total -- I am just thinking what
14 WASH-1400 would --

15 MR. MURLEY: Bob, for Surrey it was two-to-one
16 ratio of prompt to latent -- two times 10^{-7} prompt;
17 one times 10^{-7} latent.

18 MR. BERNERO: Are you talking about the
19 integrated fatalities for the Surrey results or the
20 probabilities? I just do not remember.

21 MR. MURLEY: The probability results.

22 MR. BERNERO: If you go to WASH-1400 -- if I
23 had the siting report here --

24 MR. STELLO: The Sandia report gives both
25 numbers and you just have to take the two and extract a

1 ratio.

2 COMMISSIONER GILINSKY: Is it a factor of ten
3 or a factor of two?

4 MR. BERNERO: It is less than ten, as I
5 recall.

6 COMMISSIONER GILINSKY: Between two and ten,
7 one and ten?

8 MR. BERNERO: It varies with the release. In
9 the siting report, that NUREG-CR-2239, that is a useful
10 one to show you. The large release, SST-1, which has
11 early fatalities, you are going to get a ratio, if I
12 remember it, it is less than ten-to-one. It is more
13 like two or three-to-one latents to earlies.

14 But when you get to lesser releases, SST-2 or
15 3, the early fatalities disappear and you have nothing
16 but latents. So the ratio of latent to early goes up.

17 COMMISSIONER GILINSKY: Now I would guess that
18 the number of estimated prompt fatalities is very
19 sensitive to assumptions. That would be -- is that
20 right or not?

21 MR. BERNERO: Yes, that is --

22 COMMISSIONER GILINSKY: In other words, that
23 would depend more sensitively on the details of the
24 calculations than, say, the total number of fatalities.

25 I raise this because I wonder if that is

1 really the thing to fix on.

2 MR. BERNERO: It is more -- well, let me put
3 it this way. It is going to be a variable more
4 sensitive to source term change, for instance, than
5 latent fatality would. The societal latent fatality
6 goal is going to be less sensitive to source term
7 changes than is an individual early fatality risk
8 value.

9 The early fatality risk value, by the way, is
10 a containment performance criterion, in essence. It is
11 an indirect containment performance criterion when
12 paired with the core melt frequency limit -- you know,
13 ⁻⁴10 . It acts as a surrogate containment performance
14 criterion.

15 CHAIRMAN PALLADINO: Vic, could I understand
16 better what part of the safety goal we are addressing
17 here? Is it still the fifty miles?

18 COMMISSIONER GILINSKY: Well, we really kind
19 of wandered back to the top of page seven, but I just
20 raise this. It comes up in many contexts. This is not
21 the only one. It comes up in siting and so on, and I
22 have often wondered whether that was the right number to
23 use.

24 My sense is, feeling is that it is not, but I
25 just offer that comment for you.

1 CHAIRMAN PALLADINO: Is there any feeling on
2 the part of the Commission they want to do anything
3 different? It is not an unreasonable number against
4 which to apply the societal risk, but any other number
5 we pick would be equally arbitrary. Unless there is
6 more of a consensus to change that, I suggest we just go
7 on.

8 COMMISSIONER ASSELSTINE: I have got a couple
9 of points on the benefit-cost guideline on page nine.
10 One question I have is on the relationship of the two
11 sentences that begin -- the carry-over sentence at the
12 bottom of page nine and then the first full sentence on
13 the top of page ten.

14 It says, "No further benefit-cost analysis
15 should be made when it is judged that all of the design
16 objectives have been met. This guideline does not
17 replace the Commission's backfitting regulation."

18 If those two sentences are read to be
19 consistent, I would assume that what is meant by the
20 first sentence is that for the purposes of the safety
21 goal, if you meet the other design objectives you are
22 just not going to go forward and do more benefit-cost
23 calculations. But that does not mean that for other
24 reasons the Commission or the Staff should not consider
25 other justifications for making backfit decisions under

1 our existing process.

2 MR. ZERBE: I think that is right, but that
3 was the area where there was a change we wanted to
4 make. We would propose taking out "during the trial
5 period" and start the sentence with "application"
6 because the intent here is during the trial period the
7 safety goals are not going to be used for any licensing
8 purposes anyway.

9 So the intent here is that even beyond that
10 one would not use the cost-benefit guideline to keep
11 ratcheting down on requirements if you met your goals.

12 COMMISSIONER AHEARNE: Where is the phrase you
13 are striking again?

14 MR. ZERBE: I am sorry. It is on page nine of
15 the clean copy.

16 COMMISSIONER ASSELSTINE: The last full
17 sentence.

18 Well, I do not have a problem with dropping
19 "during the trial period", but to clarify how those last
20 two sentences that I raised relate to each other, would
21 there be a problem in the very first sentence, under
22 Number 2 up above, by saying the Commission has adopted
23 a benefit-cost guideline for use as one consideration in
24 decisions on safety improvements to make it clear that
25 this is not the determinative factor?

1 MR. ZERBE: As one consideration.

2 COMMISSIONER ASSELSTINE: As one consideration.

3 COMMISSIONER GILINSKY: Let me ask you, why
4 does that statement or guideline say "societal mortality
5 risks" as opposed to "societal risks" in the "benefit of
6 incremental reduction of societal mortality risks"?
7 What is the significance of the "mortality" in that?

8 MR. ZERBE: Well, there I guess you can leave
9 it out. We are talking about deaths here. This refers
10 to the -- when it talks about societal, we are talking
11 about cancer deaths. But I mean, I guess, if you said
12 "societal risk" --

13 COMMISSIONER GILINSKY: But from the point of
14 view of someone applying it, he simply is trading
15 dollars for person-rem. It is as simple as that.

16 MR. ZERBE: So we can take that out.

17 CHAIRMAN PALLADINO: What are you going to
18 take out?

19 COMMISSIONER GILINSKY: We can take that out.
20 I am wondering why it is there.

21 MR. ZERBE: The word "mortality" in that
22 bullseye item under paragraph two there -- "the benefit
23 of incremental reduction of societal risk".

24 CHAIRMAN PALLADINO: You want to take it out
25 also later in the follow-up -- the benefit?

1 MR. ZERBE: Yes, to be consistent.

2 COMMISSIONER AHEARNE: Just for understanding
3 and clarification, not for modification here, there are
4 some arguments that would say that the person-rem
5 calculation, if you are not talking about just
6 mortality, you are also talking about sicknesses that
7 are going to be generated, that you would have to put in
8 some estimate of cancers that are non-fatal.

9 Now you do not -- you strike the word
10 "mortality". I assume you do not mean to expand to
11 include that, do you?

12 MR. RATHBUN: I think in the actual
13 application, though, the Commissioner is right, that all
14 people are going to do is sit down and look at the
15 number of man-rem, but I know what you mean.

16 COMMISSIONER AHEARNE: I understand that.

17 CHAIRMAN PALLADINO: Why not leave "mortality"
18 in there? I am concerned about taking something out
19 rather quickly because while it seems reasonable at the
20 time you take it out, we may find that there was a good
21 reason for having it in.

22 COMMISSIONER GILINSKY: I understand you to be
23 saying that this does not affect the instructions to
24 whoever is applying this.

25 MR. RATHBUN: I do not think so, unless Bob

1 has some --

2 COMMISSIONER ASSELSTINE: It is standard. You
3 tick up man-remms and charge off dollars against it.

4 COMMISSIONER AHEARNE: The point I was raising
5 was the extent that you can take the standard person rem
6 per fatality.

7 COMMISSIONER GILINSKY: Let me ask you a
8 question I wondered about. Would you apply this in a
9 situation where one is considering evacuation if
10 avoiding a person-rem can be done for less than
11 \$1,000? Would you then say that someone ought to move
12 out of the way?

13 MR. ZERBE: You mean permanently move out?

14 COMMISSIONER GILINSKY: No, no. I meant
15 temporarily.

16 COMMISSIONER ASSELSTINE: Well, in fact, when
17 you go back to the individual risk factor, doesn't that
18 assume evacuation?

19 MR. STELLO: Yes.

20 COMMISSIONER GILINSKY: Well, here is a
21 particular guideline. Would you apply it?

22 MR. DIRCKS: You are talking about an
23 operational decision? I do not think any of this at all
24 would be used. That is my own off-the-cuff judgment.
25 You would not want to base at that point in time

1 operational decisions based on this.

2 I do not think we contemplate anything like
3 that type of decision, at least in the evaluation plan
4 we are going to be talking about. We will get to it.
5 We are looking at this right now for the next couple of
6 years only in looking at regulations, regulatory
7 requirements and only one -- using this as only one
8 element.

9 The rest of it is going to be pretty much
10 using the old techniques, but that one, I do not ever
11 see that type of decision ever being based on this
12 unless there is a lot more advances going to be made in
13 this whole business that I cannot see right now.

14 Harold, do you ever see decisions of that
15 nature being made -- evacuation in the case of an
16 accident?

17 MR. DENTON: I think they would be made on a
18 comparison of projected doses to establish radiation
19 protection guidelines, and if the guidelines might be
20 exceeded, at least that is the present approach.

21 COMMISSIONER GILINSKY: That is right. But
22 doesn't it say something about those guidelines.

23 MR. DIRCKS: Should the guidelines be adjusted
24 based on any of this?

25 COMMISSIONER GILINSKY: Well, the guidelines

1 are a little flexible anyway. I think the EPA
2 guidelines talk about one to five R as being a point at
3 which you start public protection.

4 CHAIRMAN PALLADINO: Vic, I believe you are
5 raising questions that really belong in the evaluation
6 period. We are not clear exactly how we are going to
7 use all of these, and I think they are part of the
8 evaluation process for which we have set aside two
9 years, and I think it would be appropriate to --

10 I would like to come back to this
11 "mortality". I am a little worried about crossing it
12 out because it may have implications that we have not
13 thought about here, and I would suggest we keep it in.

14 COMMISSIONER ROBERTS: I would agree with
15 that.

16 COMMISSIONER ASSELSTINE: The other question I
17 have on the benefit-cost guideline has to do with my own
18 view, which was not shared by a majority of the
19 Commission, that we ought to include person-remS averted
20 related to the clean-up of an accident.

21 I guess the question I have is if we apply
22 this benefit-cost guideline that is included here and we
23 left out person-remS averted due to clean-up, how much
24 money would we have spent or would you spend to avert
25 another TMI accident per plant? It is pretty small,

1 isn't it?

2 MR. DENTON: Well, there is the man-rem
3 estimate from TMI was slightly over \$3,000 man-rem,
4 off-site. I guess --

5 MR. STELLO: He means to clean up.

6 COMMISSIONER ASSELSTINE: No. I say if you
7 exclude worker exposures due to clean-up. If all you
8 include is off-site exposures from the accident, how
9 much would you spend per plant to avert another TMI
10 accident applying this guideline? It is on the order of
11 \$1 million, isn't it?

12 MR. STELLO: Well, maybe a prospective -- the
13 man-rem exposures for the large accidents are in the
14 millions of man-rem, and the man-rem associated with
15 clean-up following an accident probably are on the order
16 of a few thousand.

17 COMMISSIONER ASSELSTINE: Of the more severe
18 than the TMI-type accident?

19 MR. STELLO: I am including both -- severe.

20 COMMISSIONER GILINSKY: It must be more than
21 that if you are changing the steam generator, which was
22 a couple thousand or so.

23 CHAIRMAN PALLADINO: I think you were
24 eliminating worker exposure.

25 COMMISSIONER ASSELSTINE: I guess the point I

1 am trying to make, the thing that concerns me is we seem
2 to be putting out a safety goal here that includes a
3 benefit-cost guideline that basically says in order to
4 avert another TMI-type accident all you would spend is
5 on the order of \$1 to \$3 million per plant and no more
6 than that.

7 And if we look at what has been spent per
8 plant to avert another TMI-type accident, I think it is
9 substantially greater than that, and my own view is that
10 what we have required is probably closer to the mark
11 than what this would require. I guess I am troubled by
12 putting out a safety goal that basically says that
13 substantially less should have been spent to avert
14 another TMI accident than what has been done.

15 It seems to me the goal stands for that
16 proposition, and I guess that troubles me.

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1 COMMISSIONER AHEARNE: Well, that may be more
2 the fact that TMI is an anomalous type accident in the
3 sense that it was viewed to a large extent -- a lot of
4 the changes that have been put on, the regulatory
5 changes that have been put on, were not specifically to
6 prevent another TMI accident in the sense of the same
7 detailed accident sequence. A lot of changes are put on
8 to correct what you might say are the more generic
9 problems that are identified as a result of the analyses
10 of TMI.

11 For example, if you want to look -- I am not a
12 strong defender of the \$1,000, but let me just use this
13 as an argument -- what is the total person-rem that
14 potentially could be produced by a large accident?

15 COMMISSIONER ASSELSTINE: Oh, yes.

16 COMMISSIONER AHEARNE: A large accident.

17 COMMISSIONER ASSELSTINE: A large accident, I
18 guess, is what Vic was saying -- ten million.

19 COMMISSIONER AHEARNE: Now you multiply that
20 by \$1,000. Is that an acceptable level? Is that too
21 low?

22 COMMISSIONER ASSELSTINE: I think that is
23 probably right. I guess what I am concerned about,
24 though, is that there are a range of accidents and there
25 are a range of responses depending upon the types of

1 accidents.

2 COMMISSIONER AHEARNE: I am just cautioning
3 using TMI actions and then relate specifically to one
4 specific accident sequence because of changes.

5 COMMISSIONER ASSELSTINE: I agree with you,
6 John. But I guess what I am concerned about is if in
7 fact you take the one accident that we have had and you
8 apply the standard to it, it seems to lead to an
9 anomalous result.

10 CHAIRMAN PALLADINO: For a TMI accident, it
11 would have been worth perhaps spending \$2 or \$3 million
12 and that is from a public health and safety, and I think
13 that was confirmed. But for worse accidents you are
14 going to spend quite a bit more. And I think, as John
15 said, many of the corrections taken at TMI were to
16 prevent or mitigate worse accidents and those are
17 cost-benefit effective.

18 COMMISSIONER ASSELSTINE: I guess I would not
19 draw the distinction between off-site exposures the way
20 this policy statement does and the worker exposures due
21 to clean-up, because it does seem to me that if you
22 included them, if you included person-remS averted for
23 workers involved in clean-up of a TMI-type accident,
24 that for that type of accident you would get a more
25 accurate prescription for the amount of money that you

1 would have spent to avert it.

2 I am not concerned about the most serious
3 accidents. I think those are taken care of, but I think
4 what I am concerned about, though, is the TMI-type, and
5 that is why I had advocated including averting the
6 workers.

7 MR. RATHBUN: The philosophy that we have
8 followed through the drafts here, of the workshops and
9 the 0880, it was that the Commission policy statement on
10 safety goals was an attempt to put into practice and
11 establish some guideline numbers of how safe is safe
12 enough and adequate protection of the public health and
13 safety thinking of the Atomic Energy Act.

14 And as a result, at least so far anyway, we
15 have been fairly consistent in keeping it to off-site
16 exposures and not including occupational exposures per
17 se. So what I am saying is that doing that or including
18 that would be a fairly major change from the
19 philosophical thrust we have been on to date.

20 CHAIRMAN PALLADINO: Does this preclude
21 consideration of operational?

22 MR. RATHBUN: Yes, sir.

23 COMMISSIONER ASSELSTINE: That is what I was
24 told.

25 CHAIRMAN PALLADINO: Where does it say that?

1 COMMISSIONER ASSELSTINE: It does not say it
2 explicitly.

3 CHAIRMAN PALLADINO: It does not say it, or
4 does it?

5 MR. RATHBUN: I think it says it up in the
6 first couple of pages, that we are talking about the
7 public -- risks to the public. Page two.

8 COMMISSIONER ASSELSTINE: It does not say that
9 workers are excluded from that.

10 MR. RATHBUN: That is true.

11 COMMISSIONER ASSELSTINE: But that is the
12 intention?

13 MR. RATHBUN: Yes, sir.

14 COMMISSIONER ASSELSTINE: Workers are not
15 public.

16 MR. DIRCKS: When we get to the evaluation
17 plan, we cover this business of occupational exposures
18 and how they would be used -- at least we say they would
19 be factored into the decision.

20 COMMISSIONER ASSELSTINE: But how could they
21 be factored into the decision, at least applying
22 benefit-cost guidelines?

23 MR. DIRCKS: What we are saying, again getting
24 back to the point I mentioned to Vic, we are using in
25 the evaluation plan, we are talking about using the

1 safety goal as just another tool in the whole range of
2 considerations.

3 COMMISSIONER ASSELSTINE: But what you then
4 would do is consider as a separate proposition, totally
5 separate from the safety goal, that particular element.
6 Well, I guess I would still feel more comfortable in
7 putting it in under the benefit-cost guideline, but
8 everybody has had a chance to consider that already.

9 MR. DIRCKS: I think that would be one of the
10 elements that we would be coming back to you, because we
11 do mention the assessments that we are going to be
12 coming back to the Commission with in two years, and
13 that is one area that we would like to cover in
14 evaluating the use of the safety goal and how
15 occupational exposures would affect it.

16 COMMISSIONER ASSELSTINE: The last question I
17 had was on page ten where we talk about the core melt --
18 large-scale core melt probability.

19 I guess, first, this is the question that I
20 had before, and that is the statement in the sentence
21 toward the bottom of the page, "The design objective for
22 large-scale core melt is subordinate to the principal
23 design objectives limiting individual and societal
24 risks."

25 I guess I still do not have a clear idea in my

1 mind what is intended by the "subordinate".

2 MR. ZERBE: Well, clearly the other two -- the
3 quantitative goals -- are the one that are the basis of
4 the whole document, the ones as it affects the
5 individual or society.

6 Now this one -- and, you know, we have a
7 question in the Federal Register draft of whether one
8 wants to even include the core melt.

9 There was some intent, perhaps, that you could
10 use it as a go-no go type gauge and make calculations
11 only out to core melt, and if you did not have core
12 melt, then you could just eliminate doing the more
13 detailed calculations and get down to the consequences
14 outside the container.

15 There is other concerns that by putting core
16 melt in we are focusing on protection of the plant and
17 should that really be in a set of goals that are
18 affecting the health and safety of the public. And that
19 is what brought the questions up in the text.

20 But it is subordinate because I guess our
21 feeling was if you did not meet that, that would be of a
22 lesser importance than not getting close to the goals --
23 the other two quantitative goals.

24 COMMISSIONER GILINSKY: Except the others are
25 much more difficult to calculate and the results are a

1 lot "iffier".

2 MR. ZERBE: That is right.

3 COMMISSIONER GILINSKY: This is the only one
4 that you can come close to getting some reasonable --

5 CHAIRMAN PALLADINO: Well, even there, from
6 the discussions I have heard, the assumption on core
7 melt ranges from an assumption that as soon as you have
8 less than a certain amount of water going in, the core
9 melts, and we count that as a core melt.

10 And in other cases, the core melt means
11 something entirely different and I think is something
12 that really needs to be straightened out in the
13 evaluation phase.

14 COMMISSIONER GILINSKY: Well, if we do not
15 have this one straight, we cannot get any of the
16 subsequent ones straight.

17 CHAIRMAN PALLADINO: Well, I am saying we
18 ought to get -- I raise the question in my mind as to
19 whether or not the core melt criterion is really one
20 that needs to be in there, but I agree. If we could
21 show that it was a good screening tool, and we had some
22 consistent way of --

23 COMMISSIONER AHEARNE: Well, Vic's point, I
24 believe, is if you cannot calculate the probabilit of
25 core melt, you cannot get to the probability of the

1 off-site releases.

2 COMMISSIONER GILINSKY: Right, whether or not
3 it is in there.

4 CHAIRMAN PALLADINO: No, there is a difference
5 because in calculating the core releases you assume that
6 it is truly melted, whereas the other one you have a
7 difficulty defining what a truly melted core is. I
8 think there is a difference.

9 COMMISSIONER GILINSKY: Is this because the
10 plants are having difficulty meeting this goal that we
11 want to drop it, or what?

12 CHAIRMAN PALLADINO: No, I just wonder whether
13 or not --

14 MR. ZERBE: No, no. I guess the main thought
15 was is somebody going to say, hey, you are taking care
16 of the capital investment of the utility. Why do you
17 want to have that in the goal, because that is really
18 what one might construe the core melt to be?

19 COMMISSIONER GILINSKY: I mean, it is the
20 event that triggers other concerns and it turns out to
21 be a lot more difficult to calculate because there is
22 meteorology and all kinds of other things.

23 MR. ZERBE: The main thing I think we were
24 thinking of, really, was that the core melt could be
25 used as a trigger point and, you know, if you met that

1 you would not have to go further.

2 COMMISSIONER AHEARNE: I guess, Jack, you were
3 going to ask in the draft Federal Register notice about
4 this. It was not clear to me what -- aren't those
5 basically the same questions that were asked
6 previously?

7 MR. ZERBE: That was the same question that
8 was asked previously.

9 COMMISSIONER AHEARNE: And I cannot understand
10 why we are going out asking for public comment on the
11 same thing we went out and asked for public comment on.

12 MR. ZERBE: Well, that was one, I guess, some
13 Commissioner wanted in there.

14 CHAIRMAN PALLADINO: You can blame me for
15 that. I did not know we had asked for that.

16 COMMISSIONER AHEARNE: We had and I do not
17 know why we should ask for it again.

18 CHAIRMAN PALLADINO: I keep wondering why that
19 core melt one is in there unless you want to use it as a
20 screening device.

21 COMMISSIONER GILINSKY: I must say it is the
22 only one that I thought was really useful. Whether that
23 is precisely the right number to be using is another
24 matter. It seems to me that that --

25 CHAIRMAN PALLADINO: Why do you say that,

1 Vic?

2 COMMISSIONER GILINSKY: Because it is
3 something you can work with.

4 CHAIRMAN PALLADINO: No. I maintain it is far
5 harder to get a meaning to what core melt is and a basis
6 on which you are going to develop a calculation than it
7 is to assume that it is melted and then you find out --

8 COMMISSIONER GILINSKY: Well, let's just say
9 the uncertainties attached to this are nothing like the
10 uncertainties attached to how many person-rem somebody
11 is going to get somewhere.

12 COMMISSIONER AHEARNE: I think we are now
13 getting down to the hard issue. I think the hard
14 question is (a) are we going to put out a safety goal.
15 (b) If we are going to put it out, are we going to put
16 it out and start an evaluation plan, or are we going to
17 put it out for public comment. If we are going to put
18 it out for public comment, for how long?

19 I think that is really the major set of
20 questions we have this morning. For myself, I am
21 willing to give you my votes. My votes are that after
22 so long and hard an effort to get where we are, I want
23 to see a safety goal at least tried. I do not care if
24 you call it a limitation plan or evaluation plan or a
25 trial plan, but I would like to see it tried.

1 And I recognize that there are two very strong
2 movements in the Agency opposed to doing that. One is a
3 movement with which I have a lot of sympathy, and that
4 is it is going to be very, very hard to do it --
5 difficult calculations, a lot of uncertainties, do not
6 really know how these things are going to work out. I
7 have sympathy with that. But I think we really ought to
8 try it.

9 The second effort, I believe, whose underlying
10 theme is we do not want to do it because we are going to
11 have some plants who are really going to have trouble.
12 I do not have any sympathy with that at all. So I would
13 like to have the goal out. We have gone through many
14 rounds of public comment, extensive workshops,
15 discussions, comments received.

16 But if the only way it can go out is to get
17 another round of public comment, that is the way we can
18 get three votes to get it out, I will go with public
19 comment. If it is going to take 90 days of public
20 comment, I will go with 90 days of public comment.

21 My preference would be to just put it out and
22 say here it is.

23 CHAIRMAN PALLADINO: Well, one thing we have
24 not had any input on is the so-called evaluation plan.
25 I support your general approach. I would like to see us

1 get it out.

2 COMMISSIONER ROBERTS: Without public
3 comment?

4 CHAIRMAN PALLADINO: I think it would be
5 valuable to have public comments on the evaluation
6 plan. I would propose let's go out there --

7 COMMISSIONER AHEARNE: I have no problem with
8 saying that I would recommend that you say here is the
9 safety goal. Now we are finished with that. And now
10 here is the evaluation plan and some appropriate length
11 of time for commentary on the evaluation plan.

12 COMMISSIONER ROBERTS: On the evaluation but
13 not the safety goal.

14 COMMISSIONER AHEARNE: Right.

15 CHAIRMAN PALLADINO: I would be amenable to
16 that.

17 I asked about this other one because I really
18 have difficulty, honestly, not related to whether plants
19 meet it or not, having something that says here is what
20 you have got to meet and then have something that is
21 unrelated saying here is something else you have got to
22 meet, because it seemed to me that that is more plant
23 protection. But if that was something that went out for
24 public comment and then I cause this to be put in there,
25 then I say I am wrong.

1 COMMISSIONER AHEARNE: We went through a
2 cycle.

3 CHAIRMAN PALLADINO: Well, was there some
4 change that came out of the discussion on page ten?

5 COMMISSIONER ASSELSTINE: One thing that seems
6 to be a more accurate reflection of what we are talking
7 about here, is instead of saying "subordinate to",
8 saying "in addition to the principal design
9 objectives". We are really talking about an additional
10 element.

11 CHAIRMAN PALLADINO: Okay, I can agree with
12 that.

13 COMMISSIONER ASSELSTINE: And I have one quick
14 question on the next sentence where we say, "This design
15 objective may need to be revised as new knowledge and
16 understanding of core performance under degraded cooling
17 conditions are acquired". Is that intended to mean
18 that, for example, if the source term goes down that we
19 might then be prepared to accept a higher frequency of
20 core melt accidents?

21 I guess it is not clear to me what that
22 sentence is intended to convey.

23 COMMISSIONER GILINSKY: It sounds like that is
24 what it means.

25 COMMISSIONER ASSELSTINE: That is one

1 interpretation I suspect some people would make.

2 CHAIRMAN PALLADINO: One of the problems that
3 I gather is associated with defining a core melt
4 criterion is what is core melt.

5 COMMISSIONER ASSELSTINE: Yes.

6 CHAIRMAN PALLADINO: And it may be --

7 COMMISSIONER ASSELSTINE: But that does not
8 change the design.

9 MR. ZERBE: This is only saying we will change
10 it if it gets marked. That is really what we had in
11 mind.

12 COMMISSIONER AHEARNE: My interpretation of
13 it -- and this is not my sentence -- was that if we knew
14 more about it we may define something to be a core melt
15 which is really not that hazardous.

16 COMMISSIONER ASSELSTINE: Although it does not
17 seem to me to change the design objective to do that.

18 COMMISSIONER AHEARNE: Well, you might,
19 because the design objective is fundamentally based upon
20 saying here is the approximate risk that we are willing
21 to take in this particular case. As we track it back,
22 we talk about terms of core melt, clearly defined
23 quantities.

24 COMMISSIONER ASSELSTINE: All right. Okay. I
25 suspect it is more a matter of interpretation of what

1 the design objective means, what we mean by large-scale
2 core melt, which strikes me not necessarily changing the
3 design objective itself.

4 MR. DIRCKS: I think when you read it "in
5 addition to" then you really have emphasized that this
6 becomes an economic regulation.

7 COMMISSIONER GILINSKY: Why do you say that?

8 MR. DIRCKS: Well, this may be more radical
9 than we want to talk about, but getting back to the
10 point that Jim made, if the source term is revised
11 substantially, and if the public health impact is
12 drastically reduced, and if you can have a severe
13 accident and fuel melt --

14 COMMISSIONER AHEARNE: And if we have very
15 high confidence in all of those calculations.

16 MR. DIRCKS: What calculations?

17 COMMISSIONER AHEARNE: The source term and the
18 probabilities leading to the core melt and such and
19 such.

20 MR. DIRCKS: You can say that about anything.
21 If you have confidence in any calculations, we can rule
22 the world.

23 COMMISSIONER AHEARNE: But the path you are
24 going requires high confidence in all those
25 calculations.

1 MR. DIRCKS: Then what is the sense in doing
2 them? Is that what you are saying?

3 COMMISSIONER AHEARNE: No. I am just saying
4 that there is an embedded philosophy when you are
5 talking about the overall risk that relates to --

6 MR. DIRCKS: That is a debate that the
7 Commission has to get itself involved in.

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1 COMMISSIONER AHEARNE: We have been.

2 MR. DIRCKS: Well, you haven't had the benefit
3 of any of the source term information, have you?

4 CHAIRMAN PALLADINO: No, but I don't think you
5 are really arguing with what John is saying. You have
6 to have some degree of confidence. I think where we are
7 going here is saying that it may turn out that you can
8 show you can have a core melt that doesn't affect the
9 public.

10 MR. DIRCKS: That is a fundamental policy.

11 CHAIRMAN PALLADINO: But I think before you
12 get there you want a high degree of confidence in your
13 ability.

14 COMMISSIONER GILINSKY: It is one thing to say
15 you back away from some of the emergency planning
16 requirements or reduce the zone or something. It seems
17 to me it is another thing to say, well, we can put up
18 with more of the core melt.

19 MR. DIRCKS: Well, don't you think you want to
20 at least approach that question before you go off on a
21 regulation like this?

22 COMMISSIONER AHEARNE: This is not a
23 regulation.

24 CHAIRMAN PALLADINO: This is a policy.

25 Let me ask you, what is your problem with the

1 "in addition"? I don't find quite the problem you
2 have. Design objective for large-scale core melt is in
3 addition to the principal design objective limiting
4 individual and societal risk.

5 MR. DIRCKS: You are making that a primary
6 goal of the --

7 MR. RATHBUN: May I just say, speaking to the
8 word "subordination" for a second, the reason that was
9 in there that way was again going back to the
10 philosophical idea or principle that the whole policy
11 statement focused on risks to the public, individuals
12 and societal, so that subordinate, or some say
13 secondary, or however you want to say it, was that it
14 somehow stood of less rank than the individual and
15 societal risks.

16 That is not to say that -- it is still in
17 here. It was in the core melt probability, it was in
18 the 0880.

19 COMMISSIONER AHEARNE: Jim, are you willing to
20 go with "subordinate"?

21 COMMISSIONER ASSELSTINE: I will withdraw my
22 "in addition to" and go back to "subordinate".

23 CHAIRMAN PALLADINO: What is that?

24 COMMISSIONER ASSELSTINE: I will withdraw my
25 "in addition to" and go back to "subordinate".

1 I did have one more question on the top of
2 page 11, and that is, what does "normally" add in on
3 the -- what is "normally" intended to convey on that
4 design objective?

5 MR. RATHBUN: The reason that that was put in
6 there, again, was from 0880, and, you know, it really
7 was a recognition of the fact that we knew then back in
8 February that all of the plants would not necessarily
9 meet 1 in 10,000.

10 COMMISSIONER ASSELSTINE: Okay.

11 COMMISSIONER GILINSKY: When did the
12 "subordinate" creep in?

13 MR. RATHBUN: I will have to look back.

14 MR. ZERBE: Is that in 0880?

15 COMMISSIONER ASSELSTINE: Okay, so the intent
16 really is that in terms of the core melt, likelihood of
17 large-scale core melt accident, that this is not
18 something that when you apply it to the safety goal,
19 this one does not have to be met, necessarily. You look
20 at this. It has a role to play in deciding whether the
21 individual and societal objectives are satisfied, but it
22 is not one that you expect to be satisfied independently.

23 COMMISSIONER GILINSKY: Well, it is the only
24 one, though, you can reasonably check.

25 CHAIRMAN PALLADINO: I wish I were as

1 confident.

2 MR. MURLEY: Another point, if I may add: it
3 is easier for the Staff to use. In other words, you do
4 not have to do a full blown risk assessment. If you
5 meet this, then it is kind of a prima facie case that
6 you do not have to go a lot further.

7 COMMISSIONER GILINSKY: That is right. It
8 seems to be a much more reasonable guideline for
9 application.

10 MR. ZERBE: But if you do not meet it, you can
11 still meet the other ones and be okay.

12 COMMISSIONER GILINSKY: Whether that is the
13 precise number or the type of guideline.

14 CHAIRMAN PALLADINO: It would be nice if core
15 melt were a good screening vehicle and say if you meet
16 that --

17 COMMISSIONER GILINSKY: Well, it is.

18 CHAIRMAN PALLADINO: Except I am not clear
19 that it is.

20 COMMISSIONER AHEARNE: All of these are issues
21 that an evaluation period will help clear.

22 MR. ZERBE: That should turn up whether it
23 really is. It could be that some goals are not met, and
24 that would be met.

25 COMMISSIONER GILINSKY: Let's go back to my

1 earlier question. What I meant specifically -- I guess
2 it was not clear -- was did "subordinate" creep in after
3 it turned out the plants were not meeting the
4 guidelines?

5 MR. RATHBUN: I cannot find it. I am looking
6 but I cannot find it. Let me see.

7 COMMISSIONER ASSELSTINE: I want to make one
8 other, a new suggestion as a substitute for
9 "subordinate." How about saying "the design objective
10 for large-scale core melt contributes to the principal
11 design objective"?

12 [Laughter.]

13 CHAIRMAN PALLADINO: I'm not sure it does.

14 COMMISSIONER ASSELSTINE: You don't think it
15 does?

16 COMMISSIONER GILINSKY: I think "subordinate"
17 is an unfortunate word.

18 CHAIRMAN PALLADINO: Incidentally, you know, I
19 think we are on third order -- that is my opinion --
20 corrections to a document that --

21 COMMISSIONER GILINSKY: No, because you are
22 dealing with a guideline that could actually be applied,
23 or at least can be close to being applied more closely
24 than any of the other things that you have written
25 down.

1 CHAIRMAN PALLADINO: I wish I could be
2 convinced of that.

3 COMMISSIONER GILINSKY: It is very, very iffy
4 at this point.

5 CHAIRMAN PALLADINO: What I am getting at is
6 we have a whole evaluation plan to look at -- we have
7 not even begun on that -- and I would suggest, if we
8 have concurrence at least of a majority of the
9 Commission to go with "subordinate," and why don't we
10 leave it so that we can get on. I think we could
11 discuss it for another hour.

12 COMMISSIONER ASSELSTINE: Although it does
13 strike me that perhaps if what you are really talking
14 about is what role the likelihood of large-scale core
15 melts plays, that the place to address that is in the
16 implementation plan and not in the safety goal itself.

17 Basically what you are saying is the safety
18 goal rests fundamentally on two elements, individual and
19 societal risk, there is a benefit-cost criterion, and in
20 terms of the goal itself, large-scale core melt does not
21 stand as a separate element of the goal.

22 Another alternative is to say it does stand as
23 a separate element of the goal but then to address how
24 you are going to apply that in the implementation plan.

25 CHAIRMAN PALLADINO: That is what led me to

1 suggest that we ought to ask for comments on that.

2 COMMISSIONER AHEARNE: I think, Jim, that I
3 would guess, since in a separate forum the Commission
4 has concluded that the implementation is in the
5 evaluation and is no specific application in the
6 licensing process, it seems to me that this is a great
7 amount of concern on how to tune this, which will be
8 much better able to be understood after there is an
9 attempt to try to use it for a while. That is the whole
10 purpose. What I think this morning's discussion is
11 proving is the real need for a trial period, an
12 evaluation period.

13 COMMISSIONER ASSELSTINE: Yes.

14 COMMISSIONER AHEARNE: I think a lot of these
15 questions we are trying to forecast what difficulties
16 will arise in this wording or that wording. The purpose
17 of the evaluation is to go through some of these
18 things.

19 COMMISSIONER ASSELSTINE: That's true, but it
20 is also true that the goal is a document that people
21 will look to to understand what it is that we have in
22 mind and how we are going about applying the
23 qualitative goals.

24 COMMISSIONER AHEARNE: One of the things we
25 are saying is the Commission has got to spend a few

1 years getting a better sense. We are striking out into
2 new ground across technological regulation in these
3 areas, and I believe that it is a good bold move to do
4 it, and, Jim, we started this direction; we ought to
5 stay the course.

6 [Laughter.]

7 COMMISSIONER ASSELSTINE: I'm speechless.

8 [Laughter.]

9 CHAIRMAN PALLADINO: Is there a majority of
10 the Commission willing to stay with "subordinate"?

11 [A chorus of ayes]

12 COMMISSIONER ASSELSTINE: That's it.

13 CHAIRMAN PALLADINO: Now let's see. I think
14 all the corrections were identified, unless others
15 have -- do you have more, Vic or Jim?

16 [No response]

17 There was one that is going to take some
18 rewriting, and I have forgotten which one it was.

19 COMMISSIONER ASSELSTINE: Clarifying, I think,
20 the relationship between the design objectives and the
21 qualitative goal, the first one.

22 CHAIRMAN PALLADINO: But, subject to these
23 corrections, is there a consensus that this document,
24 not counting any Federal Register notice or anything
25 else, is in good enough shape to represent the

1 Commission?

2 COMMISSIONER ASSELSTINE: I have a couple of
3 elements, you know, as we discussed, that I wanted to
4 see in that I recognize aren't supported by the
5 majority, but with those exceptions, yes.

6 CHAIRMAN PALLADINO: But basically as the
7 document that we are going to use.

8 COMMISSIONER AHEARNE: Now that we have
9 reached a compromise you are willing to support it.

10 COMMISSIONER ASSELSTINE: Together with the
11 opportunity to reflect those additional thoughts of what
12 I would have included, yes.

13 CHAIRMAN PALLADINO: I feel it is a tremendous
14 step forward, and I would like to see us go ahead and
15 get started on our evaluation plan.

16 Well, now, we still have 20 minutes before
17 12:00. I was going to suggest why don't we take a look
18 at the evaluation plan based on the fact that we had
19 gone out for comments on the core melt. I was going to
20 suggest we look at this proposed Federal Register notice
21 and revise it and send it out to the Commissioners for
22 separate consideration, but we ought to take advantage
23 of the Staff's presence to get some highlighting of the
24 evaluation plan.

25 COMMISSIONER ASSELSTINE: Let me ask, if I

1 could, one quick question of the Staff, and that is does
2 the Staff see an advantage to obtaining further public
3 comments on the implementation plan and on the goal
4 together with it, or what is the Staff's view on just
5 putting out the goal as is and then going out for
6 comment?

7 COMMISSIONER AHEARNE: Somehow the Staff would
8 prefer that we don't put it out at all.

9 MR. DIRCKS: I think it would be worthwhile to
10 have the evaluation plan and the goal circulated again
11 for some public comments. There has been no opportunity
12 to comment on the two of them together, and it might be
13 worthwhile to see them side by side and see what we get
14 out of them.

15 COMMISSIONER GILINSKY: What are the
16 objections that John refers to?

17 MR. DIRCKS: What are the objections? About
18 what?

19 COMMISSIONER GILINSKY: Maybe I ought to ask
20 John.

21 MR. DIRCKS: Well, I guess it is probably --

22 COMMISSIONER GILINSKY: I mean are there
23 sentiments opposed to this?

24 MR. DIRCKS: No, I think there were some
25 reservations. I expressed them earlier. I think it is

1 the coincident of the two elements coming together, the
2 safety goal and the work on the source term.

3 My own reaction is I would like to see much
4 more debate on the source term work because I think
5 however that debate comes out, it is going to affect the
6 safety goal. So there are going to be two things going
7 in tandem here and you are going to have discussion
8 going on at the same time with two issues.

9 COMMISSIONER GILINSKY: Why is it that some
10 people want to hold it up? Is it to await to work on
11 the safety goal, or what? What were you referring to?

12 COMMISSIONER AHEARNE: My sense is that there
13 are elements who would conclude that we just ought not
14 to go ahead with the safety goal; it is too hard to
15 apply it in a way that can be usefully done. Also,
16 there is a real concern that there are a lot of
17 uncertainties, but they have seen examples in the past
18 where when something that has a lot of uncertainty in it
19 is developed by the Commission, there are people who
20 then eagerly grasp some of the statements, throw away
21 all the uncertainty descriptions, throw away a lot of
22 the approximate calculation description and just run off
23 with those specific statements.

24 They are afraid that this has the potential of
25 leading to that same kind of situation.

1 COMMISSIONER ROBERTS: Do you share that
2 view?

3 COMMISSIONER AHEARNE: I regret very much the
4 fact that that has happened in the past. I don't share
5 the view that that would lead to the conclusion that we
6 ought not to go ahead with the safety goal. I think
7 this approach of trying to put in place a safety goal as
8 a philosophy, as both an explanation and eventually,
9 hopefully, some sets of guidelines for use is, as I said
10 earlier, an innovative, bold step in technological
11 regulation, and I think we ought to try it.

12 CHAIRMAN PALLADINO: I think there is --

13 COMMISSIONER ASSELSTINE: I guess the
14 appropriate point to decide how we are going to deal
15 with the two elements together is after we get through
16 the implementation plan.

17 CHAIRMAN PALLADINO: Yes. I would like to
18 take advantage of the Staff's presence and at least have
19 them highlight the main features of the evaluation plan
20 and see what general reaction and overall comments there
21 are.

22 MR. DIRCKS: Well, I will start off. We
23 submitted the evaluation plan to the Commission on
24 December 14th. We have a few editorial changes to make
25 in it. Those changes are mostly designed to emphasize

1 that we are not going to be using the safety goal as a
2 regulatory tool; we are going to be evaluating the
3 safety goal.

4 COMMISSIONER ROBERTS: There is not as much
5 emphasis in this as is in the policy statement.

6 MR. DIRCKS: Yes. We are looking toward how
7 effective the safety goal would be in the regulatory
8 program. We submitted a previous version of the
9 implementation plan a couple of months ago and it was
10 much more rigorous in the use of the safety goal in the
11 regulatory program. This new version here completely
12 goes in the other way, and it says how we are going to
13 evaluate the use of it.

14 CHAIRMAN PALLADINO: You handed out a
15 paragraph or there was handed out a paragraph that is
16 not identified, but I gather from what you told me
17 earlier this is an insert that goes to the part of the
18 scope that I think helps you.

19 MR. DIRCKS: Yes. In looking at the first
20 page of the implementation plan, the purpose, this would
21 form the second paragraph.

22 COMMISSIONER AHEARNE: In other words, where
23 you now have "Purpose" being a single paragraph, this
24 would now be a second paragraph.

25 MR. DIRCKS: This would be the second

1 paragraph.

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1 MR. DIRCKS: I think that just emphasizes --

2 COMMISSIONER AHEARNE: And depending on how
3 the Commission comes out on the policy statement may
4 have already been published. I am saying you say here
5 that the proposed policy statement will be published for
6 90-day comment.

7 MR. DIRCKS: That would be changed, depending
8 on whatever action the Commission takes. And I think we
9 are saying here --

10 CHAIRMAN PALLADINO: However, it might be the
11 first phase of the evaluation period will begin with the
12 publication of the -- all right, yes. You are going to
13 go for the evaluation plan, though, aren't you? You are
14 going for comment on that?

15 MR. DIRCKS: Yes. We would like the comment
16 on the evaluation plan, too.

17 COMMISSIONER AHEARNE: Yes. I guess I would
18 have thought you would say the first phase of the
19 evaluation period will begin with publication of the
20 proposed evaluation plan for public comment.

21 CHAIRMAN PALLADINO: That is what I was trying
22 to get at.

23 MR. DIRCKS: You mean we would be doing --

24 MR. ZERBE: The two years comes after the 90
25 days.

1 CHAIRMAN PALLADINO: No, no. I think you are
2 hung up on -- I think the word "policy statement" in the
3 second line and say "evaluation plan." We are going out
4 for publication of the evaluation plan.

5 COMMISSIONER ASSELSTINE: We have to decide
6 that as well, and I think for myself I would like to
7 reserve until after we go through the implementation
8 plan to decide whether the two ought to go out together,
9 if we are going to have a comment period.

10 COMMISSIONER AHEARNE: Now do I read this
11 correctly as saying that when you say "preliminary
12 information on new radiological source terms", what kind
13 of information do you expect to be available?

14 MR. DIRCKS: On December 17 I sent a memo down
15 to the Commission that outlined the flow of information
16 that would come out of the source term work, and there
17 were a list of items attached to that.

18 COMMISSIONER AHEARNE: But specifically, as I
19 read this, you are saying that within six months you
20 expect to have source term information which will be
21 evaluated in order to prepare a report to revise a
22 number of things, including the safety goal.

23 MR. DIRCKS: Yes.

24 COMMISSIONER AHEARNE: So that seems to imply
25 that you would expect to have a fairly substantial

1 amount of source term information available in a few
2 months.

3 MR. DIRCKS: There will be over the next
4 several months a considerable amount of source term --
5 six months.

6 For example, we will have an initial interim
7 source term report in February. We will have a status
8 report on the ANS Source Term Committee in June.

9 COMMISSIONER AHEARNE: Well, then it must be
10 just February. You are saying the first phase is a
11 90-day period. During this period preliminary
12 information on new radiological source terms will become
13 available.

14 MR. STELLO: The interim.

15 COMMISSIONER AHEARNE: The interim report.
16 That is the one you are going to use.

17 MR. DIRCKS: Yes. And as we evaluate the
18 comments during that evaluation of comment period there
19 will still be more information coming in on the source
20 term, and I think that is the point I was talking about
21 earlier.

22 Over the next year there is going to be a
23 considerable amount of source term work flowing into the
24 Agency, and that, just coming here, is not the end of it
25 because there is going to be a good deal of scientific

1 debate over these issues over the next year.

2 COMMISSIONER AHEARNE: Let me ask you, Bill,
3 are you expecting that the source term might lead to a
4 tighter safety goal?

5 MR. DIRCKS: I think there will be variations
6 in the source term.

7 COMMISSIONER GILINSKY: What do you mean by
8 "tighter"?

9 COMMISSIONER AHEARNE: You see, at the moment
10 we have a safety goal which, when you translate it to
11 numerics, talks about a comparison of risk from accident
12 fatalities and latent fatalities, comparing that to
13 other causes of accidental death and cancer death. That
14 is independent of the source term. It is just saying
15 here is the relative risk.

16 Now obviously Bill is placing great reliance
17 upon the source terms is going to do something
18 significant. And it is not clear to me if one concludes
19 that the source term is much more substantial, reduced
20 substantially, which obviously that is the hope of some
21 people, that there is a lot less that is going to get
22 out.

23 I do not understand how that would affect the
24 goal per se. All it could do is affect the --

25 CHAIRMAN PALLADINO: Compliance.

1 COMMISSIONER AHEARNE: That is right --
2 compliance with the goal. Plants, whether they meet it
3 or not. That has nothing to do with the goal unless the
4 argument would be that since so much less gets out we
5 want to make plants a lot safer, and I did not get that
6 the underlying either.

7 So I do not understand why this big effort on
8 the source term relationship to let's hold off on the
9 safety goal until the source term information comes in.

10 MR. STELLO: It is the implementation plan.
11 It is compliance.

12 COMMISSIONER AHEARNE: Ah, but, you see, Bill
13 seemed reluctant to let the policy statement which has
14 got the goals in it go out. That is not compliance.

15 MR. DIRCKS: It is difficult to get at that
16 question. My view is if we go along a track and set a
17 goal here and if it turns out that some plants meet it
18 and some plants do not, then at the same time we are
19 doing source term work that may show that many plants
20 will meet it.

21 I think then the Agency is going to be accused
22 of rejiggering the scientific work we are doing over
23 here in order to allow people to meet or not meet the
24 goal over here. I think that is -- I think it is the
25 image problem.

1 COMMISSIONER AHEARNE: I see.

2 MR. DIRCKS: I think there is going to be a
3 debate on one side of the issue. There is going to be a
4 debate on the other side of the issue. I think when I
5 talked about source term I was saying try to keep the
6 debate to scientific, technical channels. I think there
7 is going to be a good deal of question about the source
8 term work.

9 COMMISSIONER AHEARNE: So what you are really
10 saying is that you do not think the calculations that
11 might be available at the present time are ones that you
12 want to use to compare whether or not the safety goal is
13 met.

14 MR. DIRCKS: I would like to see one issue
15 resolved at a time.

16 COMMISSIONER ROBERTS: And you would prefer
17 the source term.

18 MR. DIRCKS: That is my general reaction. I
19 do not think we can balance so many balls in the air at
20 the same time, but I am not commenting on whether you
21 should go with the safety goal at this time or not. I
22 think with the evaluation plan I think what we tried to
23 build in here is that there is going to be a flow of
24 information coming and we are going to try to give
25 you -- we will keep all of that together.

1 CHAIRMAN PALLADINO: This is the same thing as
2 revising the safety goal.

3 COMMISSIONER AHEARNE: It is the policy
4 statement.

5 COMMISSIONER GILINSKY: Well, you have got a
6 problem with appearances at any rate.

7 COMMISSIONER AHEARNE: The way it was written
8 it is the policy statement.

9 CHAIRMAN PALLADINO: Well, we crossed that out
10 and said "evaluation plan" there now.

11 COMMISSIONER AHEARNE: Down here the Staff has
12 listed comments on the policy statement.

13 CHAIRMAN PALLADINO: In my mind I am crossing
14 that out. All right, but then I think the rest of it
15 reads all right.

16 I think the sentence since if we adopt the
17 concept that we would not send the policy statement out
18 for further comment but we might send out the evaluation
19 plan for further comment, I would take that sentence
20 that says at the end of the public comment period the
21 Staff will assess the comments received on the policy
22 statement as well as the impact of the new source term
23 and will prepare a report to the Commission.

24 I would be inclined, perhaps, to cross that
25 sentence out.

1 COMMISSIONER GILINSKY: I was raising another
2 question. Bill was talking about appearances. I think
3 to a certain extent he is right, but I think there is
4 also another kind of appearance problem in that the
5 whole Agency, so to speak, is leaning forward in the
6 traces, as Peter Bradford used to say, in counting on
7 the source term, and that permeates everything so far as
8 I can see.

9 And that in itself is going to raise questions
10 when new source estimates are presented which are
11 significantly lower.

12 MR. DIRCKS: It works both ways. We have been
13 accused of leaning backward and resisting any effort to
14 revise the system.

15 COMMISSIONER AHEARNE: In fact, I can well
16 remember pushing on the Staff.

17 MR. DIRCKS: It is like pulling teeth to get
18 some balance now. Both sides have been saying, on one
19 side we have been saying we are resisting it; the other
20 side saying that we are leaning forward to accommodate
21 it.

22 That is why I say I would like to keep the
23 issue of the Agency neutral on this thing and not take
24 sides. There is going to be a major scientific debate
25 going on in here. I would like to keep our options open

1 to go with one side or the other side.

2 (Whereupon, at 11:56 a.m., Commissioner
3 Gilinsky left the room.)

4 COMMISSIONER AHEARNE: But what we have as far
5 as a policy statement, though, I think, as you have
6 already admitted, is independent. In other words, the
7 safety goal in a policy statement says here are the
8 kinds of parameters and rough numbers that ought to be
9 compared against.

10 Now the second question is how do you go about
11 doing that, and we have all agreed over the years that
12 the calculations are tough, there are a lot of
13 uncertainties, the data is poor and it is a groping
14 forward, a gradual going forward. So I recognize there
15 are going to be some people who are going to
16 misinterpret -- some deliberately, some because they
17 will not understand what the numbers mean. But I think
18 we still have to try to go forward and try to take each
19 one of these steps and as better information comes
20 along, better calculations are done, they will have to
21 be redone.

22 MR. DIRCKS: I agree but as we go forward I
23 think what we tried to do is, on this evaluation plan,
24 say let's keep in mind there are a lot of other things
25 going in there.

1 COMMISSIONER AHEARNE: Sure, sure.

2 MR. DIRCKS: All we are saying here is we will
3 keep them all in mind and keep reporting back to the
4 Commission.

5 COMMISSIONER AHEARNE: In the evaluation plan
6 you have got, it flows throughout it that we are not
7 going to use this to make any regulatory decisions. It
8 is not going to be in the licensing process and a lot of
9 caution.

10 COMMISSIONER ROBERTS: I would propose an
11 addition that uses that expression "in regulatory
12 decisions".

13 COMMISSIONER AHEAPNE: I thought it was in
14 there already.

15 COMMISSIONER ROBERTS: No, it says "in the
16 licensing process", page one, Scope. The first sentence
17 of paragraph 2, the third line, I would say "will not be
18 used in the licensing process or in regulatory decisions
19 during the trial period."

20 Now isn't that what you just said?

21 COMMISSIONER AHEARNE: I would prefer to say
22 "will not be used in regulatory decisions" because the
23 phrase "not used in the licensing process", I am afraid,
24 is going to be very difficult to define. We have at
25 times defended to the Congress the vast bulk of the

1 Agency's resources are in the licensing process, so I
2 did not know what they meant by -- not using regulatory
3 decisions is a lot closer to what I think was meant.

4 MR. DIRCKS: I think what we meant when we say
5 "licensing", we were not going to use this on a
6 plant-by-plant review basis. The regulatory process, I
7 think we were saying, we would, and I thought this was
8 in line with what the Commission wanted, was to take
9 this safety goal concept and use it along with all the
10 other means that we have available -- the engineering
11 judgment, the regulatory basis -- and not use it as an
12 end-all and be-all unto itself, but just as another tool
13 that we can use.

14 We can modify this.

15 COMMISSIONER AHEARNE: I do not think I have
16 any difficulty with your description. It is the
17 shorthand "in the licensing process" that I have some
18 problem with.

19 MR. DIRCKS: All right. Will not be used to
20 review.

21 COMMISSIONER ASSELSTINE: I think what Tom had
22 suggested saying is inconsistent with what the Staff has
23 proposed. You do intend to propose using it as one tool
24 in certain aspects of the regulatory process in making
25 regulatory decisions.

1 MR. DIRCKS: We intend to evaluate its use.

2 CHAIRMAN PALLADINO: Well, if we are not going
3 to use it, if it is going to be in the implementation
4 plan -- or, sorry, in the evaluation plan, I think we
5 ought to talk about evaluating its use for that purpose
6 rather than using it for that purpose.

7 MR. DIRCKS: We can modify that.

8 COMMISSIONER AHEARNE: Well, let me see. I am
9 confused. I thought what this evaluation period would
10 have you do is go through and use it in such a way as
11 though you might use it were it actually part of the
12 regulatory process but not use those results. It is a
13 trial; it is a testing.

14 CHAIRMAN PALLADINO: That is why we wanted to
15 --

16 MR. DIRCKS: It is a testing. It is an
17 indicator.

18 COMMISSICNER AHEARNE: But if you preclude
19 applying it to any plant, then I am not sure what kind
20 of a trial it is.

21 CHAIRMAN PALLADINO: That is why I prefer to
22 talk about evaluating the use of. That would mean you
23 do try to use it.

24 COMMISSIONER AHEARNE: That is why my leaning
25 was not to be used to make regulatory decisions, because

1 that means that even though you may have done this
2 calculation, the decision --

3 MR. DIRCKS: Regulatory decisions will not be
4 based on the use of this.

5 COMMISSIONER ASSELSTINE: Or based
6 exclusively.

7 COMMISSIONER AHEARNE: But you are going to
8 have to if you really want to evaluate how you use it.
9 You are going to have to do it in some plants.

10 CHAIRMAN PALLADINO: But what I was trying to
11 get away from was the consistent use of the word "we
12 will use these thus and so". What I think we would
13 accept that we are not going to use these in any
14 regulatory decisions, but we are going to evaluate the
15 use of them for various purpose.

16 COMMISSIONER ASSELSTINE: I guess I am not
17 sure that is right. If we are going to evaluate whether
18 to impose a particular requirement, it seems to me one
19 of the things we may want to do is see how that
20 requirement matches up against some of the elements of
21 the goal and how one would apply the goal and what
22 result one would reach based upon applying the goal.

23 And that certainly is one factor. I do not
24 think it should be the only factor, but it is one factor
25 that I suspect we will want to take into consideration

1 in making decisions over the next couple of years.

2 CHAIRMAN PALLADINO: I think we cannot make
3 decisions until we have gotten this thing evaluated.

4 COMMISSIONER ASSELSTINE: What you are talking
5 about is simply doing an academic exercise in a
6 particular instance. Well, let's see what the result
7 would be of applying the goal, and then once we have
8 done that, fine. We set that aside. Now what are we
9 going to do?

10 CHAIRMAN PALLADINO: It would contribute to an
11 implementation plan that comes out. Here is how we
12 think we ought to use these.

13 COMMISSIONER AHEARNE: And at some point the
14 Commission might then revisit this and say well, now, we
15 are sufficiently comfortable with this as a concept and
16 also we have a better understanding how each of these
17 terms are to be defined. And, yes, we think those
18 really are or may be tuned slightly, and then we will
19 begin to amend them.

20 But at least my concept of the trial period or
21 evaluation period, whatever it is called, is that you go
22 through the process as though you were going to use it,
23 but you do not use it because you are still trying to
24 get a feel of how it can be used. There is too many
25 difficulties. This is really a new idea.

1 COMMISSIONER ROBERTS: I agree with that.

2 COMMISSIONER ASSELSTINE: So in no
3 circumstance over the next two years will this ever
4 constitute a basis for a Commission decision?

5 COMMISSIONER AHEARNE: Two years is hard to
6 say.

7 COMMISSIONER ASSELSTINE: Well, for the trial
8 period, however long that is.

9 COMMISSIONER AHEARNE: Perhaps the Commission
10 might revisit it, but unless it revisited, I would not.

11 CHAIRMAN PALLADINO: I do not know if it would
12 help to say unless the Commission during the course of
13 the two years decides otherwise, but that is an open
14 invitation.

15 MR. DIRCKS: I think by that time we would be
16 back with some more reports on what we have been doing
17 with it and how we have been using it and you can give
18 us guidance back on it.

19 The next page goes on to say that essentially
20 the primary use of the safety goal and design objectives
21 will be to assist in the assessment of proposed new
22 generic requirements.

23 COMMISSIONER ASSELSTINE: I think what is said
24 at the bottom of page one and the top of page two in
25 that list is not consistent with what John described.

1 It says here that these requirements will be assessed
2 using the same design objectives as one perspective.

3 What John is saying is that we will not use it
4 at all in making those judgments, that we will go
5 through the exercise. We will see what the effect would
6 have been and whether the safety goals are workable.

7 CHAIRMAN PALLADINO: I had suggested that to
8 assess the impact if used -- I circled a lot of these
9 words that said "used" -- either evaluate or assess the
10 impact.

11 MR. DIRCKS: We will be changing a lot of the
12 "uses" and implementing words in here to "evaluating".
13 I think the emphasis is on evaluating the use of the
14 safety goal in these activities.

15 CHAIRMAN PALLADINO: I think that was one of
16 the major comments.

17 MR. DIRCKS: I think it is in-between what you
18 were saying, Jim, and what John was saying, and it is a
19 mixture, I think. And I think in a sense implicit in
20 many of the activities we are taking part in today --
21 the ATWS rule and others -- we have been implicitly
22 using elements of a safety goal and the techniques.

23 Where we get silly results, it gives us an
24 indication when we should not use it. We had better
25 come back and tell the Commission that we have had a

1 problem here with this particular aspect of the safety
2 goal. If it fits and if it coincides with the rest of
3 the tools we are using, we would come back and tell you
4 that this aspect looks all right and then let's continue
5 to use it.

6 I think that is what we are looking to in all
7 of this statement here, is really an experimentation
8 with the use of the safety goal. But we would be using
9 it in certain aspects but not alone and not to the
10 exclusion of others. It is just really a testing period
11 and it is an experimental period.

12 But in all cases --

13 COMMISSIONER ROBERTS: I liked it the way John
14 said it.

15 CHAIRMAN PALLADINO: I think you are confusing
16 sometimes the use of PRA and the safety goal, because
17 you are using PRA but you are not necessarily using the
18 safety goal and I think we want to keep separate. You
19 are using PRA to establish priorities on things we are
20 doing, but so far as the safety goal is concerned I
21 think the intent was, during this period, not to make
22 any regulatory decisions but to make evaluations of what
23 the impact would be if we used it in certain ways -- the
24 calculational procedures, how they might impact on the
25 guidance.

1 MR. STELLO: Let me try. I think we are stuck
2 with trying to do some of this. If I were to do what
3 John said, to me, the simple implementation of what he
4 said is never use it to look forward to any new
5 requirement. You can only look backward after the
6 decision has already been made and then now apply it to
7 assure that it was not in the decision process.

8 If I include it in any new requirement, it
9 seems I am put in a position to try to unknow something
10 and figure out a way to assure that I somehow was not
11 influenced by going through this exercise and trying to
12 make a decision on a new requirement.

13 So if you are forward-looking --

14 COMMISSIONER AHEARNE: Vic, I would not be
15 trying to say -- and perhaps to a lawyer you would view
16 it differently -- I am not saying that you should avoid
17 going through the calculation. And obviously if you
18 have gone through the calculation, the calculational
19 steps in the process are going to provide you
20 information.

21 But my point was that at the end that (a) you
22 would not solely do that calculation and (b) when you
23 read your final conclusion you are an experienced
24 decision person. You would be able to, I believe,
25 conclude is this the element that has swayed you. And

1 if it is, that is not right.

2 MR. STELLO: No. It says one perspective.
3 The answer might be I used the safety goal. The safety
4 goal says to not make this change, but for a lot of
5 other reasons I believe the change ought to be made
6 anyway and here is what they are.

7 COMMISSIONER AHEARNE: And my argument would
8 be that in reaching that conclusion and even writing it
9 up it would not be appropriate to say the safety goal
10 indicated you should do this.

11 MR. STELLO: And that was consistent with
12 everything else and, therefore, I went along with it.
13 So it is one perspective in the decision. It may be
14 either way.

15 COMMISSIONER AHEARNE: What I am saying is, my
16 approach would be you would not put that into your
17 decision conclusion on that issue at the end of six
18 months or whatever is this review period that you have
19 in mind on how the safety goal is being implemented.
20 You would then summarize it. Here are these various
21 issues in the safety goal which led to this
22 recommendation. Here is how the other approach came out.

23 But as far as, let's say you send a decision
24 paper to Bill, to us, on severe accident policy or
25 rulemaking. I would say that it would not be

1 appropriate in that paper to say here are the arguments
2 for this decision and one of them being it is consistent
3 with the safety goal. That is not --

4 MR. DIRCKS: Yes, okay.

5 MR. STELLO: Would you accept a paper that
6 came down and said with respect to blackout -- station
7 blackout -- we went through an analysis. We looked at
8 it from the safety goal perspective as a perspective.
9 It was not cost-beneficial on the basis of the safety
10 goal perspective, but we concluded that that requirement
11 ought to be implemented anyway for these reasons?

12 COMMISSIONER AHEARNE: I would not accept it
13 that way. I would accept it, maybe, the other way. You
14 come down with a paper and say on station blackout here
15 are the reasons that you are proposing it being done.
16 Addenda: we also looked at it from the safety goal
17 perspective and this was the --

18 MR. STELLO: Fine.

19 COMMISSIONER AHEARNE: My point is that it is
20 not part of -- during this period of evaluation you are
21 not using it as one of the major elements.

22 COMMISSIONER ASSELSTINE: Let me raise another
23 hypothetical. It seems to me that in several of these
24 areas you are not talking about doing a particular item
25 or not doing it. In many instances you are talking

1 about a range of requirements that might or might not be
2 imposed.

3 It seems to me we might conceivably get to the
4 situation where we have a block of requirements that
5 Staff is pretty convinced these need to be done in a
6 particular area, and yet there are another group of
7 requirements that are questionable. There are reasons
8 in favor of doing them; there are reasons against. And
9 if you applied the safety goal, for example, that might
10 weigh one way or the other.

11 I guess my feeling is why shouldn't we take a
12 look at that and making that as one element in making
13 that kind of a judgment?

14 COMMISSIONER AHEARNE: And I would argue that
15 that should not weigh during this initial period, only
16 because if you are down in the margin where a safety
17 goal application would be a deciding factor, that is an
18 inappropriate application.

19 COMMISSIONER ASSELSTINE: Not necessarily the
20 deciding factor but one among several.

21 CHAIRMAN PALLADINO: I think we have a lot to
22 learn about the safety goal. I would be reluctant to
23 use a decision during this period unless the Commission
24 takes it up as an overt change in direction for some
25 particular reason.

1 COMMISSIONER AHEARNE: Look at it this way,
2 Jim. If you stand firm on this --

3 COMMISSIONER ASSELSTINE: It makes it a lot
4 easier.

5 COMMISSIONER AHEARNE: No. If you stand firm
6 on this goal and we put it out, and you push hard on the
7 evaluation plan and you force the Staff to really come
8 back with those public comments in a fixed period of
9 time, that in your time on the Commission you can
10 actually put it in place as a regulatory process.

11 CHAIRMAN PALLADINO: Maybe. By that time,
12 that is the way we will do it.

13 COMMISSIONER ASSELSTINE: As I say, it makes
14 it easier to agree with the safety goal if you say we
15 are not going to use it, but I guess I would leave open
16 the option to use it or at least consider it.

17 (Laughter.)

18 COMMISSIONER AHEARNE: Four years ago there
19 was not any idea of a safety goal. These are all the
20 steps we are trying very hard to get up.

21 COMMISSIONER ASSELSTINE: I guess for myself I
22 liked the formulation that Bill used, but --

23 CHAIRMAN PALLADINO: I had problems with the
24 formulation all the way through the thing. What gave me
25 most of the problem was the words "use" or

1 "application".

2 COMMISSIONER ASSELSTINE: Clearly what Bill
3 described, I think, is a narrowing.

4 MR. DIRCKS: Very much so. This is only an
5 evaluation document.

6 COMMISSIONER ASSELSTINE: But that is still
7 more than what you described, John.

8 MR. DIRCKS: But I thought what I was saying
9 was in agreement with both of you, but we will come back
10 and readjust it. I guess, Tom, you have been tracking
11 some of this stuff.

12 MR. MURLEY: Yes.

13 MR. DIRCKS: I think that is the main point to
14 be discussed in the evaluation plan. The rest of it is
15 really an elaboration of that. We talk about getting
16 some reference documents prepared.

17 CHAIRMAN PALLADINO: One important point that
18 I still have trouble with, and that is segregating the
19 goals further, as implied on the middle of page four.

20 MR. DIRCKS: I talked to my star witness
21 here. I talked to Harold about that one and I think we
22 are talking about -- you and I have talked about it and
23 I think it would be better if Harold explained the
24 external events.

25 CHAIRMAN PALLADINO: What concerns me is that

1 we are going to come out with goals for this item, goals
2 for that item, goals for this item, and then you have to
3 meet every piece, whereas because of the way the
4 particular plant is designed it can meet the overall but
5 it might not be able to meet one piece. So it needs a
6 lot more work.

7 MR. DENTON: I guess I thought I could answer
8 that before we had this last discussion.

9 (Laughter.)

10 COMMISSIONER ROBERTS: You thought you had a
11 clear message.

12 MR. DENTON: If the results of this kind of
13 comparison are not to be determinative or to be allowed
14 upon, I would not see that it makes a great deal of
15 difference one way or the other.

16 COMMISSIONER AHEARNE: Now, Harold, try not to
17 be confused between we are not going to do it now and we
18 are not going to do it. So I think you ought to answer
19 the Chairman's question as though it were actually in
20 the regulatory system.

21 MR. DENTON: Okay. Now from that perspective
22 what I had said to Bill was that when you have got an
23 issue like station blackout and you are trying to decide
24 how it might comport with the Commission's safety goals,
25 you have got to know something about what are the other

1 risks that are out there in reactors and station
2 blackout are only one of the risks.

3 Now if you stay to in-plant initiators, we
4 have improving knowledge of how much station blackout
5 contributes compared to feedwater transients and small
6 LOCAs and big LOCAs and so forth and we can address,
7 then, how far, how much station blackout might
8 contribute to the big picture.

9 We have been worried about fires and
10 earthquakes and floods and these kinds of things and
11 have proposed to not treat them very probabilistically
12 at the moment because we do not know what fraction of
13 risk they would take up very well. If you thought that
14 earthquakes took up the entire risk and that earthquakes
15 alone caused the plant to be right at the Commission's
16 offsite safety goals, there would be no room for any
17 risk from station blackout.

18 So we have to make some kind of assumptions
19 about a portion of risk out, and I think we do that
20 during this two-year trial period. We do not quite know
21 how to do it today, so we are not trying to set other
22 safety goals but try to understand how much each one of
23 these various risks of ATWS and station blackout, what
24 fraction of the safety goal it really might be.

25 Have I -- if I understand the question

1 properly --

2 CHAIRMAN PALLADINO: I would have no problem
3 with studying which of the items have greatest
4 importance in a particular sequence. What I was worried
5 about was coming up with safety goals for a whole lot of
6 sub-elements and I can see that becoming a can of worms.

7 MR. DENTON: We had done that, I guess, in the
8 case of ATWS, not coming up with a safety goal but
9 coming up with a reliability target for auxiliary
10 feedwater systems, for example, that we thought would
11 probably take care of failures of that system. So we
12 have set reliability targets, but we were not really
13 talking about parceling out the safety goal numbers
14 itself.

15 I think this is something we are going to have
16 to learn during the two-year period. In order to treat
17 any one subject, you do have to know what else the total
18 risks are in a plant.

19 COMMISSIONER AHEARNE: I have a couple of
20 question, if I can.

21 CHAIRMAN PALLADINO: All right.

22 COMMISSIONER AHEARNE: Your reference
23 document, it could be interpreted as WASH-1400-prime.
24 What --

25 MR. DIRCKS: That is not how we want to

1 interpret it.

2 COMMISSIONER AHEARNE: Well, it sounds very
3 comprehensive.

4 MR. MURLEY: I might say it is meant to be a
5 compilation of WASH-1400 plus all the work that has gone
6 on since then. It is bigger; it is broader in scope but
7 smaller in detail, I think is the way to say it.

8 You know, a lot of Staff people are going to
9 be now involved in using this safety goal that really
10 have not been intimately involved before. By that I
11 mean they should know when they are using this, however
12 they are going to use it, to evaluate it. It seems that
13 they should know what are the contributions to risk for
14 two-loop PWRs. What have we found for that class of
15 plants? What have we found with regard to Mark-I
16 containment BWRs, for example?

17 COMMISSIONER AHEARNE: Is this a new group
18 which will do a new set of calculations?

19 MR. MURLEY: No. It will be probably Bob
20 Bernero and his contractors evaluating, in a sense, what
21 we have learned over these last ten years.

22 MR. BERNERO: The reference document is really
23 a collection and clarification of a whole lot of work
24 that is going on anyway in a number of different
25 regimes. For one thing, WASH-1400 was two reactors. We

1 now have 13 or 14 PRAs published and another dozen or so
2 coming out this year in the near term.

3 There is a great deal more knowledge, a great
4 deal more understanding. What we are doing in this
5 reference document is compiling in an orderly way what
6 do we know about the reactor risk, by class, by class of
7 reactor, wherever possible breaking it down into the
8 types of reactor, the type of containment, what are the
9 uncertainties and how much can we say about those
10 uncertainties, how well can we quantify them, and also,
11 distinguishing wherever possible the more intractable
12 problems like seismic risk, safeguards risk.

13 COMMISSIONER AHEARNE: How long does it take
14 to produce that kind of document, do you think?

15 MR. BERNERO: We expect to produce it by the
16 end of this calendar year 1983, and if you look at the
17 near-term milestones, I think it is in the back; the
18 very first item, Appendix A, the very first item, early
19 FY 84 translates as January 1, 1984.

20 MR. STELLO: I thought it was December.

21 MR. BERNERO: No, December 31, 1983. I said
22 January 1.

23 COMMISSIONER ASSELSTINE: Why can't that be
24 done before, inside of a year? Why is it going to take
25 a year?

1 MR. BERNERO: We have been working on all of
2 the pieces for quite some time. For instance, you need
3 a lot of the work that is just now being published, you
4 know -- the extensive risk analyses. And then the
5 analysis of the publications, and there is work by
6 others.

7 You know, The Electric Power Research
8 Institute, for instance, is funding an effort to compare
9 PRA methodologies that is parallel to what we are
10 doing. We have cooperated with it. We are very
11 interested in it. It is very important to this work.
12 We would clearly like to have this now, but it is just
13 not feasible at all.

14 MR. STELLO: But to help understand it, you
15 have a lot of those PRAs that are done, stopped at a
16 "core melt" number and did not take it out to the
17 consequence end of it, so you would need to add some of
18 that to be able to gain the perspective to compare to
19 the percent-type numbers.

20 So there is quite a bit of work that needs to
21 be done to pull them together so that you can get --

22 COMMISSIONER ASSELSTINE: So it is a lot more
23 than looking at the status of what has been done.

24 MR. STELLO: And they are not all done the
25 same way. You need to understand those differences.

1 MR. BERNERO: We are just now getting the
2 publication or completion of PRAs done the second
3 time -- that is, the second time the same plant has been
4 analyzed, only with different methodology, different
5 approaches, different resources -- and there are
6 significant differences come up that way. And that has
7 to be sorted out.

8 CHAIRMAN PALLADINO: I wonder if I might
9 interrupt. I think we are going to have to break soon
10 and I think that deserves more discussion than we have
11 time for in the next few minutes. We have a meeting
12 coming up on Monday, I think, on the 10th.

13 I was wondering whether the Staff could do the
14 following based on the discussion you heard this
15 morning: revise as you believe you heard the
16 introductory material and make such revision to the
17 evaluation plan and what you think you heard with regard
18 to "use" or "application", whether that could be done so
19 that we might have it over the weekend -- I am not
20 calling for a great deal of writing but probably a great
21 deal of thought -- and pick this discussion up on
22 Monday.

23 COMMISSIONER AHEARNE: Let me ask two other
24 questions, though, to add into that.

25 CHAIRMAN PALLADINO: Go ahead.

1 COMMISSIONER AHEARNE: Bill, could you put
2 something into the implementation plan or evaluation
3 plan on your, I guess, more the Appendix. You have
4 nothing here showing, getting on with that comparative
5 risk -- the coal versus nuclear.

6 MR. DIRCKS: Oh, yes.

7 COMMISSIONER AHEARNE: It is not here.

8 MR. DIRCKS: I thought you would remember
9 that.

10 MR. STELLO: But we do not have to do that by
11 Friday.

12 COMMISSIONER AHEARNE: It ought to be in the
13 evaluation plan. I mean, it does not have to be a big
14 item, line item, but he was directed to do it.

15 MR. DIRCKS: You want it at least on the work
16 plan.

17 MR. STELLO: You mean it is okay to just have
18 an item -- we will do it.

19 COMMISSIONER AHEARNE: It would be nice to put
20 by when.

21 The other item was there was much discussion
22 earlier with respect to the subordinate role of the core
23 melt and I would like him to rethink or the Staff to
24 rethink, then, the top of page seven because here it
25 says that they would look only at the core melt

1 frequency as a screening device and if the core melt
2 design objective is met they would not do the rest of
3 the calculation.

4 I would argue that that is inconsistent.

5 CHAIRMAN PALLADINO: As a matter of fact, we
6 have not demonstrated that it is a good screening
7 process.

8 COMMISSIONER AHEARNE: That is right, and so
9 certainly in this trial period you would want to do the
10 whole calculation and see how they fit together.

11 MR. STELLO: Can we at least talk about that a
12 little bit more before we make it? That is an awful lot
13 more work when you have to do that whole calculation,
14 especially -- for the long term maybe it is okay, but in
15 the interim where we are trying to grind things out for
16 this two years by looking at these generic
17 requirements --

18 COMMISSIONER AHEARNE: Vic, you do not go
19 through -- as Bob just said, a lot of the PRAs stop at
20 the core melt. They never do the consequence.

21 MR. STELLO: Right.

22 COMMISSIONER AHEARNE: And the fundamental
23 purpose of the safety goal is the consequence. And if
24 you never --

25 MR. STELLO: True.

1 COMMISSIONER AHEARNE: And I am not saying it
2 should even be for all of them, but for some of them you
3 have got to go through the whole process.

4 MR. STELLO: I was trying to leave the window
5 in to make sure that we are not committed to having to
6 do all of them.

7 COMMISSIONER AHEARNE: The way this says is
8 you never do it if the core melt. If you do not exceed
9 the core melt frequency, you never have to do the rest
10 of it. My argument is that in this trial period you
11 have got to go through some of those just to make sure
12 that everything does get included.

13 MR. STELLO: All right. Okay.

14 MR. BERNERO: Could I just add a very quick
15 thought? The ones that stop at core melt we have
16 developed methodology to attach containment failure
17 severity index to the core melt so that you do not have
18 to do the whole risk analysis but you at least get a
19 fair measure of the public health significance of the
20 core melt, and that is implicit in this.

21 CHAIRMAN PALLADINO: Okay, could I make a
22 comment with regard to the safety goal itself? I would
23 propose, Jack, if you can, also by Friday, to take the
24 draft that was dated December 16 and mark the
25 corrections that came out of this meeting so that if

1 there is some problem a Commissioner sees over the
2 weekend that it can be highlighted on Monday.

3 MR. ZERBE: You want a marked-up?

4 CHAIRMAN PALLADINO: Now do not go back -- I
5 would use as a reference document your December 16 and
6 then mark up changes that came out of this meeting.

7 MR. ZERBE: Okay, we can do that.

8 CHAIRMAN PALLADINO: And I believe we have
9 pretty good consensus, but I think we would want to see
10 what we want to do on that.

11 I would also propose to send to each
12 Commissioner a revised Federal Register notice which
13 basically says what I think we ought to do with it, with
14 the safety goal.

15 COMMISSIONER AHEARNE: We can discuss that on
16 Monday.

17 CHAIRMAN PALLADINO: Okay, good.

18 MR. MURLEY: Mr. Chairman, could I clear just
19 one point up for the record?

20 Commissioner Gilinsky had asked earlier about
21 the ratio of the latent risk to the prompt risk and I
22 gave an answer that for Surrey the ratio of prompt to
23 latent was a factor of two. That is for the average
24 individual within a mile. He may have been asking the
25 question about total populations, and I do not know the

1 answer to that.

2 MR. STELLO: I think that is in the Sandia
3 report. It is listed for every plant.

4 CHAIRMAN PALLADINO: Okay. Well, thank you
5 very much. We will stand adjourned.

6 (Whereupon, at 12:28 o'clock p.m., the
7 Commission adjourned.)

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in the matter of: PUBLIC MEETING - Discussion of Safety Goals and Staff
Evaluation Plan

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