

NUCLEAR REGULATORY COMMISSION

COMMISSION MEETING

In the Matter of: **CLOSED MEETING - EXEMPTION 10 -**

**"BRIEFING ON CONTESTED MATTERS IN TMI-1
RESTART PROCEEDING"**

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

CLOSED MEETING - EXEMPTION 10
"BRIEFING ON CONTESTED MATTERS IN TMI-1
RESTART PROCEEDING"

Room 1130,
1717 H Street Northwest
Washington, D.C.
Monday, December 21, 1981

The Commission met at 11:45 a.m., pursuant to notice, in closed session, Nunzio Palladino, Chairman of the Commission, presiding.

- Present: Chairman Palladino
- Commissioner John Ahearne
- Commissioner Peter Bradford
- Commissioner Victor Gilinsky
- Commissioner Thomas Roberts

- Also Present: Samuel Chilk, Secretary of the Commission
- Leonard Bickwit, General Counsel's

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Office
B. Rothchild, General Counsel's
Office
Forrest Remick, Staff

Present for the NRC Staff:

J. Milhoan
J. Montgomery

1 PROCEEDINGS

2 CHAIRMAN PALLADINO: The meeting will please come
3 to order.

4 This is a closed meeting in which the Commission
5 will be briefed on certain of the contested matters in the
6 TMI restart proceeding. The Commission had specifically
7 requested OPE to address the issue of vessel level
8 instrumentation, and I gather this is going to be the major
9 item of discussion this morning.

10 MR. REMICK: That's correct.

11 CHAIRMAN PALLADINO: Unless we have any other
12 comments before proceeding, why don't we turn the meeting
13 over to Forrest?

14 COMMISSONER AHEARNE: Could I ask a question? In
15 reading the UCS comments on the objection to the closed
16 meeting, I'd just like you to reiterate. I could understand
17 TMI Alert and those people being puzzled by the distinction
18 between OPE and the Staff, and not really following and
19 therefore being confused why we could have somebody in a
20 closed meeting. UCS is in a different category. Obviously
21 they have been in our proceedings, and know our operation
22 very well. They also take vehement objection to the having
23 a closed meeting. Is there something here I am missing?

24 (Commissioner Bradford entered the hearing room
25 at 11:46 a.m.)

1 MR. BICKWIT: The only thing I can think of that
2 you might be missing is the notice that went out was
3 entitled "Briefing on Contested Matters in TMI-1 Restart
4 Proceeding," and maybe it didn't actually say that it was a
5 briefing by someone other than the Staff.

6 CHAIRMAN PALLADINO: It did say OPE, I believe.

7 MR. BICKWIT: What I don't know is the Sunshine
8 Act notice say OPE?

9 SECRETARY CHILK: I don't think so. I think it
10 just gave the title of the briefing.

11 MR. BICKWIT: I see. So that might be the source
12 of confusion.

13 MR. REMICK: Thank you, Mr. Chairman.

14 I just might mention a little bit about the
15 schedule in light of some of the questions that were asked
16 in the previous meeting.

17 You should have received a memo dated December
18 18th from OPE on the vessel level instrumentation, and I
19 fully expect that either late this afternoon or early
20 tomorrow we will have a summary of the transcript of the
21 cheating hearing to you.

22 The balance of the OPE's analysis on the Licensing
23 Board decision on separation of units, other hardware items
24 and emergency planning, we have targeted to get to you about
25 January 8th. So some of the things that you are asking

1 about this morning, our analysis of the record will come to
2 you at that time.

3 COMMISSIONER GILINSKY: Are you going to deal with
4 operator qualifications at all?

5 MR. REMICK: Today?

6 COMMISSIONER GILINSKY: Ever.

7 MR. REMICK: We sent you a memo, but we thought
8 the Staff was in the best position to give you an update on
9 that this morning. But we did send a memo about a week and
10 a half or two weeks ago which -- am I correct?

11 MR. MILHOAN: That was the San Onofre memo you
12 sent out.

13 (Laughter.)

14 CHAIRMAN PALLADINO: I thought I was the only one
15 that fell into that category.

16 (Laughter.)

17 COMMISSIONER GILINSKY: Well, I was wondering
18 about the use of people who had failed exams.

19 MR. REMICK: I'm sorry. John Montgomery did brief
20 me on the TMI, and I was thinking we sent a memo up, and if
21 you wish, we certainly can.

22 COMMISSIONER GILINSKY: I don't know whether you
23 need a memo, but I would like to hear at some point about
24 the use of persons who have failed an exam even for cold
25 shutdown. If I understood correctly what they were saying,

1 that they were going to use people who -- they weren't
2 actually talking about people who had failed the SRO Part,
3 but just talking about people who failed the RO part.

4 MR. REMICK: Yes.

5 Well, we certainly have a fair amount of
6 information about details of who failed, and some failed
7 deplorably.

8 CHAIRMAN PALLADINO: I thought we were talking
9 about the SROs who failed the SRO part, but did not fail the
10 RO part.

11 COMMISSIONER GILINSKY: I thought not. I thought
12 that was to deal with the shift complements during
13 operation. I thought for cold shutdown they were talking
14 about using people who had not passed any exams.

15 COMMISSIONER AHEARNE: Right. What they say is
16 the Licensee has justified and Staff accepted use of five
17 additional licensed operators who failed a part of the
18 October exam. These will be used for cold shutdown.

19 MR. REMICK: Let me check my colleagues. I'm not
20 sure if we have any information.

21 COMMISSIONER GILINSKY: It's just something I
22 think we ought to think about. You know, maybe they're very
23 close to an RO license, but they're not licensed operators,
24 and that's a line we have drawn.

25 MR. REMICK: The one thing we thought the

1 Commission would be interested in, and I think we suggested
2 when we talked in that meeting about TMI schedule, is in
3 meeting the five shifts, they will presumably have to
4 utilize staff people who have the proper license, and then
5 the question comes up, are those staff people going to be
6 adequately in their normal jobs.

7 COMMISSIONER AHEARNE: No, I gather they submitted
8 some kind of proposal.

9 MR. REMICK: Apparently, yes, from what they said
10 this morning.

11 COMMISSIONER AHEARNE: Do you people have that?

12 MR. REMICK: I have not seen it yet, no.

13 COMMISSIONER GILINSKY: Well, I don't want to
14 derail your presentation today, but it does seem to me like
15 an area that we would like to have covered.

16 MR. REMICK: All right. Both before restart as
17 well as after restart.

18 The basic vessel level instrumentation
19 controversy, we believe, is between the Licensee, Staff and
20 the Commonwealth of Pennsylvania. Although there were
21 contentions, two of those were withdrawn, and during the
22 hearing, no evidence was provided on the third contention,
23 and no proposed findings and so forth.

24 So it boiled -- I don't want to use the term
25 "boiled down" -- it comes down to a controversy between

1 Licensee, Staff, and Commonwealth of Pennsylvania, and we
2 believe that that controversy can be concisely stated as
3 prior to TMI restart, how much progress should GPU be
4 required to make toward vessel level instrumentation
5 development.

6 COMMISSIONER GILINSKY: Can I just ask you what
7 the rules are for operating plants on when they have to have
8 their instrumentation in?

9 MR. REMICK: Well, if I recall, it was January 1,
10 '82; but in your SECY 81-582, you extended that as far as to
11 January 1983.

12 COMMISSIONER GILINSKY: Now is there any question
13 --

14 MR. REMICK: Excuse me. The first refueling
15 outage after January 1983.

16 COMMISSIONER GILINSKY: Is there any question that
17 the plant would have to meet it, whatever else may be the
18 case, would have to meet that requirement at that point?

19 MR. REMICK: I think that our bottom line would be
20 -- will come out to be that it must meet it like other B&W
21 reactors, presumably on that schedule. That would be our
22 recommendation.

23 COMMISSIONER AHEARNE: I think what we have done,
24 we have laid on this fairly strong requirement, and I know
25 for myself with the belief that an instrument could be

1 developed. The difficulty of getting there was the reason
2 we allowed the others to slip. In this particular case --
3 and I'll be very interested in hearing what you have to say
4 -- but as far as I can see, Met Ed in particular, and B&W
5 perhaps in general, have just essentially taken the attitude
6 that they don't need to try to develop such an instrument.

7 COMMISSIONER GILINSKY: A number of these have
8 already been installed in Westinghouse plants, about a dozen
9 of them.

10 MR. REMICK: I think these are things we should
11 discuss because they are -- if I may just go over the
12 summary, would perhaps be the best way to get into those.

13 Our analysis is based primarily on the records
14 developed by the Licensing Board, and thus that information
15 is available to the parties.

16 However, we have included some additional
17 information from the ACRS and also reminding you of
18 Commission action in SECY 81-582.

19 Also, the record that we are referring to was
20 closed in about March 1981, so we would expect that the
21 Licensee and Staff may have had additional interaction on
22 the vessel level instrumentation since that record has been
23 closed, and we are not necessarily privy to all of that
24 interaction, nor have we attempted to uncover it fully.

25 Now the position the parties --

1 COMMISSIONER AHEARNE: March '82, you say, was the
2 date that the Board's decision was based on?

3 MR. MILHOAN: Oh -- yes. On this issue.

4 COMMISSIONER GILINSKY: March '81.

5 MR. MILHOAN: March '81, going through the Board
6 decision, the transcript pages are referenced in the March
7 of '82 -- '81, I'm sorry.

8 MR. REMICK: The position of the parties is that
9 there appears to be complete agreement that the Lessons
10 Learned Task Force short-term requirements are being met by
11 the Licensee, and the controversy is relative to meeting the
12 long-term requirements of the Lessons Learned Task Force.

13 CHAIRMAN PALLADINO: What's the short-term
14 requirements?

15 MR. REMICK: Oh, there's a whole list of them.

16 CHAIRMAN PALLADINO: You're not talking about the
17 level indication?

18 MR. REMICK: Excuse me, there are. Do you want to
19 summarize them?

20 MR. MILHOAN: With respect to the short-term
21 Lessons Learned requirements, we are talking about the
22 requirements for inadequate core cooling. The vessel level
23 indication was not a short-term requirement. It is in
24 conjunction with the long-term recommendations of the
25 Lessons Learned Task Force.

1 The short-term requirements concern revising
2 procedures to address inadequate core cooling; using
3 existing instrumentation; or short-term modifications to the
4 existing instrumentation; and the installation of subcooling
5 meters or sometimes referred to as saturation meters.

6 MR. REMICK: And they are meeting those
7 requirements, or have met them.

8 CHAIRMAN PALLADINO: And what are those? Those
9 are the thermocouples, plus pressure measurement?

10 MR. REMICK: Basically they have core exit
11 thermocouples. They have pressure sensors. They have
12 temperature meters on the hot leg.

13 COMMISSIONER GILINSKY: But thermocouples are not
14 part of their saturation meter?

15 MR. REMICK: No, not part of the saturation meter.

16 CHAIRMAN PALLADINO: What are you putting in
17 special for saturation meters?

18 MR. MILHOAN: For the saturation meters, they are
19 taking the hot leg, the RTD taps in the reactor pressure and
20 running it to the subcooling meter. They are using that,
21 and they are using the 52 core exit thermocouples for the
22 detection of inadequate core cooling.

23 CHAIRMAN PALLADINO: But the vessel level
24 indication is long term?

25 MR. REMICK: It's a long-term item, yes.

1 Before restart, the controversy boils down to how
2 much progress should they have in that development prior to
3 restart. The Licensee's position is that meeting the
4 short-term requirements is also adequate for the long term,
5 and so they argue that thus there is no further
6 instrumentation necessary beyond those to meet the
7 short-term requirements.

8 The Staff would --

9 COMMISSIONER GILINSKY: Wait a minute. They're
10 saying the saturation meter meets our long-term water level
11 indication requirements?

12 MR. REMICK: Their argument in the hearing was
13 that the saturation meter, the exit core thermocouples, and
14 temperature and pressure and so forth, are all that is
15 needed to meet inadequate core cooling requirements of
16 long-term task force.

17 (Commissioner Bradford left the hearing room at
18 12:00 noon.)

19 COMMISSIONER AHEARNE: Did they argue that those
20 were all that were needed, or did they add on the
21 requirement, the argument that it was impossible to develop
22 further instrument that would aid? That, instead, any
23 further instrumentation would confuse the operator?

24 MR. REMICK: Let me attempt to categorize that,
25 and Jim can correct me if I'm wrong. They argued that they

1 were not sure that the information -- how they would use the
2 information from a different instrumentation, and they also
3 argued that such instruments could be misleading to
4 operators.

5 CHAIRMAN PALLADINO: Is that because of the state
6 of development for such an indicator? Or is it that even if
7 they had a good vessel level indicator, that they wouldn't
8 see any use for it?

9 MR. REMICK: Well, the argument can go in several
10 directions. One was a basic definition difference with the
11 Staff on what one means by inadequate core cooling, on
12 whether that -- the Staff argued that inadequate core
13 cooling means that basically the water level, or as they
14 talked about the two-phase froth level gets down to the top
15 of the core, or the core actually becomes uncovered, and the
16 fuel starts to heat, that's what is meant by inadequate core
17 cooling.

18 (Commissioner Bradford entered the hearing room at
19 12:02 p.m.)

20 The Licensee argued, no, that the definition for
21 inadequate core cooling is when you no longer can meet the
22 50.46 requirements, which is the 2200 degree Fahrenheit
23 cladding temperature.

24 So the basic difference on inadequate core cooling
25 --

1 COMMISSIONER GILINSKY: Are they the only ones who
2 are taking this position? Because I gather pretty much
3 everybody else is --

4 COMMISSIONER AHEARNE: I think B&W across the
5 board.

6 MR. MILHOAN: It appears to be B&W. In the
7 hearing process, it was B&W across the board. The Licensee
8 based his position on a B&W evaluation submitted to the
9 Staff.

10 COMMISSIONER AHEARNE: But isn't that because of
11 the approach that all the plants took, is to turn back to
12 the vendors, and the vendors were the ones who were
13 developing the various approaches? CE developed an approach
14 for CE plants, and Westinghouse developed an approach for
15 Westinghouse plants, and B&W developed an argument.

16 (Laughter.)

17 COMMISSIONER GILINSKY: Well, I guess I hadn't
18 heard this before. I thought that B&W was merely slow in
19 coming up with a water level instrumentation. I hadn't
20 heard that they were giving the whole subject the back of
21 the hand.

22 MR. REMICK: The back of the hand, and so forth,
23 I'm not sure I personally can support those, but they
24 certainly are -- the Licensee, I don't know if B&W argues on
25 the lack of agreement on the basic definition --

1 COMMISSIONER AHEARNE: My impression came just
2 from reading the transcript of the ACRS meeting. That was
3 where I formed my opinion. Because, as I recall, Met Ed
4 responses were clearly that the B&W owners group just had
5 not --

6 COMMISSIONER GILINSKY: Well, the whole reason for
7 getting into this business of measuring water level was to
8 deal with the B&W plants, and the Staff in their usual way
9 just sort of sucked up the whole subject and preferred not
10 to zero in on the B&W plants, so everyone else is now going
11 to have water level instrumentation except B&W.

12 I think we ought to be very firm with these
13 people. Not just this Licensee, but all of the B&W
14 licensees.

15 MR. REMICK: I would just like to point out, I
16 would urge you to read carefully the ACRS individual
17 comments that are attached. I think there are some diverse
18 opinions on where we stand.

19 CHAIRMAN PALLADINO: I honestly don't believe
20 Westinghouse has a useful pressure level device, except
21 under certain conditions, and not the conditions in which
22 they really will have to measure the level.

23 MR. REMICK: I would suggest that if I can just
24 quickly get over this --

25 (Laughter.)

1 The Staff's position is that they would require
2 eventual installation of vessel level instrumentation, and
3 they would require the Licensee to show reasonable progress
4 towards vessel level instrument development before restart,
5 and that would be in accordance with Staff reasonable
6 progress criteria that they have identified. They have
7 identified five separate items.

8 The Commonwealth of Pennsylvania says that a
9 vessel level instrument would be desirable for the long
10 term. They would argue that the Licensee need not meet the
11 Staff's reasonable progress criteria before restart, and
12 they urge further generic studies and testing by the Staff
13 before requiring a licensee commitment. I think it is
14 significant they are asking it of the Staff.

15 The Board, in considering these various things,
16 made the following findings and conclusion of law:

17 That a water level or its equivalent is necessary
18 for the long term; that the Licensee has demonstrated
19 reasonable progress --

20 COMMISSIONER GILINSKY: This is what the Board has
21 said?

22 MR. REMICK: This is what the Board is saying,
23 yeah.

24 That the Licensee need not meet the Staff
25 reasonable progress criteria at restart. However, high

1 priority should be given to development and installation of
2 a reactor coolant level meter, and they leave to the Staff
3 and to the Commission to require the installation and to set
4 the timetable for such installation consistent with the
5 treatment of other similar reactors.

6 COMMISSIONER AHEARNE: On what did they base the
7 conclusion that the Licensee had made reasonable progress?
8 Did they elaborate on that?

9 MR. MILHOAN: I would say the basis of the
10 conclusion was that the Licensee in the hearing described
11 the efforts that he was making to follow industry progress;
12 described, I think, ~~one or two~~ consultant studies that he
13 had underway, and I believe that was the Board's reason --

14 MR. REMICK: They also elaborated, I think, if I
15 recall -- I might be wrong, on the EPRI development program,
16 and also a contract at Penn State where a professor is
17 looking at a --

18 (Laughter.)

19 -- level indicator. I had to get that in.

20 (Laughter.)

21 And I think there was UCLA prof that was doing a
22 study, and also, maybe it was ACRS transcript, they were
23 urged to consult with somebody at MIT, and so forth.

24 COMMISSIONER AHEARNE: Well, in the ACRS
25 transcript, as I recall, when being asked had they actually

1 met with any of the other industry, Westinghouse or CE, as I
2 recall the answer was no, they hadn't. So I'm not sure how
3 closely they were following it.

4 CHAIRMAN PALLADINO: Is B&W basically doing
5 nothing to develop vessel level indicator?

6 MR. REMICK: I honestly don't think I can answer
7 that.

8 COMMISSIONER GILINSKY: Do you know a thing
9 they're doing?

10 MR. MILHOAN: The answer is I have not looked at
11 the B&W. I can characterize the --

12 COMMISSIONER GILINSKY: Let me ask you, is there
13 some reason other than that it's extremely difficult in B&W
14 plants to develop a water level indicator, or is there some
15 other reason that I don't understand why for some reason or
16 other they would not want to come up with a water level
17 indicator?

18 COMMISSIONER ROBERTS: The commentary of that
19 point of view is the attachment to the discerning views from
20 the December 15th ACRS letter. You might want to read
21 that. It's quite interesting. Listen to the statement.
22 Admittedly the two --

23 COMMISSIONER GILINSKY: That's what John usually
24 says.

25 COMMISSIONER ROBERTS: "The Staff continues to

1 accept instruments that do not provide an unambiguous
2 measure of liquid level in the pressure vessel, and
3 continues to lack an adequate rationale therefor."

4 I think that's a pretty damning statement.

5 COMMISSIONER GILINSKY: Who signed that?

6 COMMISSIONER ROBERT: H.W. Lewis and M.S. Plesset.

7 CHAIRMAN PALLADINO: Those are good comments. As
8 a matter of fact, even before I read these, I raised the
9 same questions with the ACRS.

10 COMMISSICNER AHEARNE: That's different. They are
11 saying that the Staff to them is accepting right now
12 instruments they believe are ambiguous, and they are not
13 giving -- the Staff can give no good reason why they're
14 accepting those reasons. That's a different question.

15 What Vic asked, is there some particular reason
16 why B&W, something unique about B&W --

17 MR. REMICK: Well, I'm not sure about this, that
18 that's the reason, but there is difficulty if you're going
19 to use differential pressure, of a pressure tap that will
20 probably have to be provided in a nozzle to the vessel, and
21 that's considered an unresolved safety question by the Staff.

22 Now whether that leads them to resist, I don't
23 know.

24 Somewhere else I read in preparing for this about
25 a week ago, and I was not able to reconstruct it in the last

1 couple of days, somewhere I read a reference to the fact,
2 too, that the application of the Combustion Engineering
3 heated junction thermocouples is not necessarily
4 straightforward in B&W because of the fact that they would
5 need to be bottom entry in the B&W reactor, and the
6 Combustion Engineering design is at the top.

7 However, also, there is indication -- and I'm not
8 sure where in the record, maybe Jim could help -- that
9 Combustion Engineering has made the statement that their
10 system can be used on any PWRs.

11 COMMISSIONER GILINSKY: Isn't there some sort of
12 acoustic device that you could use that would tell you where
13 the water is?

14 MR. REMICK: There was an acoustic device that's
15 referred to somewhere in the record.

16 COMMISSIONER GILINSKY: I mean I would think that
17 that --

18 MR. MILHOAN: It was part of the B&W evaluation.

19 COMMISSIONER GILINSKY: But in any case, you know,
20 if we don't need a water level indicator, fine; let's decide
21 we don't need a water level indicator. I've been working on
22 the assumption that we do need one, and the Staff thinks we
23 need one.

24 MR. REMICK: That was the OPE conclusions.

25 (Laughter.)

1 CHAIRMAN PALLADINO: But getting back to my
2 earlier question, is B&W doing any work on vessel level
3 indicator?

4 MR. MILHOAN: The Staff indicated in the SECY
5 paper that B&W was proposing, was working on a delta P level
6 measurement device, that their progress in this, is the
7 Staff's words, was very poor in this area, and that it would
8 take a considerable length of time in the Staff's opinion
9 for this delta P level instrument to be developed by B&W.

10 COMMISSIONER AHEARNE: But the Staff, in front of
11 the ACRS, as I recall, their attitude was it would take a
12 long time for B&W to develop something, but one of the
13 reasons was they hadn't done anything yet.

14 MR. MILHOAN: That's true. If I remember reading
15 the ACRS transcript, to answer your specific question, I
16 remember in that area that the Staff had mentioned they had
17 met with -- it came in the context of GPU saying that they
18 did not understand the Staff criteria for vessel level
19 indication, and not only that, they could not develop an
20 instrument that would meet all Staff criteria.

21 At that time the Staff, I think, in response said,
22 well, other vendors we had been meeting with did not have
23 that similar problem, that they understood the Staff
24 position with respect to vessel level indication.

25 COMMISSIONER AHEARNE: As I recall in that ACRS

1 meeting, the Staff expressed frustration, in fact, I think
2 the guy said that we are just frustrated, we can't get
3 anywhere.

4 MR. REMICK: The Licensing Board did point out
5 that they thought that the Licensee in this case, arguing as
6 it did, was not frivolous.

7 CHAIRMAN PALLADINO: Was not what?

8 MR. REMICK: Was not frivolous. Was that the word
9 they used?

10 MR. BICKWIT: That was the word that they used.

11 MR. REMICK: They pointed that out, they did not
12 consider the arguments by the Licensee in this case, in
13 litigating the issue, were frivolous.

14 MR. BICKWIT: In effect, they thought it was
15 reasonable conduct for the Licensee to argue this before
16 going forward and working on it. That seemed to be an
17 important part of the Board's rationale.

18 COMMISSIONER GILINSKY: Now is the Licensee just
19 complying with the short-term Lessons Learned requirements,
20 or is he doing something more? For example, conspicuously
21 displaying the in-core thermocouple outputs or something of
22 this sort? Which I must say I would regard as a desirable
23 and possibly a step that compensates for lack of water level
24 indicator.

25 MR. MILHOAN: He is following the NUREG 0737

1 requirements for the core exit thermocouple indications
2 through a computer display. He has routed his thermocouples
3 to the --

4 COMMISSIONER GILINSKY: That's not quite the same
5 thing.

6 MR. MILHOAN: The computers also provide the
7 backup or it will provide a backup display for the corrected
8 thermocouple reading. So he is doing that.

9 CHAIRMAN PALLADINO: Why don't we let you go on.

10 MR. ZECH: Maybe I'm wrong, but I think Met Ed is
11 considering a hot leg differential in the upper 10 foot
12 section.

13 COMMISSIONER GILINSKY: Well, that they showed us
14 today.

15 MR. ZECH: Which is also something I believe the
16 B&W owners group is considering similar to that, but they
17 haven't developed it far enough, nor do they know if it's
18 going to be acceptable, because it's not really the actual
19 reactor vessel level that would be put in. So it's -- I
20 don't think it's that they're not considering something, but
21 they're not sure if it's going to be acceptable. And the
22 Staff has problems with it.

23 COMMISSIONER GILINSKY: Why are they just sticking
24 to the top 10 feet?

25 MR. ZECH: They have instrument taps there now.

1 As a precursor, they say, to problems that may eventually
2 occur in the vessel if they start voiding in hot leg. But
3 there's some concern if that would be acceptable.

4 MR. REMICK: There appears to be general
5 agreement, except for the Licensee and B&W, that vessel
6 level instrumentation is a good thing in the ideal sense.
7 However, there is controversy over whether the vessel level
8 instrumentation should measure coolant inventory, as argued
9 by the ACRS, reactor vessel water level, or cooling
10 capability.

11 The controversy is aggravated by differences of
12 definition of what inadequate core cooling means.

13 COMMISSIONER GILINSKY: What does cooling
14 inventory mean here?

15 MR. REMICK: Basically from ACRS, it would be a
16 wide range level indication from the top of the candy cane
17 to vessel bottom. Maybe perhaps in different steps, but
18 their argument being that just looking at it inside the
19 vessel, that's a small amount of cooling capability. When
20 you get down to there, things are happening very fast, you
21 should know about it, when it's up at the top of the candy
22 cane because a large portion of the inventory is represented
23 by change from that level down to the top of the core, or
24 top of the vessel. So they argue that you should have wide
25 range, rather than just reactor vessel.

1 CHAIRMAN PALLADINO: I think that makes it more
2 difficult to do.

3 MR. REMICK: Therefore, there is a difference of
4 opinion whether the vessel level instrumentation should use
5 DP cells, heated junction thermocouples, or other type of
6 instruments.

7 Words of caution have been expressed over the
8 response of various vessel level instruments to transients,
9 possible misinterpretation of operators during off-normal
10 conditions, how the vessel level instruments are to be
11 incorporated into procedures, and the lack of test results
12 under various transient conditions.

13 Now with that information in mind, and
14 specifically the Commission action recently on SECY 81-582,
15 having those in mind, we suggested something for Commission
16 consideration as an option for its condition, and I'll come
17 back to that in a minute.

18 COMMISSIONER GILINSKY: Before you get to that,
19 could you tell me, what is the Westinghouse system do? Does
20 that have a level in the vessel?

21 MR. MILHOAN: Yes, it does.

22 CHAIRMAN PALLADINO: It measures pressure
23 differences.

24 MR. REMICK: Pressure differences.

25 CHAIRMAN PALLADINO: Pressure differences is not a

1 bad idea when you've got a stagnant water level. Then you
2 can measure the pressure difference. If you start to get
3 low then, of course, you've got pressure drop to take into
4 account. If you've got flow with heat, then you've got
5 acceleration pressure drop to take into account. If you've
6 got -- well, that's not very important in water, but if you
7 start to generate steam, then you have other pressure drops
8 to take into account, and so you'd have to have a very
9 carefully thought through, very well calibrated -- and I'm
10 not sure it will be unambiguous.

11 In other words, the same pressure drop may imply
12 several different conditions.

13 COMMISSIONER AHEARNE: How big an uncertainty?

14 CHAIRMAN PALLADINO: Well, now, if I had studied
15 that, I would know. But it could be enough so that you --

16 COMMISSIONER AHEARNE: And that, I would guess, is
17 really the key question.

18 CHAIRMAN PALLADINO: Yeah, that's the key question.

19 COMMISSIONER GILINSKY: Can the flow introduce a
20 significant enough --

21 CHAIRMAN PALLADINO: But what I'm getting at,
22 though, I wasn't thinking of uncertainty in just measuring
23 the temperature -- I'm sorry, the pressure drop, but rather
24 does the same pressure drop apply to several different --

25 COMMISSIONER AHEARNE: That's right, that's the

1 uncertainty I mean, because, yes, it applies to different
2 conditions, but how different are those conditions.

3 CHAIRMAN PALLADINO: Well, that's where I'd like
4 to hear a Westinghouse discussion saying, "Oh, Joe, you're
5 all wet here, it's pretty conclusive, it is never
6 ambiguous," and maybe I'd be inclined to go along with it.

7 But when Plesset and Lewis came out with their
8 comments, it confirmed what I was worried about, and I
9 expressed it at an earlier ACRS meeting. However, Ebersole
10 said, "Oh, we do this all the time in steam boilers," but
11 there basically they have a no-flow condition. They have
12 some flow, but the system volume is large compared to the
13 pressure drop that they are trying to measure. Here in a
14 core it's a high flow device, and just a change in the pump
15 flow would --

16 COMMISSIONER AHEARNE: Well, these are generic
17 issues. Perhaps it would be useful to have Westinghouse, CE
18 and B&W come in and tell us what they are doing and what
19 they see as their advantages or problems.

20 COMMISSIONER GILINSKY: Sounds like a good idea.

21 COMMISSIONER AHEARNE: That would go directly to
22 the guidance for building the things.

23 COMMISSIONER GILINSKY: What are Plesset and Lewis
24 worried about? Is it just translation of pressure into
25 water level, or is it that there isn't measurement all the

1 way up and down the --

2 MR. REMICK: They make a strong statement that
3 that would only show level during quiescent conditions.
4 That's basically what the Chairman is saying.

5 CHAIRMAN PALLADINO: It could show a level if you
6 had tested it and you knew there was unambiguous --

7 MR. REMICK: It requires knowledge of the pressure
8 densities and temperatures on all the various parts of that
9 system to be able to interpret it. That's what it boils
10 down to.

11 CHAIRMAN PALLADINO: Okay.

12 MR. REMICK: We would recommend for Commission
13 consideration, at least at the moment, to request the Staff
14 and Licensee to resolve any misunderstanding with respect to
15 vessel level instrument design criteria, because the
16 Licensee keeps saying they don't understand the purpose and
17 how it would be used, how operators would use it, and the
18 Commission may wish to be briefed by the Staff on vessel
19 level instrumentation design criteria, and also Staff
20 response to some of the ACRS concerns that have been
21 expressed.

22 COMMISSIONER GILINSKY: The Staff presumably feels
23 that it made things clear. Otherwise, they would have
24 changed their instructions.

25 MR. REMICK: Inasmuch as that other vendors or

1 licensees have made commitments, ACRS, I believe in their
2 most recent letter points out that maybe the Licensees are
3 doing that without fully understanding the transient
4 conditions themselves. I think that's a point in the most
5 recent ACRS letter and I'm not sure if that's by Bender or
6 by --

7 COMMISSIONER AHEARNE: Are you saying the letter
8 or the additional comments?

9 MR. REMICK: Excuse me, the additional comments.

10 COMMISSIONER GILINSKY: It's hard for me to
11 believe that people are -- I hope that isn't the case --
12 just sleepwalking through all this, assuming they've thought
13 of all the concerns that you have, and if they haven't --

14 COMMISSIONER AHEARNE: The bet way to do it is to
15 bring them in here and ask them.

16 COMMISSIONER GILINSKY: Well, I'm all for that.

17 MR. REMICK: And we would propose conditioning the
18 license, barring test results which demonstrate such
19 instruments would be unsafe, to require the installation of
20 a vessel level instrument system that would indicate
21 approach to core uncovering as well as actual core uncovering,
22 by no later than the first refueling outage after 1 January
23 1983. That would be consistent with your SECY 81-582 action.

24 CHAIRMAN PALLADINO: I'm sorry, Forrest, I should
25 have been listening. Would you mind repeating?

1 MR. REMICK: We would propose as a license
2 condition that barring test results which demonstrate such
3 instruments would be unsafe, we would propose that you
4 require the installation of a vessel level instrument system
5 that would indicate approach to core uncovering as well as
6 actual core uncovering by no later than the first refueling
7 outage after 1 January 1983, and that date is arrived at in
8 considering your recent action in SECY 81-582.

9 CHAIRMAN PALLADINO: Now this is your proposal?

10 MR. REMICK: This is what we are proposing for
11 Commission consideration, although it is conditioned, as
12 I'll come back to.

13 CHAIRMAN PALLADINO: Okay.

14 COMMISSIONER AHEARNE: Now let's say that they are
15 able to get started, let's take June. When would the first
16 refueling outage come, roughly?

17 MR. REMICK: I don't know what fuel they are going
18 to be using, whether this would be a -- I don't know if it's
19 new core or not. I'm not sure.

20 MR. ROTHCHILD: I think it was one year, they were
21 making their first refueling, after restart.

22 COMMISSIONER AHEARNE: The reason I am asking is
23 that unlike non-B&W plants, it's a little harder to -- when
24 you say barring unsatisfactory test results, it means you
25 have to have something that you tested.

1 MR. REMICK: That's right. That's right. And so
2 basically that proposed license condition would be to treat
3 the Licensee in this case like other B&W reactors.

4 COMMISSIONER GILINSKY: Well, let's see. What
5 else would one do?

6 MR. REMICK: I'm sorry?

7 COMMISSIONER GILINSKY: Aren't you saying that
8 putting a license condition on this -- this Licensee will
9 have to meet the regulations of the Commission?

10 MR. BICKWIT: It's not regulations.

11 COMMISSIONER GILINSKY: Requirements. Why isn't
12 it a regulation? Oh, this is the one where the Commission
13 decided not to have regulation. But it's a requirement.

14 MR. BICKWIT: You could say it's a NUREG
15 requirement.

16 COMMISSIONER GILINSKY: It's a requirement laid on
17 by the Commission for all plants, and if we left out that
18 license condition, it would apply.

19 COMMISSIONER AHEARNE: Once it got --

20 MR. REMICK: Unless you imposed something
21 differently on it, yes.

22 MR. BICKWIT: Unless they resisted it, which they
23 are doing now, and then you'd have to have a hearing about
24 it.

25 COMMISSIONER GILINSKY: Oh, I see. So they would

1 have to agree to it at this point. Oh, I see. Okay.

2 MR. MILHOAN: It appeared from the Staff briefing
3 this morning, if I read their chart, that there may have
4 been additional discussion between the Staff, as Gary was
5 pointing out, additional discussion between GPU and the
6 Staff where there may be a commitment now to install a
7 vessel level indication system.

8 COMMISSIONER AHEARNE: Which the Staff, however,
9 may not. . .

10 COMMISSIONER ROBERTS: Well, they haven't said it.

11 COMMISSIONER AHEARNE: I said may.

12 MR. REMICK: We would suggest one further
13 condition, is that quarterly progress reports to the Staff
14 be made on progress towards meeting the above licensing
15 condition that I just referred to.

16 Now the Commission did request the Staff to
17 prepare a Staff option paper which would consider ordering
18 B&W reactor licensees to install either Combustion
19 Engineering or Westinghouse vessel level instruments.

20 That, we are told, is due either today or tomorrow
21 from the Staff.

22 CHAIRMAN PALLADINO: Have we gotten any indication
23 that either of those can properly tell level? I would hate
24 to see us say you will have something to measure a
25 particular parameter and then say pick one of these two, and

1 neither of them being acceptable.

2 MR. REMICK: I don't know if the Staff will have
3 anything in that memo or not to that effect, and that's why
4 we suggested earlier you might want to ask the Staff to
5 address the ACRS comments at some point.

6 You also have asked for comments from the parties
7 on the Licensing Board decision, and that's due about the
8 13th of January, and they may address some of these, and
9 also if the Staff comes in today or tomorrow perhaps they
10 will come up with a solution to the problem, and that's why
11 I say I condition our recommendations not knowing what the
12 Staff is going to come up with in response to your question.

13 COMMISSIONER AHEARNE: I would guess if they had
14 it, they would have hinted this morning.

15 (Laughter.)

16 MR. REMICK: When you put out SECY 81-582, you
17 asked the Staff to consider drafting an order which would
18 require B&W licensees to incorporate either Combustion
19 Engineering or Westinghouse vessel level instrumentation,
20 and you had asked it by 18 December, and we are told it will
21 come today or tomorrow. But we don't know what is in it.
22 I'm just saying that perhaps that is going to be the
23 solution, and therefore maybe our recommendation is moot.
24 But we felt we had to make a recommendation, not being privy
25 to that other information at the moment.

1 So we would suggest that you may want to defer
2 your decision on vessel level instrumentation including
3 OPE's recommendation, until you receive this further
4 information.

5 However, we did incorporate in our analysis that
6 you got on Friday information about ACRS letters other than
7 TMI, and we reminded you of SECY 81-582, and if those are
8 going to enter into your decision, I believe it's OGC's
9 advice that those should be probably served upon the parties
10 and provide an opportunity for comment.

11 CHAIRMAN PALLADINO: What should be served on the
12 parties?

13 MR. REMICK: We have brought your attention to
14 ACRS letters other than those relating to TMI, Palo Verde
15 and, of course, the SECY document and if those enter into
16 your decision, the parties should probably be made aware of
17 the fact that they were brought to your attention, and at
18 least provide an opportunity for comment.

19 As I understand Len, that would be under due
20 process.

21 MR. BICKWIT: That's right. No problem with
22 considering them, but you should let --

23 CHAIRMAN PALLADINO: What's that?

24 MR. BICKWIT: There's no problem with considering
25 them, even though they are not in the record, but you should

1 let the other parties comment on them.

2 CHAIRMAN PALLADINO: Well, I think the additional
3 comments to Palo Verde, the ACRS letter, are significant
4 enough so at least it seems to be influencing at least two
5 Commissioners, and perhaps all.

6 So is there any problem in having those served on
7 the parties? Is that something you would take care of, Len?

8 MR. BICKWIT: Yes, we'll be happy to.

9 MR. MILHOAN: I would say there would be one
10 additional item, too, that would be the options paper coming
11 up either today or tomorrow which might be appropriate to
12 serve on the parties, too.

13 CHAIRMAN PALLADINO: Which options paper?

14 MR. MILHOAN: The Commission from the Staff, the
15 options paper you requested from the Staff, which would
16 order B&W plants to install a vessel level indication system
17 on all B&W Plants.

18 COMMISSIONER AHEARNE: May or may not order. The
19 Staff may have included that idea.

20 CHAIRMAN PALLADINO: Well, that's not -- we don't
21 know whether we want to serve that on the parties.

22 MR. REMICK: I think Jim was suggesting that might
23 be something in the next couple of days, maybe it could be
24 done together.

25 CHAIRMAN PALLADINO: Well, I gather one of the

1 most important points that came out of this meeting, or
2 suggestion, was that the Commission have a meeting on vessel
3 level indicators with the Staff and all the vendors, a
4 generic discussion.

5 COMMISSIONER AHEARNE: Yes, I think that would be
6 helpful.

7 CHAIRMAN PALLADINO: And I would like to see that
8 done, also, so we'll go ahead and arrange it.

9 COMMISSIONER GILINSKY: We need to do that fairly
10 soon to set the stage for a subsequent meeting.

11 CHAIRMAN PALLADINO: We could have it next week,
12 except next week is not a good week, but, yeah, I would say
13 right after the first of the year, unless you'd like it
14 sooner.

15 Then there was also a suggestion we ask the Staff
16 to respond to the ACRS concerns on vessel level indicator as
17 expressed in several of their reports, and I guess that
18 could also be done as part of our meeting with the Staff and
19 the vendors.

20 COMMISSIONER AHEARNE: Yeah, except you might --
21 if you wait too long -- why don't you ask --

22 CHAIRMAN PALLADINO: To do that separately?

23 COMMISSIONER AHEARNE: Yeah, because otherwise we
24 are going to compress everybody and we are not going to be
25 really able to get enough questions to the people who are

1 trying to make these things.

2 CHAIRMAN PALLADINO: Okay. Now, then, I gather on
3 SECY 81-582, we have asked the Staff to consider requiring
4 B&W to install the Westinghouse or CE vessel level
5 indicator, and that one was due you said the 18th?

6 MR. REMICK: Yes, and we are told it will be
7 coming up today or tomorrow. I believe it's cleared NRR and
8 is on its way.

9 CHAIRMAN PALLADINO: So we should direct our
10 attention to that document also.

11 Okay, any other items that should come up on this
12 issue now?

13 Okay, did you have any more?

14 MR. REMICK: No, that was basically it, and
15 essentially all that is contained in our memorandum.

16 CHAIRMAN PALLADINO: All right. Well, thank you
17 very much. We will stand adjourned.

18 (Whereupon, at 12:30 p.m., the meeting was
19 adjourned.)

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NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the
COMMISSION MEETING

in the matter of: CLOSED MEETING - EXEMPTION 10 - "BRIEFING ON CONTESTED
MATTERS IN TMI-1 RESTART PROCEEDING"

Date of Proceeding: December 21, 1981

Docket Number: _____

Place of Proceeding: Washington, D. C.

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

Ann Riley

Official Reporter (Typed)

Ann Riley

Official Reporter (Signature)