

ORIGINAL

**OFFICIAL TRANSCRIPT
PROCEEDINGS BEFORE**

NUCLEAR REGULATORY COMMISSION

COMMISSION MEETING

OPEN MEETING

DKT/CASE NO.

TITLE DISCUSSION/POSSIBLE VOTE ON FULL POWER OPERATING
LICENSE FOR SUMMER-1

PLACE WASHINGTON, D. C.

DATE November 12, 1982

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DISCUSSION/POSSIBLE VOTE ON FULL POWER OPERATING
LICENSE FOR SUMMER-1

OPEN MEETING

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

Friday, November 12, 1982

The Commission convened, pursuant to
notice, at 2:50 p.m.

COMMISSIONERS PRESENT:

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

STAFF AND PRESENTERS SEATED AT COMMISSION TABLE:

- JOHN HOYLE
- WILLIAM KANE
- DARRELL EISENHUT
- HAROLD DENTON
- JAMES P. O'REILLY
- JOHN E. ZERBE
- MARTIN MALSCH

1 AUDIENCE SPEAKERS:

- 2 BRIAN GRIMES
- 3 RICHARD VOLLMER
- 4 CARL PRICE
- 5 MARK WHITTAKER
- 6 T. P. SPEIS
- 7 JOE LENAHAN
- 8 TED SULLIVAN

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DISCLAIMER

This is an unofficial transcript of a meeting of the United States Nuclear Regulatory Commission held on November 12, 1982 in the Commission's offices at 1717 H Street, N. W., Washington, D. C. The meeting was open to public attendance and observation. This transcript has not been reviewed, corrected, or edited, and it may contain inaccuracies.

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P R O C E E D I N G S

1
2 CHAIRMAN PALLADINO: Good afternoon, ladies
3 and gentlemen. We are meeting today to hear from the
4 staff on matters related to the issuance of full power
5 license amendment for Summer Unit 1.

6 An operating license was issued for the
7 facility on August 6 of this year, which restricted
8 operation of power levels not exceeding five percent of
9 full power.

10 Since that time, the staff has reviewed
11 pertinent information and recommends lifting the
12 five-percent restriction.

13 This afternoon, the Commission is also
14 interested in allegations of two matters, one regarding
15 security and one regarding Cadwelds and socketwelds.

16 It is my understanding that the investigation
17 on security is still under way and therefore, for that
18 portion of the meeting, we will have to go into closed
19 sessions. The items on Cadwelds and socketwelds can be
20 discussed in the open meeting, I am advised.

21 So, we will go into closed session for part of
22 it, but then we will re-open for any action that the
23 Commission might wish to take. At the conclusion of the
24 meeting, I will be asking the Commissioners to vote on
25 the recommendation if they are ready.

1 Do any fellow Commissioners have opening
2 remarks? Well, I suggest their turning the meeting over
3 to Mr. Denton.

4 MR. DENTON: Thank you, Mr. Chairman.

5 We are recommending today the approval of
6 granting of a full power license to Summer.

7 However, as you are aware, the steam generator
8 design in Summer is the same as McGuire and we have
9 limited McGuire to 50-percent power until certain
10 corrections are made. We are proposing today to apply
11 the same sort of limitation on power to Summer until
12 steam generator repairs can be made.

13 Two other issues we want to tell you about
14 today. One is the fact that this plant does not contain
15 thermal sleeves and many of the nozzels, and discuss how
16 that issue has been resolved.

17 Also, you will be hearing today - if you like
18 - from Stone & Webster who did the independent design
19 review of this plant. One of the architects and
20 engineers involved in the piping system, in addition to
21 Gilbert, was Teledyne whom you are normally hearing from
22 in another role.

23 COMMISSIONER AHEARNE: You are now beginning
24 to suggest this relationship.

25 (Laughter.)

1 MR. DENTON: So, Mr. Dunlop from Stone &
2 Webster is in the audience, as well as the
3 representatives of South Carolina.

4 We have Darrell Eisenhut prepared to make a
5 presentation. He will be assisted by Bill Kane, the
6 project manager. Jim O'Reilly, the regional
7 administrator is here with some of his staff to discuss
8 operation experience and other matters. So, I will turn
9 it over to Darrell.

10 MR. EISENHUT: Thank you. If I can have the
11 first slide.

12 This is a short outline following along the
13 same structure we have been using on the OLS. We have
14 picked out a few selected review items where there are
15 some unique considerations on this plant. Then we will
16 discuss the experience to date, the allegations that
17 were mentioned and the full power license amendment.

18 If I could have the next slide. This is just
19 an overview, description, summary of the plant. South
20 Carolina Electric & Gas is the operator, principal owner
21 of the facility. This will be their first nuclear
22 facility. So, in that sense they are relatively one of
23 what I call the "newer, green utilities."

24 This is a PWR, 900 megawatt electric. It is a
25 large dry containment Westinghouse facility, very

1 similar to those which we have seen on a number of other
2 plants.

3 The AE was Gilbert Associates and it was built
4 by Daniel Construction. You can see it is located in
5 South Carolina in a relatively remote area.

6 If I can have the next slide. The
7 construction permit, as you can see here, was issued
8 back in '73. The OL application came in in '77, and as
9 the Chairman mentioned, the low power license was issued
10 August 6.

11 Very simply, the summary of the schedule of
12 where they are is, the fuel loading took place in
13 August; initial criticality, October 22, and it would
14 propose to exceed five-percent power now within a day or
15 so. So, the point would be, as of today they could
16 effectively use the license, so to speak, essentially
17 upon approval.

18 COMMISSIONER AHEARNE: Is that a relatively
19 long time to go between the periods, from initial
20 criticality?

21 MR. EISENHUT: I don't really think so, I
22 think that is pretty typical of the kinds of time. Jim,
23 maybe you want to address it.

24 MR. O'REILLY: It is 20 days in excess of what
25 they had planned for, but we consider it a well

1 organized start-up program. I have some words to tell
2 you - the reasons for the delay - in my "Experience"
3 column.

4 MR. EISENHUT: But it is a relatively small
5 delay.

6 COMMISSIONER ROBERTS: You point out this is
7 the first plant operated by South Carolina Electric &
8 Gas. What about Gilbert Associates, have they been AE
9 in others?

10 MR. EISENHUT: Yes, they have.

11 COMMISSIONER ROBERTS: How about Daniel
12 Construction?

13 MR. EISENHUT: Daniel Construction, I believe
14 so too, a couple.

15 The emergency preparedness exercise, the
16 full-blown emergency exercise, is now scheduled for
17 March of '83.

18 COMMISSIONER GILINSKY: This is a full-scale
19 exercise with the state?

20 COMMISSIONER AHEARNE: No.

21 MR. EISENHUT: No.

22 MR. KANE: It is a limited exercise. The
23 utility asked for an exemption from the requirement to
24 conduct an exercise one year before the full power
25 license and that exemption was granted, I believe, on

1 November 2.

2 It will involve full participation, of course,
3 by the utility with full local government participation
4 and partial state participation.

5 COMMISSIONER AHEARNE: In other words, the
6 utility requested the exemption?

7 MR. KANE: Yes.

8 COMMISSIONER AHEARNE: Why?

9 MR. KANE: They gave a number of reasons.
10 They had conducted their last exercise principally of
11 the hearings in May of 1981.

12 They conducted a partial exercise in May of
13 1982 which involved communications checks with the local
14 governments.

15 There have been a number of activities. The
16 full system-wide test of the emergency notification
17 system was conducted in January of '82. The state had
18 been involved in a full-scale emergency exercise in
19 March of 1982.

20 COMMISSIONER GILINSKY: Well, let's see, will
21 the state be conducting any full-scale exercise in '83?

22 MR. KANE: Yes, they will.

23 CHAIRMAN PALLADINO: When?

24 MR. KANE: The plan is, as I understand it,
25 the Robinson plant in September of 1983.

1 COMMISSIONER ROBERTS: Question: Why does a
2 document dated November 9 say that it is going to be a
3 full-scale exercise? Full-scale, licensee, state and
4 local.

5 MR. DENTON: I think we have someone here from
6 Emergency Planning.

7 MR. KANE: It is probably their document.

8 COMMISSIONER GILINSKY: May I also ask where
9 the exemption comes from?

10 CHAIRMAN PALLADINO: And what is the basis for
11 our granting it?

12 COMMISSIONER GILINSKY: Who granted the
13 exemption, did we do that?

14 MR. KANE: Yes.

15 MR. O'REILLY: Is the Commission aware that
16 they did run a full-scale drill? They ran a full-scale
17 drill approximately 18 months ago. Then they ran a
18 partial drill last May, and they are going to be running
19 another drill in March of '83.

20 COMMISSIONER GILINSKY: Did the Commission
21 grant the exemption?

22 MR. DENTON: Staff did. The basis as I
23 recall, Brian, was that they had run one in anticipation
24 of completing a plan and the hearing process earlier.
25 They made the argument that to do two before restart was

1 unnecessary - before start-up - was unnecessary in view
2 of their success of that one and their future plans.
3 The staff agreed with that.

4 COMMISSIONER GILINSKY: The previous one was a
5 full-scale exercise involving the state?

6 MR. DENTON: That is my understanding.

7 CHAIRMAN PALLADINO: They ran a full-scale
8 drill 18 months ago with the state and with regional
9 participation.

10 MR. DENTON: And this is a sparsely populated
11 site.

12 MR. GRIMES: I guess I could speak to the
13 November 9 memorandum you are referring to as an
14 internal document kept to keep track of correct
15 schedules, mainly for internal staff use.

16 There is an error on that page. As a matter
17 of fact, there are two entries with respect to Summer on
18 that page which are in error. The correct entry would
19 have been a small scale in March of 1983.

20 The reason for the requirement in the
21 regulation is to assure adequate preparedness of state
22 and local governments, as well as the utility, prior to
23 operating the plant at significant power levels.

24 As Jim O'Reilly mentioned, there was a
25 full-scale exercise conducted about 18 months ago, as

1 opposed to within one year as required by the
2 regulations.

3 We looked at all the other things that had
4 been done in between that time to try to assure
5 ourselves that there was essentially an equivalent state
6 of preparedness as intended under the regulations, and
7 found that there had been a number of drills and
8 exercises.

9 The state had an exercise last March with
10 Ocone, for example. The state also exercised this fall
11 with the Robinson facility in a small-scale exercise,
12 although 25 people from the state participated in that
13 small-scale exercise.

14 COMMISSIONER GILINSKY: Let's see, why is the
15 next state exercise again with Robinson?

16 MR. GRIMES: This was a small scale at
17 Robinson. The state must do one small scale with each
18 facility every year, and one full scale. So, 1981 was
19 Summer; 1982 was Ocone; 1983 will be Robinson, and
20 logically, 1984, would then be Summer.

21 CHAIRMAN PALLADINO: Brian, page 13.1 says,
22 "The licensee will be conditioned to require that SCE&G
23 conduct a limited emergency exercise similar to that
24 conducted on May 5, 1982, but with full local government
25 participation and partial state participation."

1 When is that going to be done?

2 MR. GRIMES: That is March. I believe it is
3 scheduled in March. I do not have the exact date.

4 CHAIRMAN PALLADINO: So, the license will be
5 conditioned to require this in March, and it is going to
6 have full local government participation and partial
7 state participation.

8 MR. GRIMES: Yes. And we have had FEMA assure
9 that that date is acceptable to FEMA and the state.

10 CHAIRMAN PALLADINO: Any other questions?

11 COMMISSIONER GILINSKY: Let me just ask you,
12 what would be involved in turning that into a full-scale
13 exercise? It sounds like the plant is participating,
14 all the local entities are participating and there is
15 some state participation. What is it that is lacking?

16 MR. GRIMES: Probably the main difference
17 would be the dispatching of radiological monitoring
18 teams by the state that probably it will not do in a
19 small scale but do do in the full-scale exercise.

20 COMMISSIONER GILINSKY: And is that the only
21 important difference that you see?

22 MR. GRIMES: In this case I believe it is.

23 MR. O'REILLY: That is my understanding.

24 MR. EISENHUT: If I can have the next slide.
25 Bill, why don't you take over?

1 MR. KANE: All right. As it indicates, this
2 is the first nuclear facility operated by South Carolina
3 Electric & Gas Company.

4 The staff in mid 1980 conducted an audit of
5 the organization and indicated several problems with the
6 organizational structure and staffing.

7 Since that time, the utility has taken
8 aggressive action to solve these problems. Most
9 important are the four items mentioned here.

10 The organization has been modified to locate
11 all of the essential functions related to plant
12 operation under a single vice president. Previous to
13 that time, there were a number of organizations,
14 principally, I think, the engineering organization which
15 was located under a separate group.

16 Secondly, the utility has added a number of
17 personnel with "hands-on" operating experience to the
18 staff. This was done in a couple of ways.

19 At the time we first went down there, I
20 believe, they had two individuals who had previously
21 operated a nuclear power plant. The utility engaged a
22 consultant to report to the vice president, who had
23 previously operated a nuclear power plant and served as
24 his adviser.

25 The utility has since added a number of people

1 by direct hire for shift operation and also for other
2 functions within the utility. In addition, they have
3 contracted with an organization who were previously SRO
4 operators on large PWRs to serve on shift, on each shift.

5 COMMISSIONER AHEARNE: Say that again, what is
6 this last?

7 MR. KANE: They have contracted with a
8 consulting company to hire previously experienced
9 holders of SROs on large PWRs to serve on shift with
10 their people.

11 COMMISSIONER AHEARNE: Is this a consultant
12 company who has these kinds of people employed?

13 MR. KANE: Yes, that is correct.

14 COMMISSIONER AHEARNE: So, these people will
15 not be permanent employees of South Caroline.

16 MR. KANE: That's right. As I recall, what we
17 agreed to was that these people would serve in that
18 capacity until the plant got to a hundred-percent
19 power. Then that obligation would be relieved.

20 CHAIRMAN PALLADINO: Are these people who hold
21 current SRO licenses?

22 MR. KANE: They have previously held.

23 COMMISSIONER ROBERTS: They couldn't possibly.

24 MR. KANE: That have previously held.

25 CHAIRMAN PALLADINO: Is it necessary for them

1 to have current licenses?

2 MR. KANE: No.

3 CHAIRMAN PALLADINO: They are not going to
4 participate as an SRO?

5 MR. KANE: No. These are people that are
6 serving in an advisory capacity.

7 MR. DENTON: This company is unusually well
8 staffed in terms of ROs and SROs. Maybe you could quote
9 the numbers at this time, Bill, if you remember them.

10 MR. KANE: Yes. The utility did have a rather
11 impressive success rate in getting operator licenses. A
12 hundred percent of their ROs received licenses and 95
13 percent of the SROs. At the present time, they have 27
14 SROs and 39 ROs.

15 CHAIRMAN PALLADINO: How many SROs?

16 MR. KANE: Twenty-seven.

17 MR. DENTON: These are the numbers you
18 normally associated with a two-unit plant.

19 COMMISSIONER ROBERTS: Where do these people
20 come from, hired from other utilities?

21 (Laughter.)

22 MR. DENTON: I think they like South Carolina.

23 COMMISSIONER ROBERTS: That shows they got
24 good sense.

25 (Laughter.)

1 MR. KANE: The next function that was added
2 was a nuclear education and training organization which
3 was established and now consists of approximately 36
4 people.

5 The utility has also purchased a plant
6 simulator which is scheduled for delivery in October of
7 1983, scheduled to be operational in January of 1984,
8 and they are constructing - essentially have constructed
9 - a training facility.

10 This training facility will also serve as the
11 permanent EOF.

12 COMMISSIONER AHEARNE: Where is the training
13 facility?

14 MR. KANE: Several miles from the plant.

15 COMMISSIONER AHEARNE: Then, is there a backup
16 EOF?

17 MR. KANE: I believe the backup EOF is the
18 corporate headquarters in Columbia.

19 MR. DENTON: I think too, Bill, was not the
20 EOF going to be a part of the new training facility?

21 MR. KANE: Yes, it is.

22 COMMISSIONER AHEARNE: So, the backup is about
23 25 miles away?

24 MR. KANE: Yes, about 25 miles. The final
25 item is that there has been a substantial --

1 COMMISSIONER AHEARNE: One other question. Is
2 that something that staff has -- I am not sure whether
3 Brian is getting up to leave or getting up to answer.

4 (Laughter.)

5 COMMISSIONER GILINSKY: He is just changing
6 seats.

7 MR. O'REILLY: Perfect timing.

8 (Laughter.)

9 COMMISSIONER AHEARNE: This is not the backup
10 EOF.

11 MR. O'REILLY: That is what he heard.

12 (Laughter.)

13 COMMISSIONER AHEARNE: The backup EOF, I
14 gather, is at the corporate headquarters and I wondered
15 whether that was something that the staff had looked at
16 and agreed to. As I recall, if it is beyond 20 miles
17 they are supposed to ask you to look at that and approve
18 it.

19 MR. GRIMES: Yes, I think it is approximately
20 20 miles away. But we would look at that specific table
21 when we get to the post-implementation reviews of the
22 Emergency Response facility. We have not --

23 COMMISSIONER GILINSKY: Are you saying --

24 MR. GRIMES: -- at the condition of licensing.

25 COMMISSIONER GILINSKY: Well, obviously some

1 licensees have this problem. In another case we don't
2 expect you to apply the table. What is it that you are
3 telling people?

4 MR. GRIMES: Well, we have told people that is
5 certainly an acceptable way to do it and specifically,
6 also, that it has been reviewed and approved by the
7 Commission in detail, that specific table you are
8 talking about with the distances.

9 I believe, however, that because over the last
10 nine months or so there has been a good deal of
11 discussion as to all of these emergency response
12 facility requirements, that there is maybe some
13 uncertainty in people's mind as to the weight they
14 should give to the staff statements in that regard.

15 COMMISSIONER GILINSKY: You mean to the
16 Commission's statements.

17 MR. EISENHUT: Let me comment on one thing.
18 We did issue a letter a year or so, a year and-a-half
19 ago, after the Commission worked out the table and said
20 that that table is in fact "the" requirement.

21 From an overall licensing standpoint, we are
22 taking the posture that that table is the requirement
23 for working out your EOF locations.

24 Recently, a couple of utilities have come in
25 and said they feel there was some uncertainty in that

1 table because that table was again included in the
2 82.111, which is still pending.

3 COMMISSIONER AHEARNE: Right.

4 MR. EISENHUT: So, they don't know --

5 COMMISSIONER AHEARNE: That only was a table
6 issued before. It was one of the things that stayed in
7 the 111(b).

8 MR. EISENHUT: In fact, and I have made it
9 clear to everyone who has asked me the question that as
10 far as I know that that table is in fact still the
11 requirement and in theory we may never change it. The
12 one that is on the street may remain.

13 COMMISSIONER AHEARNE: The curiosity I have on
14 that is that it is odd that something that is so
15 clearly, as we hear, defined as a requirement
16 nevertheless is something that licensees don't even
17 bother, really, raising with the staff.

18 COMMISSIONER GILINSKY: Well, it sounds like
19 they must have gotten the sense that these things really
20 don't have to be paid attention to.

21 MR. EISENHUT: Well, I don't know on this
22 plant particularly, I was speaking more in general.

23 A number of utilities have raised the question
24 that they were aware that the table that was issued a
25 year and-a-half ago was the law of the land, so to

1 speak, at the time and that they were aware there was
2 some continuing debate on the emergency facilities.

3 I do not know whether they were holding out,
4 hoping it would change --

5 COMMISSIONER GILINSKY: Well, they seem to
6 have gotten the impression - rightly or wrongly - that
7 everything is up for grabs, at least with regard to the
8 distances.

9 MR. EISENHUT: Some utilities, I believe, feel
10 that way.

11 COMMISSIONER AHEARNE: Well, for example I
12 gather, Brian, is it correct that South Carolina has not
13 formally said, "Our backup is going to be the corporate
14 headquarters which is 25 miles away?"

15 MR. GRIMES: I believe it has been formally
16 established, or documented, that is their intent. But
17 we have not --

18 COMMISSIONER AHEARNE: Responded.

19 MR. GRIMES: -- responded or said that is
20 adequate.

21 COMMISSIONER GILINSKY: Well, they tell us and
22 we let them go ahead and do it. It is pretty awkward to
23 turn around and say, you know, "You are going to have to
24 tear it all out. Sure, you told us but we were not in
25 the response mood at that point."

1 So, basically we are going to be faced with an
2 accomplished fact.

3 MR. GRIMES: Well, with respect to backup
4 facilities our requirements are not extensive for backup
5 facilities. So, I don't believe a change of location is
6 required.

7 COMMISSIONER AHEAPNE: All the more reason,
8 one would have thought, that they would not quarrel that
9 much where the staff could respond quickly.

10 Anyway, I think that is an issue to be taken
11 up separately one day. It just does seem to be
12 something that needs to be addressed.

13 COMMISSIONER GILINSKY: Let me just ask one
14 point. Who is it that grants exemptions from those
15 requirements? I thought for some of the emergency
16 preparedness requirements the Commission itself had to
17 grant exemptions.

18 MR. GRIMES: Yes. For example, on this
19 specific table.

20 COMMISSIONER GILINSKY: Is it required on this
21 one here?

22 MR. GRIMES: Yes. This specific table we
23 would come back to the Commission as we did on Rancho
24 Seco with a negative consent paper when the utility
25 wished to locate its primary EOF at 22 miles.

1 CHAIRMAN PALLADINO: But you granted an
2 exemption that, I gather, did not come to the Commission.

3 COMMISSIONER GILINSKY: That was on the
4 exercise.

5 CHAIRMAN PALLADINO: On the exercise.

6 MR. GRIMES: That was on the exercise. And
7 speaking to this, the provisions on this table, the
8 Commission made clear that it wished to rule on
9 exemptions to this table.

10 COMMISSIONER GILINSKY: But you are allowing a
11 situation to continue which is completely at odds with
12 our instructions, which will then put us in an
13 impossible position.

14 MR. GRIMES: Well, it is a little difficult to
15 come to the Commission with an exemption before we have
16 required the provisions to be implemented.

17 COMMISSIONER AHEARNE: Darrell said that he
18 had.

19 MR. EISENHUT: On the question of the dates at
20 which these must be in place.

21 COMMISSIONER AHEARNE: On the question of
22 location.

23 MR. EISENHUT: Yes, there was a letter issued
24 following Commission review and approval of the letter,
25 I believe. That letter was issued. That letter

1 requested each utility to propose a location for its EOF
2 and the table builds into it protection factors, if you
3 will.

4 COMMISSIONER AHEARNE: Right.

5 MR. EISENHUT: And those proposals have been
6 submitted to the staff, I believe, on every operating
7 plant and all the OLs.

8 MR. GRIMES: But we have not required anybody
9 to follow that, that is part of the --

10 COMMISSIONER GILINSKY: Let me tell you, your
11 action is fair neither to the Commission nor to the
12 licensee.

13 CHAIRMAN PALLADINO: I think this is an item
14 we might put on the agenda for further clarification,
15 discussion.

16 COMMISSIONER AHEARNE: Yes.

17 MR. KANE: The final point on the slide is
18 that the utility had a substantial increase in the
19 overall corporate staff and plant support.

20 The next slide.

21 The first item that we selected for discussion
22 is fire protection. A review was conducted to Appendix
23 A to BTP 9.5-1. The plan was compared to the criteria
24 of Appendix R with minor differences identified.

25 One of the things that came up through the

1 review was that the facility did not have all the
2 required fire detectors prior to issuance of the
3 operating license.

4 MR. EISENHUT: Let me interrupt just one
5 second. That does not really flow from the previous
6 line, the slide is a little confusing here. It is not
7 as a result of the comparison with Appendix R.

8 It is as a result of the fact that the utility
9 must have an approved fire protection plan. Two aspects
10 fell out where the utility did not meet the fire
11 protection plan, and that is one of the two.

12 MR. KANE: The first had to do with fire
13 detectors. When we issued the low-power license, the
14 operating license with the low-power restriction, we
15 conditioned it to require that all of the fire detectors
16 be installed prior to start-up after the first refueling
17 outage.

18 In the meantime, the utility did also contain
19 a license condition to require the utility to conduct a
20 two-hour fire watch patrol to inspect each of these
21 areas prior to initially exceeding five-percent power
22 which involves a relief from the Tech Specs, and then a
23 one-hour fire watch for the Tech Specs thereafter.

24 At this time, the utility has completed
25 installation of all the fire detectors in the plant, and

1 the current schedule for making the fire detectors
2 operational is in December.

3 Another item which came up after the issuance
4 of the license - which the Region will discuss in more
5 detail - involved the identification of inoperable fire
6 barriers. Continuous fire watches were installed by the
7 utility per the Tech Specs. There were a number of fire
8 barriers that were inoperable. So, the Tech Specs
9 requested and we amended the Tech Specs to permit a
10 one-hour fire watch patrol - it is a roving fire watch -
11 prior to criticality.

12 Subsequent to that time, they have instituted
13 the fire watches as required by the Tech Specs. At this
14 time all of the fire barriers have been declared
15 operable. This was done on November 5, 1982.

16 The next slide.

17 The discussion of the next item, the
18 independent design verification program. This involved
19 a review of the piping seismic design and the emergency
20 feedwater system and its relationship to the QA
21 program. The review was conducted by Stone & Webster
22 Engineering Corporation, architect-engineer.

23 The major task involved in the review was
24 field walk-down to verify the "as-built" condition of
25 the system.

1 The second task was a stress analysis and
2 evaluation, and the third was an audit of the design
3 control program at Gilbert Associates, the
4 architect-engineer.

5 Stone & Webster issued to us and to the
6 utility jointly in July of 1982 a preliminary report
7 which served as our basis for the issuance of the
8 low-power license. This report indicated that they had
9 not uncovered any significant items as of that time.

10 CHAIRMAN PALLADINO: They said there were some
11 deficiencies and concluded they were minor. I just
12 don't have a feel for what "minor" means.

13 MR. KANE: Well, we will get into that in the
14 recommendations.

15 CHAIRMAN PALLADINO: No, do you have any
16 examples of what a "minor deficiency" might be?

17 MR. KANE: In the areas of --

18 CHAIRMAN PALLADINO: Give me something from a
19 walk through.

20 MR. KANE: In the area of a quality assurance
21 audit, perhaps the use of an uncontrolled procedure. It
22 turned out that I think in this instance the procedure
23 did not have a sign-off, did not have a signature on
24 it. It did happen to be the same procedure as the one
25 which was approved. That would be an example of a minor

1 deficiency.

2 MR. EISENHUT: Well, let's see, from the
3 actual field walk-down I think they found a few cases
4 where the geometry or the gaps of supports, different
5 things, may have been slightly different.

6 They did not find anything major but then when
7 they were looking, they were looking more at the
8 location, the functions, the orientation supports. They
9 were not aimed at a detailed check of the details.

10 Another thing they found, there are a couple
11 of areas, the more generic areas. When they did an
12 independent analysis of the design criteria they found
13 in the diesel generator building there was somewhat of
14 an interface disconnect. The latest response spectra
15 was not fit back into the analysis, I believe, of some
16 supports on the feedwater system.

17 So, there were a couple of occasions. There
18 was also the other item, I believe was --

19 MR. DENTON: I think these were anchors in the
20 diesel generator building that were added later and the
21 motion of the steam generator building, the diesel
22 generator building in inputting to the piping system
23 was not picked up exactly by Stone & Webster.

24 But as I mentioned, Mr. Dunlop is in the
25 audience if you would like to hear from him directly on

1 all three areas.

2 CHAIRMAN PALLADINO: There may be other things
3 we want to hear Mr. Dunlop on. I just wanted to get a
4 feel for what "minor" meant.

5 MR. EISENHUT: I think the next item here is,
6 th report came in when it came in as the draft final
7 with a couple of recommendations. Bill, why don't you
8 address this?

9 MR. KANE: OK, the first item was a review to
10 assure all appropriate response spectra and seismic
11 anchor movements were incorporated in the analysis.

12 This stemmed from a finding that Stone &
13 Webster had made in looking at the re-analysis.
14 Apparently, there were a couple of pipe supports for the
15 emergency feedwater system which were in the diesel
16 generator building which Harold mentioned, and these
17 were not accounted for in the analysis, or they had not
18 used the response spectra for the diesel generator
19 building.

20 So, they recommended that the utility go back
21 and look for similar types of problems in other systems.

22 The second generic problem involved jet
23 orientation and its location in combination with other
24 loads. This stemmed, as I understand it, from a
25 confusing design spec that did not properly indicate how

1 to account for jet loadings.

2 COMMISSIONER GILINSKY: Who did the seismic
3 analysis on the plant?

4 MR. KANE: The analysis of the system was done
5 by Teledyne.

6 COMMISSIONER GILINSKY: The original seismic
7 design.

8 MR. EISENHUT: I think Gilbert Associates.

9 COMMISSIONER GILINSKY: Themselves or a
10 subcontractor?

11 MR. EISENHUT: I don't know if they farmed it
12 out or not, we could ask the company.

13 MR. SULLIVAN: My name is Ted Sullivan with
14 the staff.

15 Piping was analyzed by three contractors, one
16 was Gilbert who did the main design for the plant. EDS
17 did about a third of the piping. Teledyne did about a
18 third of the piping.

19 COMMISSIONER GILINSKY: The original design, I
20 guess.

21 MR. SULLIVAN: Yes.

22 MR. KANE: The fourth finding involved
23 formalization of a procedure governing preparation and
24 distribution of the index for mechanical specifications,
25 and this one was the one I had characterized before as

1 the improper use of a design spec that had not been
2 signed off.

3 The fourth item involved providing
4 traceability regarding application of damping factors.
5 This was not very clear in the design spec and Stone &
6 Webster had to go back to the FSAR to put this
7 together. So, there was again confusion in the design
8 spec.

9 The final report was submitted on October 15.
10 I should point out that the draft final report, again,
11 was submitted by Stone & Webster to us at the same time
12 it submitted it to the utility.

13 The final report was submitted October 15 and
14 it made the following conclusions. I should say first
15 of all what was in the final report. That included the
16 utility's response to the recommendations. In other
17 words, the utility had to address each of the
18 recommendations by Stone & Webster and indicate how they
19 had resolved them.

20 The final report concluded that the facility,
21 the piping seismic design facility, meets the design
22 criteria and will withstand the specified seismic events.

23 So, they extended their conclusion for the
24 emergency feedwater system to the piping design and the
25 entire plant.

1 The final bubble that you can hardly see there

2 --

3 MR. EISENHUT: Before you do, though, I think
4 it helps to note that as a result of all this effort I
5 believe there were three supports that physically had to
6 be modified in the plant. The utility as a result of
7 this concluded that three supports - I believe they were
8 all connected to the diesel generator building where the
9 new spectra had to be applied back into the supports -
10 those three had to be modified.

11 I believe it is the utility's view that without
12 modification they would have been above the code
13 allowables. They would not have failed because of the
14 ultimate capabilities, they believe, but there actually
15 were physical modifications, a new strut in one case; an
16 extra brace, those kinds of things.

17 But they were limited, there were a few
18 isolated cases, certainly no systematic pattern, and the
19 utility has gone back and systematically checked a
20 number of calculations.

21 They have looked at jet impingement criteria
22 and basically they have completed their evaluation and
23 they will be giving us a wrap-up report, I think, that
24 we are adding by license condition to be submitted
25 something like December 31 of this year, I believe it is.

1 The evaluations are all complete, but this is
2 the closure of all the effort, summarizing what they
3 found, including we will likely ask Stone & Webster
4 again -- we will ask for a statement from Stone &
5 Webster that this closes out any questions that may be
6 in there in a generic nature.

7 We propose putting it in as a license
8 condition, even though it is not in this package.

9 MR. KANE: The final bubble on the slide there
10 relates to a request that Commissioner Ahearne made in a
11 November 3 memorandum which basically asked for a
12 comparison of the results of this IDVP with the others
13 that had been conducted.

14 Dick Vollmer, who is the Director of
15 Engineering, has a presentation on that. The next slide?

16 MR. VOLLMER: I have copies here.

17 In response to the question by Commisioner
18 Ahearne, we prepared this slide. I would like to put
19 two caveats at the very beginning.

20 As you all know, each of the IDRs have been
21 different - sometimes significantly - in their scope for
22 emphasis and technique and the amount of resources used
23 for the independent design review program.

24 As well you would have to consider, there have
25 been different discriminators set as well as

1 nomenclature set for whether or not the findings - we
2 used the word "findings" here, that has not been used
3 consistently through the various programs.

4 But what I have tried to do here is to put on
5 a common basis what we see as a comparison for those
6 four IDVPs that have been brought to the Commission.

7 There is a number of categories that each of
8 the studies looked at. I think each study basically did
9 take a look at the design process and the control
10 involved in it, and I consider that sort of an
11 administrative design procedure.

12 Each of them also did some looking at the
13 "as-built" versus the design configuration, and most of
14 the IDVPs took a look at design procedures. Some did
15 independent design analyses and calculations.

16 So, we have tried to put them on a common
17 basis. I would like to call your attention to the first
18 item for San Onofre, Susquehanna, and Summer.

19 CHAIRMAN PALLADINO: What is that "-1" behind
20 it?

21 MR. VOLLMER: That is the number of findings
22 per category.

23 CHAIRMAN PALLADINO: Number of findings.

24 MR. VOLLMER: So that for design
25 implementation I would list as a significant or

1 important finding for San Onofre would be one, for
2 Susquehanna, and for Summer one.

3 The design implementation category is one on
4 which it was clear what the design requirements are. It
5 is clear in the paperwork, the specification, the
6 criteria given to the design organization, but the
7 design just was not implemented.

8 I call your attention back to San Onofre where
9 the cable tray support problem existed. Cable tray
10 supports were supposed to all be within a certain
11 angular frame of reference. With respect to the tray
12 itself, there were some found to be out of that design
13 specification and they had to go back and in some cases
14 put in new cable tray supports.

15 So, clearly the design was not implemented as
16 it was stated on the design drawings. The same with
17 Sasquehanna.

18 On the reconciliation problem you will recall
19 that the design called for taking a look at the as-built
20 and going back and reconciling that with the design
21 process. So, the specification was clear. The design
22 document was clear. It was not adequately implemented
23 in the field and then the reconciliation process in the
24 views of the IDVP failed to bring those two together to
25 completion. So, you could characterize that as a

1 failure to wrap up the design implementation process.

2 And in Summer, as was just indicated, the
3 seismic anchor movement problem. It is clear that
4 should have been taken into account for the design
5 calculations and it was missed in some cases.

6 The second one that was fairly generic through
7 the three are the design procedure conformance, and that
8 should not be FSAR, that should be PSAR.

9 That category is where you have called out
10 certain requirements procedurally in the design process
11 and they were not adhered to, then I would categorize
12 them in this particular bin.

13 We had three cases in San Onofre where
14 basically a procedural way of doing the design process
15 was called for either in the PSAR document or was
16 committed to somewhere in the licensing process, and
17 either a deficient procedure or no procedure existed in
18 those areas.

19 So, that was a finding. It turns out,
20 however, that the work was done acceptably from an
21 engineering point of view but procedurally there was a
22 deficiency.

23 Going down to Susquehanna we had, as you
24 recall, the difference of opinion on how the ASA Code
25 would handle the emergency and upset condition and we

1 are trying to resolve that now. But if Bechtel is
2 incorrect in the way they had it in their procedure,
3 then I would characterize that as a procedural
4 deficiency.

5 So, that one is still out. If, as we believe,
6 Bechtel handled it adequately, then that will not go
7 away.

8 The design procedure deficiency in Summer was
9 one of not adequately handling clearly how jet
10 impingement load should be handled on the piping
11 systems, and that was already mentioned by the
12 presentation.

13 Two other items which were brought up in San
14 Onofre. One was called a finding and I have it included
15 here. It was an implementation of an administrative
16 procedure.

17 There were a number of minor discrepancies -
18 six I think - dealing with the Southern California
19 Edison design of the intake structure, and they lumped
20 that into one - Torres Pine Technology - lumped that
21 into one finding as a procedural deficiency.

22 The last item is also under San Onofre. There
23 were two areas where the utility in carrying out their
24 auditing responsibilities had not done specifically from
25 a procedural viewpoint what they had represented that

1 they would in their quality assurance documents.

2 So, that is a category which did not get
3 involved in the engineering, it was an audit deficiency
4 by the utility itself.

5 Since these were all sort of different from
6 the point of view who did them and scope, and so on, the
7 scope in terms of manpower was from the least to the
8 most something like a factor of five.

9 It is difficult to draw any specific
10 conclusions, I think, at this point in time from this
11 comparison. I think on all of them one would say that
12 if you go to the quality assurance requirements by the
13 Commission - it is not just Appendix B but the
14 supporting regulatory guides - each of these should say,
15 "Gee, here is an item that they did not follow that led
16 to this."

17 So, it was a general deficiency, of course,
18 which you would guess would be in the quality assurance
19 area. But it is difficult, some were engineering
20 judgments; some were not following procedures; some were
21 not having procedures and so on. It just does not seem
22 to me there is enough of a trend right now to give a
23 better response to your question.

24 COMMISSIONER AHEARNE: Thank you.

25 MR. DENTON: I think I would just add to that,

1 Dick, that having watched these over the past year or
2 two it is my feeling that you can learn a lot by
3 focusing in on an area like we have done at Summer. It
4 is not a complete audit in any sense, but the fact that
5 you do not find major design break-downs of the process
6 or the procedures when you do this provides some
7 additional assurance to our normal audit.

8 I think that is what we really use it for. If
9 you do not find anything you cannot guarantee that in
10 some other area of the plant it is all right. But if
11 you do find something, then it forces you to look
12 farther and that is what we have done in all these cases.

13 MR. KANE: The next slide, please.

14 The next slide Harold has touched on just
15 briefly at the beginning of the meeting. It has to do
16 with thermal sleeves.

17 This stems from a problem on some operating
18 plants - I believe McGuire was one - in which the
19 thermal sleeves weld had failed and the thermal sleeves
20 - at least one - had become separated.

21 The licensee advised the staff in July of 1982
22 that the thermal sleeves on the Summer plant were going
23 to be removed from eight locations where they existed in
24 the reactor coolant system. These involved lines
25 ranging in size from three inches to 14 inches.

1 At that time, we issued the operating license
2 with the low-power restriction. We conditioned it to
3 require NRC staff review and approval of this
4 modification prior to exceeding five percent.

5 The applicant has provided justification for
6 interim operation in September of 1982, and the review
7 that was done to date on it indicates that it is
8 acceptable through the first cycle.

9 However, there are some aspects that we are
10 still looking into for longer-term, full-term
11 operation. Therefore, License Condition 2.C(7) has been
12 modified now to require prior to startup, after the
13 first refueling outage, that justification for the
14 continued operation - with thermal sleeves removed - be
15 provided to the staff for review and approval.

16 CHAIRMAN PALLADINO: If Westinghouse thought
17 these were important when they designed them, I don't
18 understand how you get away without putting them in.

19 MR. VOLLMER: One answer to that, as I
20 understand it, the design itself in terms of developing
21 the specifications for the pipes and their connections
22 was done without consideration of the protection
23 provided by the thermal sleeves.

24 But the thermal sleeves, it is known that when
25 you have cold water pipes going into hot water pipes you

1 have eddie problems and thermal sleeves do provide you
2 some margin of protection.

3 But again, it is my understanding that they
4 designed the piping system without taking the thermal
5 stress protection afforded by the thermal sleeves into
6 account, and indeed the code, we have looked at that --

7 CHAIRMAN PALLADINO: What do you mean when
8 they design it without taking into account the thermal
9 sleeves?

10 MR. VOLLMER: You have to assume a certain
11 number of cycles, of turning on water and of heating and
12 cooling the connections to the pipe at this particular
13 location. These all have been looked at from a code
14 point of view with or without the thermal sleeves, and
15 they have been found to be acceptable for the full life
16 of the plant.

17 However, the small, very minute thermal
18 eddies, cycling variations, which are on the order of a
19 few degrees which may be very high frequency relatively
20 in time compared to starting and stopping pumps, are
21 something that are very difficult to take into account
22 and perhaps were not even taken into account because
23 when you look at the code curves they are looking at
24 much large cyclic transients.

25 However, we do know from other plants that

1 these little thermal eddies can cause small cracks in
2 the pipes. So, our thought there was, generically we
3 want Westinghouse to address the potential effects on
4 the pipes of long-term operation with thermal eddies.
5 This is something we will be getting.

6 CHAIRMAN PALLADINO: Well, why I am concerned
7 because generally people don't put those in unless they
8 really feel they need them. I think they felt they
9 needed them.

10 I am a little concerned about analyzing our
11 way out of not needing them.

12 MR. VOLLMER: I am not trying to do that, and
13 I am not speaking for Westinghouse. But what I am
14 saying is that we have looked at the code requirements
15 for these without the thermal sleeves and we do concur
16 that they do meet all code requirements.

17 CHAIRMAN PALLADINO: I wonder, is the code
18 clear enough on that?

19 MR. VOLLMER: Well, the code is not too clear
20 on that, as I understand it. I am not a code expert.
21 But as I understand it, the code does not really address
22 these very small variations and it does not have the
23 mechanics to do that in the code. Actually, one would
24 have to go to some sort of a repetitive fraction
25 mechanics to see if these small thermal cracks would

1 grow in time.

2 MR. DENTON: I think they were faced with
3 breaking and loose thermal sleeves on a number of
4 reactors, Trojan, North Anna, and I have forgotten the
5 other.

6 CHAIRMAN PALLADINO: Why did they break so
7 readily?

8 MR. DENTON: Poor design. Then, in this
9 licensee's case, he got a recommendation from the
10 Westinghouse Safety Review Committee just as they were
11 about to bottle up the system. The question was, either
12 leave them in with this design and hope they don't break
13 like in other plants, or take them out.

14 I understand the advice he received from
15 Westinghouse after they had analyzed it was, this plant
16 did not need them. There are actually two which are
17 still in, in rather difficult positions.

18 They submitted a report to us, and based on
19 that report we agreed to let them operate this way since
20 it tends to be a long-term problem, not a short-term
21 problem. They still owe us more information about some
22 of the remaining details between now and the end of the
23 first cycle.

24 And there are other plants in which
25 Westinghouse is going to propose the same solution.

1 CHAIRMAN PALLADINO: Thermal sleeves have been
2 part of my experience and I am just not sure that the
3 excuse of having a poor design gets rid of thermal
4 sleeves. That is a little bit like giving you a hard
5 hat that has thorns on it and you say, "Which is better,
6 to wear it with the thorns or not wear it."

7 (Laughter.)

8 MR. EISENHUT: We do not want to leave you
9 with the impression that this is worth putting away
10 because we have had occasions where we have been
11 discussing with you lately small lines that have
12 high-cycle fatigue cracking problems, and the BWR
13 nozzles in the vessels that are cracking, remember, a
14 couple of years ago. These are areas we are working on.

15 MR. DENTON: This morning you heard from
16 Susquehanna about some of the details. Perhaps you
17 would like to hear from the company on this one.

18 COMMISSIONER AHEARNE: Let me first, if I can,
19 ask, is this a proposal that Westinghouse is going to be
20 making for all its plants, as far as you know?

21 MR. DENTON: For this class. There is a
22 certain class of plants with this size pipe or design
23 thermal sleeve. As I understand it, they are making
24 this as a generic proposal.

25 MR. EISENHUT: For this family of plants. I

1 think the previous plants did not have the thermal
2 sleeves in some of these locations, and some of the
3 later design does not have thermal sleeves.

4 So, we want to take a hard look at the area.

5 COMMISSIONER AHEARNE: That includes some
6 operating plants as well?

7 MR. EISENHUT: Oh, yes. This problem was
8 originally identified at the Trojan class of plant and
9 there are plants that do not have them.

10 CHAIRMAN PALLADINO: Suppose it turns out that
11 at certain places they conclude that they have to have
12 thermal shields, is it possible to put them in?

13 MR. EISENHUT: In some locations, certainly.
14 It is a laborious task.

15 CHAIRMAN PALLADINO: It is not easy.

16 MR. EISENHUT: Certainly the B&W reactors, I
17 recall, they recently had a situation where they put in
18 thermal sleeves in the high-pressure induction lines,
19 cutting lines and putting in a new sleeve.

20 CHAIRMAN PALLADINO: Well, I agree it does not
21 become a problem right away.

22 MR. EISENHUT: Can we have the next slide?

23 CHAIRMAN PALLADINO: Yes, it might be
24 interesting to hear - whom do we have here?

25 MR. EISENHUT: We have a number of gentlemen

1 from the company.

2 CHAIRMAN PALLADINO: Which company?

3 MR. EISENHUT: South Carolina Electric & Gas.

4 CHAIRMAN PALLADINO: I would be interested in
5 what your views are on this, thermal sleeves.

6 FROM THE FLOOR: Thermal sleeves? Our manager
7 of engineering, Carl Price.

8 MR. PRICE: Regarding the generic aspects of
9 the thermal sleeves, why they were installed and why it
10 was determined that they were not needed, it is an
11 element of on-going upgrading of analytical methods.

12 The current generation of Westinghouse plants
13 does not recommend use of thermal sleeves, based on new
14 design and analytical methodology.

15 CHAIRMAN PALLADINO: Well, I gather, though,
16 they are going to give us some additional analyses.

17 MR. PRICE: I understand there was such a
18 meeting with the McGuire plant specifically addressing
19 thermal sleeves in July. That was left as an open
20 generic issue with the staff.

21 MR. EISENHUT: Yes, and the license here
22 proposes a license conditioned to formalize that
23 commitment, to get a detailed evaluation on the
24 situation.

25 CHAIRMAN PALLADINO: Thank you.

1 MR. EISENHUT: If I can have the next slide.

2 Summer is the first Model D-3 preheater steam
3 generator plant in the United States. I recall, there
4 was one other plant that was a Model D that is
5 operating, and that is McGuire-1 and that has a Model
6 D-2. That is the only D-2 in the world that was built.

7 Summer is the first D-3. When we licensed the
8 McGuire plant it was a full power license, and after we
9 licensed that plant some problems were being identified
10 at the Ringhals-3 plant in Sweden. That is a
11 Westinghouse plant of a very similar design.

12 They came up in late 1981 and in fact they had
13 a through-wall leaking tube. The problem --

14 CHAIRMAN PALLADINO: Was Ringhals a D-2?

15 MR. EISENHUT: It is a D-3.

16 CHAIRMAN PALLADINO: A D-3.

17 MR. EISENHUT: Basically, today there are
18 three plants operating D-3s outside the United States,
19 one in Sweden, one in Spain, and one in Brazil. Summer
20 would be the first D-3 in the United States.

21 The problems were identified in Ringhals in
22 Sweden, and what ensued was a program that kept
23 expanding. The basic, simple difference is that in the
24 old model steam generators the feedwater flow comes into
25 the bottom of the tubes and goes pretty much in a

1 vertical direction.

2 In a preheater model - and the preheater
3 section varies slightly and that is where you get the
4 D-2s, D-3s, D-4s et cetera - the flow comes in
5 perpendicular to the tubes and it goes through a baffle
6 arrangement in the preheater section and that varies.

7 In some cases it comes in and splits, some
8 goes down on one side and circulates and comes back up
9 on the other side, while some continues upward. But it
10 is that type of arrangement and the baffling structure
11 in those generators varies a little bit from design to
12 design.

13 But basically, all the Model Ds are preheater
14 steam generators, as the Model Es are also.

15 The problem came about because of the
16 flow-induced vibrations of the tubes and they literally
17 were wearing away the tubes. Since the McGuire plant
18 was previously licensed, we now have a restriction at
19 50-percent power on that plant - 50 percent because
20 after quite a number of tests, laboratory tests as well
21 as in-plant testing by virtue of these facilities with
22 instrumented tubes, the on-set of flow-induced vibration
23 where you get a severe wear problem occurs at some point
24 greater than 50 percent.

25 That has been demonstrated through operation

1 at Ringhals, Almaraz, the plant in Brazil, Angra, and
2 also at McGuire.

3 Those plants are also restricted on the order
4 of 40 or 50 percent. They have gone through periods
5 where they may operate for a very short period of time
6 at higher power levels to demonstrate and see the
7 effects through instrumented tubes.

8 However, the net effect of those has been that
9 they are staying under the 40-50 percent limit, in that
10 ball park, to greatly reduce the wear problems.

11 COMMISSIONER ROBERTS: Well, is there any fix
12 for that?

13 MR. EISENHUT: Yes. The fix basically is,
14 high velocity flow of 30 to 40 feet per second vibrates
15 the tubes. Westinghouse has been working on a design
16 fix, a hardware fix, for quite some time. They have
17 looked at -- they basically had two basic fix
18 designs. They have not settled in on a particular fix.

19 The hardware fix would consist of going inside
20 the generator feedwater hole and assembling a structure
21 which is a defuser plate, an arrangement with veins to
22 focus the flow. The idea is to get a much reduced flow
23 down, they believe, on the order of 12 to 15 feet per
24 second, and also a much more even distribution.

25 Now, that design has pretty well been

1 finalized. That design has been tested in the Swedish
2 State Power Board test facility which is carrying out
3 the full-scale test on this modification. They have
4 gone through a couple of variations on it. They have
5 done a number of tests. There have been some
6 smaller-scale tests in the United States.

7 That proposal, the proposed design, they are
8 pretty well fixed on the design. However, there are
9 some details associated with it that have not been
10 worked out yet. It is a six-piece manifold that goes in
11 and gets bolted together inside the generator because it
12 literally will not fit through the hole it goes in.

13 They are having some difficulties with flexing
14 and problems with bolting.

15 MR. DENTON: But the owners themselves have
16 yet to approve the Westinghouse design. TVA, Duke
17 Power, and South Carolina all banded together - somewhat
18 at our urging - to be sure that what Westinghouse was
19 proposing would satisfy the licensing requirements.

20 They have not yet adopted formally the
21 Westinghouse proposal and we have not yet either. Once
22 it is adopted, it is envisioned that Duke would be the
23 first recipient of the new design and Westinghouse would
24 have one team of people who would specialize in
25 installing this, and after they install one at McGuire,

1 they would move on to this plant.

2 COMMISSIONER GILINSKY: Well, what is the
3 process for lifting 50 percent --

4 CHAIRMAN PALLADINO: On this testing if, as
5 you said, the details were not worked out, how could you
6 test that?

7 MR. EISENHUT: Well, the proposed design that
8 they had, had been tested. And then there is some minor
9 fine-tuning of the orifices, the holes and plate, et
10 cetera. They have tested --

11 CHAIRMAN PALLADINO: The ones they tested,
12 they apparently went through --

13 MR. EISENHUT: The question is on long-term
14 viability of that design. They are now doing a detailed
15 stress analysis of the bolting that holds it together
16 because there is a real question of how you can inspect
17 this after you get it in.

18 COMMISSIONER AHEARNE: Was the model that they
19 tested one of these assembled pieces?

20 MR. EISENHUT: It was an assembled piece.

21 CHAIRMAN PALLADINO: They did not go through
22 putting it in the same way?

23 MR. EISENHUT: Yes, they did. I believe they
24 certainly did not work through a hole and put it
25 together, but it is basically the same design.

1 COMMISSIONER AHEARNE: What I was trying to
2 get at, is it a design or is it a similar manufacture
3 where they start with the six separate pieces and bolt
4 them together?

5 MR. EISENHUT: It started with the six
6 separate pieces and bolted together.

7 CHAIRMAN PALLADINO: The same way as they are
8 proposing here.

9 MR. EISENHUT: Yes.

10 CHAIRMAN PALLADINO: You could not cut a hole
11 big enough to put the thing in assembled.

12 MR. EISENHUT: No because of the stress
13 relieving of the vessel and the design of the vessel you
14 really could not.

15 Now, it is fair to say - I do not want to
16 leave the impression that the design is completely
17 finalized and fine tuned - there is some continuing
18 review that is on-going on a number of fronts.

19 One is, as Harold mentioned, we had
20 discussions with the three affected Model D-3 utilities
21 in the United States. They formed a - they call it an
22 "Independent Review Committee" but it is really a group
23 of some 20 individuals with expertise in all the aspects
24 of this design.

25 They, then, are going to Westinghouse.

1 Westinghouse proposes the design to them and they are
2 basically doing the design review.

3 Now, the Westinghouse-proposed final report is
4 first scheduled to be completed sometime about a month
5 from now. It would be sometime in December. Then the
6 Westinghouse design report goes to the three utilities
7 for them to finish their evaluation and after they are
8 happy with the design and resolved their concerns, they
9 would propose it to the staff.

10 We have been participating in these meetings
11 as we go along. We have also been in contact and have
12 had a number of discussions with the foreign governments
13 who are also going through a detailed review on this
14 design, also.

15 As Harold mentioned, they are proposing to
16 have one team, one Westinghouse team, install this
17 device in each of the U.S. plants so they do them in
18 sequence. So, it is the same trained crew. There would
19 be a separate team to do the foreign plants.

20 The first installation that has been proposed
21 is in fact proposed for a foreign plant. So, a foreign
22 plant will probably proceed with this and it is very
23 likely that it is a new Model D-3, not one that is
24 presently even operating.

25 COMMISSIONER GILINSKY: And what is the

1 standard this modification will have to meet in the
2 program you are looking for?

3 MR. DENTON: We will be looking for evidence
4 that steam generator tube failures are not going to be
5 caused by this mechanism. Remember, we have let McGuire
6 go up to full power, I think, for brief testing.

7 COMMISSIONER AHEARNE: Did we ever let them go
8 to full power?

9 MR. DENTON: Very close.

10 MR. EISENHUT: Very close.

11 COMMISSIONER AHEARNE: There were restrictions
12 on number of hours.

13 MR. DENTON: Yes, on number of hours. This
14 plant is also instrumented so yo can measure the
15 vibrations that are occurring. I think the basis for
16 lifting the 50 percent would be a demonstration that the
17 problem is not occurring.

18 Since we have not yet approved the final
19 design, I don't want to go too far down as to exactly
20 how we would do it.

21 COMMISSIONER GILINSKY: Do you have confidence
22 in the design to allow it to be installed, and you would
23 then expect tests to be run --

24 MR. DENTON: Prove it by testing.

25 COMMISSIONER GILINSKY: -- that there is not

1 vibration?

2 MR. EISENHUT: That's correct.

3 MR. DENTON: Yes.

4 MR. EISENHUT: And one of the outstanding
5 issues that we are still debating is, what kind of a
6 testing program after the installation of one of these
7 should there be. Do you allow them to operate for three
8 months and shut down for an inspection or, what does
9 that profile look like to gain a collective
10 understanding?

11 COMMISSIONER GILINSKY: I hope you will keep
12 us informed.

13 COMMISSIONER AHEARNE: If everything works on
14 this optimistic schedule, what is your estimate for the
15 installation in this plant?

16 MR. EISENHUT: In this plant it would probably
17 be in the spring, probably on the order of March.

18 COMMISSIONER AHEARNE: Of what year?

19 MR. EISENHUT: Of '83.

20 McGuire would be the first in the United
21 States, and it is hoping to install this early next
22 year, I believe. The shutdown occurs some weeks before
23 the actual installation, in preparation time.

24 COMMISSIONER AHEARNE: If I read this SER
25 correctly, you do not intend to let it go above 50

1 percent until that modification.

2 MR. EISENHUT: That is correct. And there is
3 a license condition here restricting power levels. I
4 say that with the caveat as we have on McGuire, we have
5 authorized a short period of time, 300 hours at 75
6 percent power.

7 COMMISSIONER AHEARNE: Yes.

8 MR. EISENHUT: But generally it is a
9 50-percent power restriction.

10 COMMISSIONER AHEARNE: I was not sure. I read
11 the license condition. It said that prior to operation
12 in excess of 50 percent of full power SC&G shall satisfy
13 the staff that appropriate surveillance measures and
14 remedial action plans have been implemented, where the
15 SER actually says --

16 MR. EISENHUT: The terminology could have been
17 cleaner. The plans have been implemented meant the
18 hardware had to be implemented. We certainly can clean
19 up the words there.

20 COMMISSIONER AHEARNE: In your SER you say the
21 licensee requested the permission to operate up to 50
22 percent until the permanent modifications are made.

23 MR. KANE: I think part of the thinking there
24 was that there may be another program which proposes
25 operating a plant at, say, 75 percent for a short period

1 of time. This has the flexibility built into it to
2 permit further amendments to their proposed operating
3 program.

4 COMMISSIONER AHEARNE: Well, I guess you could
5 always issue an amendment.

6 MR. KANE: Yes.

7 COMMISSIONER AHEARNE: Are you saying that the
8 license condition should really be interpreted as, they
9 cannot go above 50 percent until NRR agrees they can go
10 above it?

11 MR. KANE: Yes.

12 MR. EISENHUT: And right now we mean that to
13 be a hardware fix proposed and implemented.

14 COMMISSIONER AHEARNE: But you might change
15 your mind.

16 MR. EISENHUT: We might change our own mind
17 for a short period of time, for two hours.

18 MR. DENTON: Since they did instrument it, it
19 is conceivable that they could collect data which could
20 change our view.

21 MR. EISENHUT: Yes, there are two tubes in the
22 generator which have internal instrumentation.

23 COMMISSIONER AHEARNE: So that the SER
24 statement of what the licensee requests is not
25 necessarily what the license condition then is.

1 MR. KANE: This is what the utility requested,
2 both as to duration and power level.

3 MR. EISENHUT: We have no requests to go above
4 50 percent.

5 COMMISSIONER AHEARNE: Well, your SER says the
6 licensee requests that the facility be permitted to
7 operate up to 50 percent until the permit modifications
8 are made.

9 MR. EISENHUT: That's correct.

10 COMMISSIONER AHEARNE: That is the explicit
11 request.

12 MR. EISENHUT: That is his explicit request.
13 And this can be made clearer.

14 COMMISSIONER AHEARNE: The license condition
15 is a little more flexible.

16 MR. EISENHUT: Yes. I would propose that we
17 clarify the words here.

18 CHAIRMAN PALLADINO: Could I make a technical
19 suggestions? Look carefully at the bolts and whether
20 they are going to be captive.

21 MR. EISENHUT: We had this discussion before
22 and we will look very hard at the bolts.

23 CHAIRMAN PALLADINO: OK, thank you. I do not
24 want to see a bolt problem substitute for others.

25 MR. EISENHUT: Loose parts.

1 Before turning it over to the region, the last
2 slide of the presentation was the proposed full-power
3 amendment. It basically was just the items that we
4 discussed here, cleaning it up. This would be the
5 package that we would propose for approval.

6 COMMISSIONER AHEARNE: May I ask you one
7 question on the SER before you turn it over, and it is
8 probably just a quick clarification; on page 34, the
9 top. Is that the same issue - or similar issue, it is
10 not the same - but similar to what you were talking
11 about?

12 MR. EISENHUT: That sounds like the general
13 question on --

14 MR. KANE: No, that is a different issue.

15 COMMISSIONER AHEARNE: A different issue?

16 MR. KANE: This was a request for a waiver of
17 certain tests.

18 MR. EISENHUT: They had committed to meet the
19 appropriate sections of the code except, as is the case
20 with a lot of plants, there are some certain items which
21 you cannot meet the code requirements because of, for
22 example, the code may require you fully flex or stoke a
23 valve at a frequency of, let's say, every three months
24 or something like that.

25 If that valve is part of the system which

1 would open up your reactor coolant system to, say -- on
2 a low pressure system obviously you could not do that.
3 So, you would need a code exemption from that.

4 Another example would be turning on pumps,
5 turning on HPSI pumps, those are covered by Tech Specs.
6 The code may require them to be turned on more often.
7 So, we would give them a code exemption basically
8 because of system problems. You do not want to turn
9 this on while you are operating.

10 So, those are the types of things. We have
11 looked at all of their requests. We think they are all
12 reasonable and the types of things we have granted
13 before on other plants for good reasons. We have not
14 gone through them in detail yet. I understand it is
15 almost complete. That is the type of thing it is.

16 CHAIRMAN PALLADINO: Can I ask one question on
17 the license itself? On page 6 it says, "Prior to
18 start-up, after the first refueling outage, SCG&E shall
19 install an NRC staff-approved low temperature
20 pressurization protection system."

21 I am informed the USI was resolved in 1976. I
22 sort of wonder why this was not installed already.

23 MR. KANE: The system is installed, but it had
24 several single failures identified in it that we could
25 not resolve and which would take a long period of time

1 to resolve.

2 So, we had the Materials Engineering Branch
3 take a look - from the practical mechanics standpoint -
4 take a look at the vessel for the first refueling outage
5 and concluded that even if you did have an overpressure
6 event that you would not have any cracking of the vessel.

7 That is what that is all about. The system is
8 in place, it is just not a staff-approved system at this
9 point.

10 CHAIRMAN PALLADINO: And why isn't it staff
11 approved?

12 MR. KANE: Because there are some potential
13 single failures in it that we have not resolved with the
14 utility.

15 CHAIRMAN PALLADINO: So, you are going to
16 resolve between now and the first refueling something we
17 have not resolved for several years before.

18 MR. SPEIS: I am T. P. Speis from the staff.

19 Even though the system is not completely in
20 place the system, as it is presently in place, does not
21 meet the single failure criteria. It is a matter of
22 buying an additional temperature oxyner to make it meet
23 the single-failure criteria.

24 So, that is the problem.

25 CHAIRMAN PALLADINO: Thank you.

1 COMMISSIONER ROBERTS: Are you going to get
2 into specific questions about the license?

3 CHAIRMAN PALLADINO: Go ahead.

4 COMMISSIONER ROBERTS: On page 5 - can someone
5 tell me - I am at paren. 5, paragraph C, where did the
6 number .015 come from? How does the NRC envision the
7 utility conducting these inspections, and how does the
8 NRC envision being able to verify it?

9 Now, let me see if I understand. Are you
10 talking about the intake structure, the walls of the
11 intake structure?

12 MR. KANE: Yes.

13 MR. EISENHUT: Yes.

14 COMMISSIONER ROBERTS: Well, I would like to
15 have some answers to those questions.

16 MR. VOLLMER: OK. I think the 015 inch
17 basically would indicate that there may be some loss of
18 capability of the building if cracks lager than 015 inch
19 might exist. In other words, if stresses are put on the
20 building you do get cracks in concrete, that is common.

21 But if you go beyond that 015 inch, you may
22 have gone to a point where you are pulling, yielding
23 rebar or something like that, and may lose capability of
24 the building.

25 So, it is a monitoring program to see that

1 that does not indeed happen. If cracks that large would
2 occur, then we would have to go back in and find out the
3 cause and find out whether or not the building is still
4 capable of its functionability.

5 COMMISSIONER ROBERTS: All right, move on.
6 How do you envision the utility conducting these
7 examinations?

8 MR. VOLLMER: I am not sure what program they
9 have set up, but it is not an unusual program to monitor
10 for cracking in structures such as this.

11 COMMISSIONER ROBERTS: Well, can you give me
12 some sense of how it is done?

13 MR. VOLLMER: You just go up and you look at
14 the building.

15 COMMISSIONER ROBERTS: This is the intake
16 structure, this is under water.

17 MR. VOLLMER: I am not sure about that part.

18 MR. LENAHAN: I think I can answer that. My
19 name is Joe Lenahan, I am from Region 2.

20 They did a crack monitoring inspection. This
21 is the intake structure which is actually the conduit
22 which is submerged. They had some divers go in and
23 inspect it about two years ago and verify that no
24 additional cracking had occurred.

25 They had a repair program during

1 construction. They had some extensive cracking which
2 they had to go back in and repair, using an
3 epoxy-grout. They went back in and inspected it about
4 two years after that was completed.

5 This was about two years ago.

6 COMMISSIONER AHEARNE: This is a visual
7 inspection?.

8 MR. LENAHAN: This is a visual inspection by
9 divers. They went in and, from what I understand --

10 COMMISSIONER ROBERTS: Are you telling me that
11 a visual inspection by a diver can accomplish this?

12 MR. LENAHAN: Yes, sir.

13 COMMISSIONER AHEARNE: It is very clear water.

14 (Laughter.)

15 MR. LENAHAN: They cleaned the surface off in
16 the tunnel, if I recall the details - it has been a
17 couple years since I looked at it - they had to go in
18 and clean the interior surface off of the conduit, that
19 is done under water. They went in and took floodlights
20 in and inspected it visually.

21 It is not easy, but it can be done. It is not
22 unusual to do this for structures, it is done.

23 COMMISSIONER AHEARNE: The visual inspection
24 is probably not unusual, but .015 inch?

25 COMMISSIONER ROBERTS: The .015, a diver is

1 going to determine that with underwater floodlights?

2 You've got to be kidding.

3 (Laughter.)

4 MR. LENAHAN: Not by visual, they used feeler
5 gauge, if I remember right.

6 COMMISSIONER GILINSKY: Can we ask the company
7 what their experience was.

8 MR. DENTON: Let's ask the company and hope
9 that they proposed it.

10 (Laughter.)

11 MR. WHITTAKER: Actually, this was not our
12 idea.

13 (Laughter.)

14 COMMISSIONER ROBERTS: I don't find that
15 surprising.

16 MR. WHITTAKER: We discussed it with the staff
17 a long time, but they ultimately prevailed on us. We do
18 use divers and the divers, given a certain amount of
19 time, have been successful in locating expansion of
20 these cracks.

21 What happened in this situation, when they
22 were building the pump house and the long concrete
23 square tunnel for the intake, the ground shifted
24 slightly and you had a bending moment applying to it so
25 that the top of the intake structure opened up - sort of

1 like a zipper would if you were to bend a zipper back it
2 opened up like that.

3 The intake structure has rebar going around
4 the tunnel, and in the bending moment there was a
5 question of whether or not we had overstressed some
6 longitudinal horizontal rebar running the length of the
7 tube.

8 It turned out that the amount of drop on one
9 end may have bothered that, but the earth rebounded,
10 closed up the zipper. There was never any question
11 about the strength of the tunnel but they wanted to make
12 sure, the staff wanted to make sure, that these cracks
13 did not open up again.

14 Actually, if they opened up it would just give
15 you another access into the tunnel.

16 (Laughter.)

17 MR. WHITTAKER: But we have committed to
18 inspect the tunnel with divers on a periodic basis with
19 feeler gauge to assure the staff that there has been no
20 movement in the earthwork supporting --

21 COMMISSIONER ROBERTS: Give me some sense of
22 the square footage of the area that these divers are
23 going to inspect.

24 MR. WHITTAKER: Well, I would say the tunnel
25 is about 80 to 100 feet long. It is probably six or

1 eight feet wide, and about that high - whatever that
2 turns out to be.

3 MR. DENTON: Let me commit to take another
4 look at that one.

5 (Laughter.)

6 COMMISSIONER ROBERTS: This is absolutely
7 ridiculous.

8 CHAIRMAN PALLADINO: The person who wrote that
9 up, I bet, did not envision all these divers going down
10 there.

11 MR. DENTON: I imagine there is always more
12 background behind these than I am able to bring to the
13 table. But we will take a re-look at it.

14 COMMISSIONER ROBERTS: Well, I sure would have
15 an acute interest in some background.

16 CHAIRMAN PALLADINO: Do you have more, Tom?

17 COMMISSIONER ROBERTS: No.

18 CHAIRMAN PALLADINO: OK, shall we go on with
19 the experience, then, other experience?

20 MR. O'REILLY: Can I have the next slide,
21 please?

22 This is a breakdown of the major events that
23 have occurred since the license, low-power license, was
24 issued on August 6, and it is just listed to give you
25 some sequence of the major milestones.

1 Next slide, please. Leave this slide up and I
2 was going to address each of the items identified on
3 this slide.

4 In the first area I would like to talk about
5 the Salp Program. We have conducted two Salp
6 evaluations for the Summer facility. The first Salp
7 Report evaluated the licensee's performance in the
8 instruction area, and we evaluated them to be at the
9 time above average.

10 Performance in the areas of pre-operational
11 test program procedures and equipment control was
12 evaluated at that time as being below average.

13 The second Salp Report indicated that
14 improvements have been made in the areas of weaknesses,
15 that is the test program procedures and equipment
16 control. No major weaknesses were identified.,

17 We found strong established programs, Category
18 1 programs, in the construction areas, the quality
19 assurance, safety-related structures, electrical,
20 instrumentation and the pre-operational testing, and for
21 the operational area of emergency planning.

22 These latest findings were presented to SCE&G
23 in a Salp meeting with them on August 31, 1982.

24 I would like now to address the Region 2
25 Review Panel. This is a special Region 2 panel and we

1 met in July and confirmed the regional activities were
2 in order for the granting of an operating license at
3 that time, and for a full-power license at this time
4 when certain things had been completed.

5 This formal review included verification to
6 status of the following items --

7 COMMISSIONER AHEARNE: Jim, what is the Review
8 Panel?

9 MR. O'REILLY: It is an evaluation of the
10 entire project, it includes review of the status of all
11 the completion and of the inspection modules; we go
12 through all our outstanding items for the plant. We
13 review the licensee's letter of completion that he sends
14 to us. We obviously review the Salp program. We are
15 the office of the NRC that participated in it.

16 We go through their enforcement history with
17 particular attention on the most recent items of
18 enforcement. We look through any queries from the staff
19 and how they had responded. We look at if we have
20 available - in this case we had a preliminary report on
21 the independent engineering evaluation program - and we
22 discussed any other outstanding issue.

23 Now, we have sent them an instruction in which
24 we asked any of the inspectors who have ever inspected
25 that site whether or not they were satisfied with the

1 corrective actions that have been taken and whether or
2 not there is any other outstanding issue.

3 We have no outstanding issue or any problem by
4 any inspector at the Summer facility.

5 Now, following that, then we make our
6 recommendation to NRR that we feel the plant is ready to
7 proceed.

8 Now, the next issue has to do - ties in with
9 that - this is delays and the causes of delays in some
10 of the schedules.

11 Now, we believe, based on all our
12 observations, that their start-up program went very
13 well. The staff's performance, crew's, was excellent
14 and that the test results were in accordance with
15 predictions. We have no surprise or unusual conditions
16 based on the test program.

17 Now, what were the contributors to the delay?
18 We had problems, as identified earlier, with the fire
19 protection and fire barriers, and I had my fire
20 protection engineer here with me today.

21 But as you heard earlier the problems
22 basically, I believe, are now resolved. We will have
23 the detectors in compliance with the Tech Specs, which
24 means they are either installed, operable, or they will
25 take actions that are authorized by the Tech Specs -

1 like a fire watch and so forth - until they get them all
2 operable.

3 Fire barriers, they report they have them all
4 completed which is a late change. And our fire engineer
5 will be up there in a week or two to verify that as a
6 continuing type of action.

7 We also will, of course, check the operability
8 of their fire detectors when they have completed their
9 installation prior to December 31.

10 Another item, surveillance. Their procedures
11 for conducting surveillance requirements were more
12 complex, more time-consuming than they had originally
13 estimated, and that was a factor in the doing of their
14 surveillance procedures required by the license.

15 There was only one scram during their start-up
16 program and other delays were shut-downs for things like
17 repairs of packing leaks, steam leaks and so forth, in
18 some of the valves. Other than that, the program went
19 very well.

20 Licensee event reports. Thirteen licensee
21 event reports were submitted from the period of August
22 6, when they received their license, to October 23.

23 Of the 12 LERs, eight were attributed to
24 equipment problems, four to personnel errors, and one to
25 procedural problems. None of the events caused any

1 equipment damage or caused a transient to occur at the
2 plant.

3 The LERs submitted to date do not reveal any
4 significant programmatic or equipment problems in the
5 plant.

6 Enforcement actions. During the period of
7 August 6 to September 30, seven violations were
8 identified. Of the seven, four were Level IV violations
9 and three were Level V violations. These violations
10 involved the physical security plan. One of these
11 violations was identified by the licensee.

12 Two violations involved the fire protection
13 system. The most significant violation involved the
14 fire barriers. The remaining two violations involved a
15 failure to follow procedures and improper implementation
16 of a technical specification surveillance requirement.

17 None of the violations in our view represent a
18 serious programmatic failure. The corrective action in
19 the reports and follow-ups by the licensee has been
20 prompt, correct, and positive.

21 Readiness for full power operation. Based on
22 our inspections and the comments by our people, we
23 recommend that NRR be authorized to let them proceed,
24 SE&G to proceed to full power.

25 Those are the issues that relate to our

1 experience with them over the year and over the last
2 several months.

3 We have other words to talk about in regards
4 to allegations, but OI was going to address that subject
5 first and we will provide technical input or comments on
6 the status of the investigation and allegations.

7 Jim Fitzgerald was going to address those
8 issues first.

9 COMMISSIONER GILINSKY: Should we go into
10 closed session on this?

11 CHAIRMAN PALLADINO: No, we have two parts.

12 FROM THE FLOOR: I believe it needs to be a
13 closed session.

14 CHAIRMAN PALLADINO: Well, you have two parts,
15 there were the Cadwelds and Socket welds that we said
16 can be discussed in open session, and the security one
17 in closed.

18 MR. O'REILLY: Yes, sir, but I believe that OI
19 was supposed to say something about the Cadwelding
20 problem.

21 CHAIRMAN PALLADINO: Who is going to speak to
22 the Cadwelding problem?

23 MR. O'REILLY: Mr. Ward.

24 CHAIRMAN PALLADINO: All right.

25 MR. WARD: This will be very brief. All we

1 did was an inquiry into the Cadweld allegations. As
2 soon as it became evident they were fundamentally of a
3 technical nature, we referred it to the Region and I
4 believe the Region will provide you the technical --

5 (Laughter.)

6 MR. O'REILLY: We are back to the Region.

7 CHAIRMAN PALLADINO: Back to the table.

8 MR. O'REILLY: Can we have put on our next
9 slide, please?

10 Now, the man I want to address this subject,
11 this Cadwelding problem is our engineer, Mr. Joe Lenahan
12 from our Region 2 staff.

13 MR. LENAHAN: I am going to address the
14 allegations on Cadwelding, and I think before I can get
15 into the allegations I would like to discuss what a
16 Cadweld is.

17 Cadweld is nothing more than a trade name, it
18 is a mechanical splice for reinforcing steel, or
19 reinforcing bars in the concrete; it has nothing to do
20 with welding or the welding process.

21 COMMISSIONER AHEARNE: As someone who
22 understood that, do you use Cadweld as generic or do you
23 really restrict it to, I guess, the Erico products?

24 MR. LENAHAN: The Erico product is Cadweld.

25 COMMISSIONER AHEARNE: So, whenever we hear

1 Cadwelding, you really talk about the Erico product.
2 Anybody else is coupler splice, that would be somebody
3 else's name.

4 MR. LENAHAN: Dolly-wag splice would be another
5 one.

6 CHAIRMAN PALLADINO: I am not sure that is
7 universally used throughout the industry.

8 MR. LENAHAN: In the United States.

9 CHAIRMAN PALLADINO: That is escalators versus
10 moving stairways.

11 MR. LENAHAN: In the United States, I believe,
12 Cadweld was the first one. It was the first one
13 approved by NRC, the NRC staff. In fact, we had a Reg
14 Guide that pertained to that.

15 COMMISSIONER AHEARNE: So, whenever the NRC
16 staff uses the term "Cadweld," they really are speaking
17 specifically to that coupler by that company.

18 MR. LENAHAN: Yes, sir..

19 MR. EISENHUT: In this discussion here today --
20 (Laughter.)

21 COMMISSIONER AHEARNE: I have a sense about
22 how easy it is.

23 MR. LENAHAN: I will go on. We received these
24 allegations or became aware of them on August 10, 1982,
25 and these allegations were made by a former construction

1 worker, a Mr. Howard Jennings.

2 He was employed at the site as a Cadwelder.
3 We conducted an inspection between August 11 and
4 September 23, 1982. On August 11, I assisted an
5 investigator in obtaining a signed, sworn statement from
6 Mr. Jennings and in this signed, sworn statement he made
7 five specific allegations.

8 The first allegation was that the QC personnel
9 assisted Cadwelders in completing their certification
10 testing. What this primarily was, was a verbal
11 coaching. During the test, the QC personnel would give
12 them some assistance.

13 Well, this allegation was substantiated. This
14 allegation caused the second problem which is the second
15 allegation. This problem, as far as the assisting them,
16 the Cadwelders, led to them not being as well qualified
17 or not understanding the procedures as well as they
18 should have.

19 The second allegation concerned that
20 Cadwelders put scribe marks on the reinforcing steel
21 after making the Cadweld.

22 Now, what the purpose of a scribe mark is, you
23 put a mark, or a file, or a piece of crayon - lumber
24 crayon - about 12 inches from the end of the bar. The
25 main purpose of this is using it as an inspection tool

1 by the QC inspectors. That is to verify that the proper
2 amount of imbedment of the bar into the Cadweld sleeve,
3 the proper amount of imbedment.

4 COMMISSIONER AHEARNE: That is supposed to be
5 done before.

6 MR. LENAHAN: It is supposed to be done
7 before, yes, sir.

8 They found during a QA surveillance, the
9 licensee's QA staff discovered that the Cadwelders,
10 several Cadwelders, did not understand the requirement
11 and were actually doing it afterwards.

12 COMMISSIONER AHEARNE: Guaranteeing the proper
13 amount --

14 MR. LENAHAN: Pardon me, sir?

15 COMMISSIONER AHEARNE: Guaranteeing the proper
16 amount.

17 CHAIRMAN PALLADINO: Guaranteeing they passed.

18 MR. LENAHAN: Well, guaranteeing it passed
19 inspection. I think in a lot of cases probably not
20 fully understanding what they were doing it for.

21 So, these two allegations, like I said, were
22 identified by the licensee.

23 These were identified close to the same time,
24 in 1977. They retrained the Cadwelders, they had an
25 extensive retraining program for the Cadwelders to

1 verify that they did understand the proper imbedment and
2 proper placing, and all the procedural requirements for
3 making Cadweld sleeves, including putting the scribe
4 mark on.

5 As a result of the scribe mark problem, they
6 did an extensive investigation. This included doing
7 radiographs on about 70 Cadwelds that were accessible.
8 And of the ones that showed excessive gaps between the
9 ends of the rebar and not enough imbedment, not meeting
10 the manufacturer's recommendations, they cut them out
11 and tensile-tested those. They all passed the tensile
12 test.

13 The tensile test requirement was to 150
14 percent of the yield strength of the bar, or to the
15 ultimate strength of the reinforcement bar; 60,000 is
16 the yield and 90,000 the ultimate strength.

17 Another thing they did was intentionally
18 fabricate Cadwelds using improper spacing, just to see
19 how far they could go before they had a failure.

20 As a result of this program, they determined
21 that they had no problems with the Cadwelds in place. I
22 reviewed the results of that program and I saw nothing
23 wrong with it. It was a very in-depth, extensive
24 investigation that they conducted.

25 So, as a result of this, the engineering

1 investigation provides a sound basis for concluding that
2 these two, the first two allegations, had no safety
3 significance.

4 The third allegation was - and this was the
5 one that got the most publicity in the press - was that
6 the Cadwelders were patching completed Cadwelds or, in
7 some cases they re-shot partially completed Cadwelds.

8 Now, the patching, the purpose of the patching
9 was for cosmetic -- let me say one thing: As far as the
10 inspection, one of the things you look at is try to
11 determine the amount of voids in the end of the Cadweld
12 sleeve, in the door metal that bonds the sleeve to the
13 reinforcing bars.

14 Some of the Cadwelders apparently were going
15 in and using tie-wire and melting it and fill that void
16 space up if there was any before the Cadweld was
17 completed. It is just a cosmetic repairing.

18 We found during interviews with Cadwelders, a
19 couple of them admitted doing this or said they had
20 knowledge of it. They would not give me the name of
21 anybody who had done it. But they said they had
22 knowledge of this, and based on that we had to conclude
23 that it was done.

24 So, we have to say this was partially
25 substantiated, this allegation.

1 Based on the results of the interviews and the
2 results of our inspection, we concluded this practice
3 was not widespread.

4 One of the best points to document or
5 demonstrate that this was not an extensive problem or
6 not a widespread problem was, the licensees are required
7 to test, to do destructive testing on Cadwelds that are
8 made, following completion of the Cadwelds. These are
9 randomly selected. The Cadwelder does not know ahead of
10 time - these are called production slices - what slices
11 are going to be tested.

12 The QC inspectors go in and paint or select
13 somehow - usually spray-paint yellow - a sleeve and they
14 go in and cut that out and take it to the testing
15 laboratory and test it to the ultimate strength of the
16 bar, 150 percent of yield, 90,000 psi.

17 These were all successful. They did about a
18 hundred tests, a hundred bars out of 24,000 -- I am
19 sorry, about two-hundred production tests out of 24,000
20 and every one of them passed, no problem.

21 Now, as far as the reshooting of Cadwelds, Mr.
22 Jennings stated that he had done this. We interviewed a
23 lot of people, a lot of Cadwelders, and most of them
24 concluded that they did not know if it was possible.

25 Many of them stated that they thought it would

1 have been very dangerous to do this because what this
2 amounts to -- in the Cadweld process the filler metal,
3 you start out with a bag of powder and pour it into a
4 pot and light it. It is very hot, I guess about 3,000
5 or 4,000 degrees Fahrenheit, the reaction, the process,
6 that is a thermal process.

7 He said this twice and from my understanding
8 of the process and all my colleagues whom I discussed it
9 with and other people knowledgeable, we do not see how
10 this is possible. It would be very limited if it was
11 done at all.

12 The fourth allegation was that the QA records
13 on site are incorrect regarding identification of
14 Cadwelders making specific Cadwelds. One of our
15 requirements is that the Cadwelder who made the splice
16 be identified. We looked into this extensively and this
17 was not substantiated.

18 The best evidence is that the records are
19 adequate and they are correct.

20 The last allegation was that the QC inspection
21 program for Cadwelds was inadequate. A similar
22 allegation was made - and I investigated it - in 1979.
23 During this investigation, the 1979 investigation, this
24 allegation was not substantiated.

25 I re-examined this area extensively during this

1 inspection and once again the allegation was not
2 substantiated. The licensee's QC program for inspection
3 of Cadwelds was adequate and met industry and NRC
4 standards. We really had no problems with what they did.

5 The Bass letter implies that the QC inspection
6 program was inadequate, also.

7 Let me point out, during the inspection that I
8 conducted we had no violations or deviations from our
9 requirements.

10 Another point I will briefly touch on that was
11 raised in the Bass letter concerned a structural
12 acceptance test. One of the requirements on the
13 containment structure is that it be pressurized to 115
14 percent of design pressure - and this is roughly 66 psi
15 - and test it.

16 This test was witnessed at peak pressure by
17 the resident inspector. The test results were
18 acceptable. No unexpected cracking occurred in the
19 containment during the test. The cracks that occurred
20 were small, generally smaller in size than predicted,
21 and the test results compare very favorable with those
22 obtained during structural acceptance tests at other
23 similarly-designed containments.

24 COMMISSIONER AHEARNE: Your conclusion,
25 speaking specifically to the Bass letter, the section he

1 is quoting which implies that there was a crack pattern
2 that did develop and then he goes on to quote the NRC
3 analysis saying, "We have examined these discrepancies
4 and determined they are not significant."

5 MR. LENAHAN: Sir, he left a line out of the
6 statement that he copied, that is one of the problems
7 with that.

8 I think you are talking about the first
9 paragraph on the second page?

10 COMMISSIONER AHEARNE: Actually, the second
11 paragraph, "The NRC staff analysis."

12 MR. LENAHAN: OK, I can't address that. I
13 think there is another gentleman from NRR that can
14 address it as far as the NRC staff analysis. They
15 analyze the results of data, NRR does.

16 COMMISSIONER AHEARNE: I see.

17 MR. LENAHAN: I looked at the test results.
18 As far as the analysis of the data --

19 MR. DENTON: I think Dick Vollmer is prepared
20 to comment on the significance of this.

21 MR. VOLLMER: Are you referring to the stress
22 cracking in the containment under load?

23 COMMISSIONER AHEARNE: Right.

24 MR. VOLLMER: OK, what was stated in the
25 report was that stress cracking away from discontinuity

1 regions was not predicted to occur. Our view, looking
2 at the report, was that that in fact is what happened,
3 there was no cracking away from regions we would
4 consider discontinuities, i.e., a couple of wall
5 thicknesses away from specific discontinuities in
6 structure.

7 So, we feel that the acceptance test indeed
8 showed acceptable performance of the containment under
9 load.

10 COMMISSIONER AHEARNE: The part that he is
11 quoting, "We have examined these discrepancies."

12 MR. VOLLMER: His quote on the second --

13 MR. KANE: This comes from an affidavit that
14 was filed in connection with this issue, which was
15 brought before the Atomic Safety and Licensing Board.
16 It is a staff affidavit.

17 COMMISSIONER AHEARNE: But the discrepancies
18 he is referring to were what?

19 MR. VOLLMER: Well, what I am suggesting is
20 that he is saying there were cracks outside regions of
21 discontinuities. What we are saying is that the cracks
22 that were found - and there were few - were in regions
23 we would call regions of discontinuity and would have
24 been expected. And the cracks did not exist outside
25 those regions which would verify that the performance of

1 the containment was sound.

2 COMMISSIONER AHEARNE: So, you are saying that
3 the reference to discrepancies does not refer to cracks
4 found outside the region of discontinuity.

5 MR. VOLLMER: That's right. I am not sure
6 what quotes you are referring to, I am sorry.

7 COMMISSIONER AHEARNE: Well, in the letter
8 that staff sent to the Licensing Board --

9 MR. VOLLMER: Yes.

10 COMMISSIONER AHEARNE: -- on the second page
11 of this letter, if you look at the second paragraph.

12 MR. VOLLMER: OK, "We have examined these
13 discrepancies?"

14 COMMISSIONER AHEARNE: Yes, it is those
15 discrepancies I was speaking about.

16 MR. KANE: Excuse me, I believe that is from
17 Mr. Kim's affidavit.

18 MR. VOLLMER: That was what I was referring to.

19 COMMISSIONER AHEARNE: Yes, but I was still
20 wondering what discrepancies they were because this is
21 the staff saying, "We have examined it."

22 MR. KANE: I am not sure they are the same
23 discrepancies because I could read from the affidavit
24 which says, "The Intervenor in his August 26, 1982
25 affidavit noted that there was some minor discrepancy

1 between predicted engineering values such as deflection
2 in crack size and the actual measurements during the
3 structural acceptance test. However, we have examined
4 these discrepancies and determined..."

5 So, we are really talking about something else.

6 COMMISSIONER AHEARNE: Yes.

7 MR. KANE: And the other aspect of this Bass
8 affidavit - which maybe you could touch on, Joe - is
9 that I guess it was our feeling that somehow there was a
10 misinterpretation here from his reading of the report,
11 that in fact cracks did occur in some unexpected places.

12 COMMISSIONER AHEARNE: Right.

13 MR. KANE: And the report states in another
14 section that in fact they did not. Further, there is
15 this quote that he has here, it is an incomplete quote.

16 MR. LENAHAN: Let me clarify something on this
17 cracking. We expect cracks to occur, but we measure the
18 cracks in the areas of discontinuity where the major
19 cracking is expected to occur.

20 On an unreinforced concrete containment you
21 will see cracks every five feet, almost parallel,
22 throughout the total height of the cylinder. But the
23 major cracking occurs in areas of discontinuity and this
24 is, I think, the point of attachment to the foundation,
25 the cylinder, the containment cylinder wall to the base

1 mat, at the ring girder, on the apex of the dome, around
2 the equipment hatch.

3 This is where we require a crack mapping be
4 performed. We have as regulatory guide on that that
5 specifies the methods we use and the areas to be
6 monitored, minimum areas.

7 So, it is, I think, a misquote or a
8 misunderstanding of the technical report the gentleman
9 read.

10 CHAIRMAN PALLADINO: Any more?

11 MR. LENAHAN: I think - to make one more
12 statement regarding my investigation - I guess based on
13 a review of all the information we looked at during the
14 inspection of the allegations and other previous
15 inspections that Region 2 conducted, and reviewed by the
16 NRR Structural Engineering Branch, we had no concerns
17 regarding the containment meeting this performance
18 design function.

19 CHAIRMAN PALLADINO: There were also
20 allegations of some --

21 MR. O'REILLY: Yes, sir, that was extensively
22 discussed in the hearing and we are prepared to discuss
23 it further, if you would like.

24 CHAIRMAN PALLADINO: Does anybody want to hear
25 it discussed?

1 MR. O'REILLY: Yes?

2 CHAIRMAN PALLADINO: In one sentence. It is
3 not a problem?

4 MR. O'REILLY: No, it is not a problem. Thank
5 you.

6 (Laughter.)

7 CHAIRMAN PALLADINO: Now, let's see, we have
8 the security allegations.

9 MR. O'REILLY: Yes, sir.

10 CHAIRMAN PALLADINO: I guess for that we will
11 have to close the meeting. I am sorry that we have to
12 do that, but we will.

13 So, while we have people adjourn to the outer
14 halls, we will take a five-minute recess.

15 COMMISSIONER GILINSKY: We will then
16 re-adjourn here?

17 CHAIRMAN PALLADINO: Then we are going to come
18 right back, yes.

19 (Whereupon, at 4:30 p.m. the Commission
20 proceeded in closed session until 5 o'clock p.m.)

21 CHAIRMAN PALLADINO: Please come to order. We
22 are resuming our meeting on the deliberation for full
23 power license amendment for Summer Unit 1.

24 At this time, I would like to ask the
25 Commissioners if they have any other questions that we

1 ought to raise at this time.

2 COMMISSIONER GILINSKY: I just have a comment
3 again, as I commented this morning. I was pleased to be
4 able to say I have visited the plant we were discussing
5 this morning and say that I felt well with the utility
6 and the way it was approaching its responsibilities.

7 I am saying, this is true here. I visited the
8 plant with Mr. O'Reilly and came away favorably
9 impressed, both with the competence of the utility and
10 with the way they are approaching their responsibilities.

11 CHAIRMAN PALLADINO: I think others also
12 visited it. I have visited the plant. Did you visit
13 the plant? I am not sure who else did.

14 At this time, I would like to see if the
15 Commissioners are ready to vote. The proposal would be
16 to vote on, do we agree to authorize the staff to lift
17 the five-percent restriction on this license, in
18 accordance with the conditions set forth in the
19 licensing amendment and related documents.

20 All those in favor say aye.

21 COMMISSIONER AHEARNE: Aye.

22 COMMISSIONER GILINSKY: I vote in favor. I
23 would like to say, though, that I think it would be a
24 good idea that we have a full-scale exercise, an
25 emergency planning exercise, next year on this plant.

1 But I do, I vote in favor of the full power
2 license.

3 CHAIRMAN PALLADINO: All right.

4 COMMISSIONER ROBERTS: I vote for it. I
5 question the ability of the utility to determine these
6 cracks.

7 (Laughter.)

8 CHAIRMAN PALLADINO: To determine what?

9 COMMISSIONER ROBERTS: I wish them lots of
10 luck.

11 CHAIRMAN PALLADINO: Determining what, now?

12 COMMISSIONER AHEARNE: To determine the cracks.

13 CHAIRMAN PALLADINO: Oh, yes. Well, we will
14 seek more information on that as a generic issue.

15 I vote aye, and therefore none are opposed, or
16 none is opposed.

17 COMMISSIONER AHEARNE: And Commissioner
18 Asselstine votes aye?

19 CHAIRMAN PALLADINO: Commissioner Asselstine
20 had to leave. His comment was, "I have no objection to
21 the Commission voting on this issue today." I don't
22 know how he stands, although I could guess.

23 Is there anything further that should come
24 before us at this time on this issue?

25 All right, if not, we will stand adjourned.

1 We thank everyone for their presentation.

2 (Whereupon, at 5:05 p.m. the Commission
3 adjourned.)

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NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

COMMISSION MEETING

in the matter of: DISCUSSION/POSSIBLE VOTE ON FULL POWER OPERATING
LICENSE FOR SUMMER-1

Date of Proceeding: November 12, 1932

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.

M. E. Hansen

Official Reporter (Typed)

M. E. Hansen

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Meeting Title: Dis/Pass Vote on Full Power Operating License for Summer-1

MEETING DATE:

11/12/82

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