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ORIGINAL
UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of:

DISCUSSION/POSSIBLE VOTE ON FULL POWER
OPERATING LICENSE FOR SUSQUEHANNA-2

Location: Washington, D.C. Pages: 1 - 84

Date: Thursday, May 24, 1984

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PDR 10CFR
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
DISCUSSION/POSSIBLE VOTE ON FULL POWER OPERATING
LICENSE FOR SUSQUEHANNA-2
PUBLIC MEETING

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

Thursday, May 24, 1984

The Commission met, pursuant to notice, at
2:00 p.m.

COMMISSIONERS PRESENT:

NUNZIO PALLADINO, Chairman of the Commission
THOMAS ROBERTS, Commissioner
JAMES ASSELSTINE, Commissioner
FREDERICK BERNTHAL, Commissioner

STAFF AND PRESENTERS SEATED AT COMMISSION TABLE:

E. CHRISTENBURG
R. STAROSTECKY
T. MURLEY
R. PURPLE
B. KENYON

AUDIENCE:

T. NOVAK
H. THOMSON

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PROCEEDINGS

CHAIRMAN PALLADINO: Good afternoon, ladies and gentlemen. The Commission is meeting this afternoon regarding the full power authorization of Susquehanna Unit No. 2.

On March 23, 1984, the staff issued a license authorizing the facility to operate at power levels not exceeding 5% of full design rating. I understand that the plant will soon be ready to exceed 5% and continue with the power ascension program.

According to the background information sent to the Commissioners, the staff is ready to recommend that Operation Full Power be authorized. Therefore, at the end of today's meeting, I will be asking the Commissioners to vote on whether or not to approve the recommendation; however, before taking -- asking for that vote, I would like OGC's comments on financial qualifications insofar as this issue pertains to the Susquehanna-2 decision.

Are there any additional remarks before we begin?

COMMISSIONER ASSELSTINE: I'd just add that I'm glad you brought up the financial qualification question because I think that's one we have to address.

1 CHAIRMAN PALLADINO: Okay. Any other
2 comments? Well, then, let me turn the meeting over
3 to Bob Purple.

4 MR. PURPLE: All right. Thank you very
5 much. The outline of our presentation today is as
6 shown on the viewgraph on the wall. As is traditional,
7 we'll break it into two pieces, where I will give
8 you some of the background, the status, and the
9 schedule items as well as a couple of selected review
10 topics. Tom Murley and Rick Starostecky from
11 Region 1 will talk about operating experience of this
12 applicant, both at Unit 1 and on Unit 2.

13 The applicant is here today and is prepared
14 to speak to the Commission or answer any questions
15 the Commissioners may have, and they would welcome
16 that opportunity.

17 I was going to mention myself financial
18 qualification as an issue the Commissioners need to
19 consider. Briefly, the -- as I understand, the
20 background to remind you of what we had presented
21 when we were here on that financial qualification
22 subject two weeks ago, Susquehanna is one of the plants
23 where there had been a contention raised on financial
24 qualifications, and the contention was litigated in
25 the hearing process, but prior to the Board issuing

1 its decision, the 1982 Rule came out; therefore, the
2 Board didn't reach an initial decision on the litigated
3 issue.

4 It's my understanding that the issue that
5 was litigated was not the broad subject of financial
6 qualification but a relatively narrow subject
7 related to the ability to finance the decommissioning
8 needs, but beyond that, I don't know any details on
9 it.

10 CHAIRMAN PALLADINO: Well, I thought that
11 one was, was resolved favorably. It was the other
12 one where the contention was that --

13 MR. PURPLE: I'll, I'll pass.

14 CHAIRMAN PALLADINO: -- if that's -- my
15 information is incorrect. Let's see if I can find
16 it.

17 MR. CHRISTENBURG: Mr. Chairman, there was
18 health effects aspects of the, the decommission which
19 the Board did go ahead and, and resolved, but
20 indicated dropped a footnote, said in light of the,
21 the March 30th, --

22 CHAIRMAN PALLADINO: The financial rule.

23 MR. CHRISTENBURG: -- March rule, financial
24 qualification rule, they wouldn't resolve the rest
25 of contention 9(b).

1 CHAIRMAN PALLADINO: Yeah, okay. The note
2 I got from my legal assistant is the contention
3 was to the effect that the applicant is not financially
4 qualified to decommission the plant, excuse me.
5 A related contention concern, decommissioning costs
6 and the need for cost benefit balance. The Board
7 resolved that contention in the applicant's favor.
8 So, I stand corrected.

9 MR. PURPLE: With that, we'll go to
10 viewgraph No. 3. We'll come back to financial
11 qualifications.

12 CHAIRMAN PALLADINO: Yes.

13 MR. PURPLE: We'll want to discuss it with
14 -- well, the key items here I think is more importantly
15 at the bottom of the chart, showing you the Unit 2
16 status and schedule. As the Chairman mentioned,
17 the low power license was issued near the end of
18 March of this year. The viewgraph shows the schedule
19 of events since that time. You might note that the
20 applicant anticipated schedule for these events.
21 They've beaten that schedule.

22 For example, by having their initial
23 criticality on May 8th, I'm advised that that's 13
24 days ahead of their schedules. So, they apparently
25 have done well in their initial start-up.

1 The viewgraph shows ready to exceed 5% power
2 on May 28th. Since we prepared that viewgraph, that
3 date has slipped some. The best guess right now
4 is that they would actually be ready to pass through
5 5% in their start-up program on the week of 4-6
6 June.

7 It would be our intent with the Commissioner's
8 vote today to approve the full power authorization,
9 that we would issue that authorization in time to
10 not hold up the license from proceeding to that 5%
11 but to let them get through a little bit more of the
12 start-up test program that they haven't gotten
13 through yet because of some difficulties with the
14 valve. And we would watch it very closely and be
15 sure that we issue the authorization in time not
16 to preclude an orderly start-up in power.

17 Selected review items. We'll go on to
18 viewgraph No. 5.

19 COMMISSIONER ASSELSTINE: But that looks
20 like the first week in June, Bob?

21 MR. PURPLE: Yes, the first week in June
22 is, is the best guess right now. Because of our
23 current interest in shift staffing and experience
24 and hot operating experience, we've decided to
25 include that in the briefing for Susquehanna-2 today,

1 Susquehanna-2 being a second unit, of course, has
2 a rather large advantage because they have a crew of
3 people there that are already operating a sister
4 unit. And as a matter of fact, all of their operators
5 are cross trained on both units.

6 The first bullet here showing 5 shift
7 operation is correct for today and through their
8 start-up ascension program. The applicant's intent
9 is to operate normally on a 6 shift basis and they
10 have the people to do it. They're doing 5 shift
11 now because they feel that makes more sense during
12 the start-up operation when there is a lot more
13 activity going on. They have more people on shift.
14 And they would intend to, toward the end of this
15 year as they end their start-up test program, power
16 ascension program, to revert or convert to a 6 shift
17 operation.

18 The staffing needs are the minimum required
19 needs, that bullet that shows 2 SROs, 3 ROs and 1
20 Shift Technical Advisor. If you look at the number
21 -- the numbers down below at the bottom of the slide,
22 you will see that, that even as of today, they have
23 sufficient people to man a 6 shift operation if they
24 chose to. And they will choose to once they get
25 through the start-up test.

1 I believe we have a typographical error on
2 that slide. That auxiliary unit supervisor, that
3 word should be assistant unit supervisor in both
4 places. The two -- the fourth and fifth entry at
5 the bottom bullet where it says auxiliary unit
6 supervisor, that is a mistake.

7 UNIDENTIFIED SPEAKER: What should it say?

8 MR. PURPLE: Assistant unit supervisor.

9 On the next viewgraph, we show the shift staffing and
10 experience level of those people referred to on
11 the previous chart. The key column being that on
12 the right hand which shows the number of types of
13 license, the personnel that have six months or more
14 of hot operating experience. Notice that all of
15 the shift supervisors do and most of the other
16 control room supervisors and plant control room
17 operators do have more than six months operating
18 experience. I'm sure that the bulk of that is
19 from operating Unit 1.

20 COMMISSIONER ASSELSTINE: Could you talk
21 a little bit more detail -- in detail about what the
22 -- what that -- the experience is for those 17
23 people? How many of them have had at least six months
24 experience in operating Unit 1? How many of them
25 have prior operating experience at a similar plant --

1 MR. PURPLE: As opposed to Unit 1?

2 COMMISSIONER ASSELSTINE: -- somewhere
3 else. Yeah.

4 MR. PURPLE: I don't have that information
5 myself. Let me see if someone here does. We can
6 ask the licensee, as well, --

7 COMMISSIONER ASSELSTINE: Okay.

8 MR. PURPLE: -- if that's --

9 MR. THOMSON: Hugh Thomson, NRC staff.

10 We did not do a complete reevaluation of the Unit 1
11 experience level. We did when we licensed Unit 1,
12 required them to have operating experience on each
13 shift. At that time, they went from 5 shift, I
14 believe, to 4 shift operation in order to obtain
15 experience to operators on each shift from their own
16 staffing. They did not use advisors per se.

17 And, so, I could -- I would tend to say
18 that they had four senior operators on each shift
19 with previous operating experience outside or beyond
20 the Unit 1 operation. So, they -- currently, though,
21 all of their operators are duely -- duely licensed.
22 Most of that -- most of their experience is on the
23 Unit 1 facility.

24 COMMISSIONER ASSELSTINE: Maybe the
25 licensee when it gives its presentation could highlight

1 the, the individual experience of those 17 people.

2 MR. PURPLE: Okay, sure. The bottom line
3 of this chart was -- had shown that the staffing
4 experience, in our view, certainly meets and exceeds
5 the industry recommendations for such operating
6 experience.

7 The second item of selected review items
8 that I was going to talk about is the technical
9 specifications for this station. It's viewgraph No. 7
10 which is on the wall. We did receive from the
11 applicant, the licensee, their certification that
12 the technical specifications are consistent with
13 the FSAR and the as-built plant. Remembering that
14 this is a second unit, the Unit 2 tech specs were
15 based upon the Unit 1 tech specs and changed where
16 needed and where it was felt that it made more
17 sense to change the tech specs, that is, to improve
18 them. And I will talk about that at some length.
19 Let me pass by that, and I will come back.

20 CHAIRMAN PALLADINO: Okay. I was going
21 to ask you a --

22 MR. PURPLE: Yeah.

23 CHAIRMAN PALLADINO: -- question about
24 the quantity and nature of the differences.

25 MR. PURPLE: Yes. I'll, I'll come back

1 to that in just a minute. Let me go on through
2 what's here.

3 The -- what differences did exist, the
4 licensee has conducted training of the shift people
5 so that they are trained in the differences between
6 the tech specs that exist today between Unit 1 and
7 Unit 2.

8 I might add that at this point I'll say
9 it, and I'll probably repeat myself in a minute, but
10 with respect to those differences that exist, we
11 have received on the 18th of May a very hefty
12 application for amendment to the Unit 1 tech specs
13 which we intend to process very quickly, which will
14 eliminate essentially all of the differences between
15 Unit 1 and Unit 2 where it makes sense to eliminate
16 the differences. If you have a design difference,
17 you can't -- you're bound to have a difference.

18 CHAIRMAN PALLADINO: So, are you saying
19 the tech specs for Unit 1 were -- out wrong or
20 --

21 MR. PURPLE: No. Let me -- if I may
22 come back to that in just a minute, but I wanted to
23 mention that although there are differences, I
24 simply wanted to make the point that they won't
25 last for long. We do have an application in hand

1 which eliminates any of the differences between the
2 two. I will come back in just a minute to how those
3 differences came about and why they're there, if
4 I might.

5 What I'd like to do, if I may, just go
6 on to the bottom of this slide to talk about the
7 general quality of the tech specs and the, the
8 extra efforts that the staff took to insure that in
9 light of the experience that we had at Grand Gulf
10 as we had done on several recent licenses.

11 We did conduct two kinds of separate
12 independent audits. One of them performed by
13 EG&G of Idaho, comparing selected portions of the
14 tech specs, between the tech specs and the FSAR and
15 the Safety Evaluation Report. And I'll talk about
16 the results of that.

17 Similarly, under the guidance and direc-
18 tion of Region 1, Franklin Research Center performed
19 an audit of the tech specs concurred in the as-built
20 plant for certain other selected systems in the
21 plant.

22 The bottom line of those two audits were
23 that there were no significant discrepancies and no
24 indication of a wide spread problem in the accuracy
25 or quality of the tech specs.

1 CHAIRMAN PALLADINO: No significant
2 discrepancies between the tech specs as compared to
3 the plant as-built --

4 MR. PURPLE: Both.

5 CHAIRMAN PALLADINO: -- or no significant
6 differences between Unit 1 and Unit 2?

7 MR. PURPLE: No, no significant differences
8 -- discrepancies between the tech specs and the
9 as-built plant, the FSAR or the SER. It didn't --
10 none of these audits looked into any differences
11 between the two units in, in particular.

12 CHAIRMAN PALLADINO: Oh, I see.

13 MR. PURPLE: This was just to look at the
14 unit to -- and say, hey, do we have the right tech
15 specs or don't we?

16 CHAIRMAN PALLADINO: And you're going
17 to cover the nature of some of these differences?

18 MR. PURPLE: Of the discrepancies? Yes,
19 and, and of the differences between Unit 1 and Unit
20 2. We have two topics running here.

21 If you would take -- if you would take the
22 two unit tech specs -- let me talk about the
23 difference between Unit 1 and Unit 2, and there's no
24 viewgraph here to cover what I'm about to say.

25 If you lay the Unit 1 tech specs as they

1 exist today alongside of the Unit 2 tech specs and
2 simply start flipping pages and everywhere you found
3 the difference between the two tech specs, you said
4 that's, that's a -- that's a change on a page between
5 the two. Out of a tech spec that has something like
6 close to 500 pages, about half of them would have a
7 change on it. They'd be different one way or another.

8 We've tried to analyze those. Now, it may
9 be that six of those pages may be the same word change.
10 There's changes in these tech specs that are like
11 changing the spelled out word O-N-E and putting in
12 the Arabic Numeral I, that kind of thing. That may
13 appear on six or eight pages, and I'd still count
14 that as being six pages that are different.

15 We tried to and the applicant, the licensee,
16 tried to characterize the changes in some kind of
17 percentages. And if you think about it for a minute,
18 you can see it's very difficult to do. How do you
19 count those kind of changes like the example I
20 just gave? So, you can count it a number of
21 different ways.

22 The -- generally speaking, the differences
23 -- if you take them in percentages, first we put
24 them in the four kinds of bins. There are some
25 that are purely administrative, like the example I

1 just gave. It simply changes from a an alpha word
2 to a numeric word or a typographical error. There
3 was no point in repeating a typographical error
4 in the Unit 2 tech specs. So, they corrected it,
5 but the Unit 1 one hadn't yet been changed. So,
6 that became a difference.

7 In that class, that amounts to about
8 40% of all the changes, are purely administrative.
9 Between the issuance of the Unit 1 license and the
10 Unit 2 license, the Commission issued a revision to
11 Part 72/73 reporting requirements which had in it
12 the requirement or the statement that you don't need
13 to put any of these things in tech specs anymore
14 because they're in the regulations.

15 Well, reporting requirements were sprinkled
16 throughout the Unit 1 tech specs because they were
17 required to at the time that license was issued.
18 They weren't required to in Unit 2. So, therefore,
19 you have a lot of pages you've generated now that
20 are different. That amounts to 12% of the -- of
21 the changes.

22 Between the two units, you do have
23 differences in design. There are some differences
24 in design. They are sister units, but when you get
25 down the details as they progressed in the design of

1 Unit 2 and Unit -- between Unit 2 and Unit 1,
2 certain things came out differently. For those,
3 you obviously have changes. Your, your valve types
4 are different. Your calibration levels may be
5 different and so forth for equipment they selected.
6 That amounts to about 13, 13%.

7 Those, of course, where there are design
8 differences would likely never to change. In
9 some cases, those design differences are things
10 that were put in place for Unit 2, like PMI-1
11 requirements of some kind that ultimately will get
12 caught up on Unit 1, at which point when they change
13 the system, it may be they'll put in the same
14 equipment. Then it won't be. They'll -- the tech
15 specs for Unit 1 would then be changed and there
16 wouldn't be a difference. But generally speaking,
17 that 13% will probably always stay different because
18 you have different equipment.

19 The last category which amounts to 35%,
20 you would characterize as technical changes. These
21 are changes that -- an example, first of all, they'd
22 be changes that came about because of changes to the
23 standard tech specs as time went by. Standard
24 tech specs are modified as new generic requirements
25 come out, as USIs are resolved. Many times the

1 resolution of a USI or a generic issue is that we've
2 got to do something new. And one thing we have to
3 do is change the SR -- the standard review plan as
4 well as change the standard tech specs.

5 So, that as time went by, the standard
6 tech specs were somewhat different for the two units
7 and, of course, we used the latest standard tech
8 spec in issuing -- in preparing the Unit 2 tech,
9 tech specs.

10 Other type of technical changes besides
11 that would be things where they found in Unit 1 that
12 there was a tech spec that -- one example that comes
13 to mind is a, a time requirement on doing something
14 when you have a rather low probability event. They
15 learned, upon studying that more carefully and we
16 learned, I guess, in developing the STS as well,
17 that that time requirement couldn't possibly be
18 met. And that time was changed. So, in Unit 2,
19 we used the longer time interval. It still exists
20 as a shorter time interval in Unit 1, but I'm sure
21 that's part of the application that we now have in
22 hand to change Unit 1.

23 So, that's, that's the breakdown. We,
24 we would characterize them in four groups. We would
25 prefer to be issuing this full power authorization

1 for Unit 2 in a situation where both tech specs
2 were absolutely identical.

3 The licensee can speak to this. I spoke
4 to him when I was at the site before about these
5 differences. Their -- they thought about this.
6 Concerned about it. That's why they had a training
7 program for the crews. They're convinced and we
8 were convinced that, that given that they had a
9 program afoot to bring Unit 1 up to Unit 2 in a
10 reasonably short period of time, and as I say, they
11 have made application for that, that there really
12 is no safety significance to these differences. The
13 operators are trained. They understand the
14 differences.

15 It's difficult to be in a position for
16 a second unit at the time you're going to issue the
17 full power license or certainly the low power license
18 even, even worse, to have in conformance the first
19 unit tech specs because you're evolving these tech
20 specs quite often right up until the last minute,
21 literally days before you issue the license. And
22 any change -- any last minute thing you do on that
23 second unit may cause a difference to exist between
24 Unit 1. And then you catch up as rapidly as you
25 can.

1 CHAIRMAN PALLADINO: Well, I would gather
2 that about 65% of these or close to them will be
3 eventually the same?

4 MR. PURPLE: I think if my arithmetic --

5 CHAIRMAN PALLADINO: I'm sorry --

6 MR. PURPLE: All but 13%, 87 --

7 CHAIRMAN PALLADINO: All but 13%, yeah --
8 I'm sorry.

9 MR. PURPLE: All but 13% would be very
10 -- within a -- within a few months will be the same
11 because they have made application now, as I say,
12 for the -- for Unit 1 to bring it into conformance.
13 So, --

14 CHAIRMAN PALLADINO: Is it -- is there a
15 frequent change, of interchange of personnel among
16 the two -- between the two units? What I'm getting
17 at, if a person is assigned to a particular unit
18 and stays there awhile, he gets familiar with his.
19 Then if he goes over to the other plant and he's
20 going to be there for awhile, he gets familiar
21 with those, but if you're -- if you're jumping back
22 and forth, week to week, or something like that, it
23 might be pretty hard to remember what the differences
24 are.

25 Is, is there a plan to interchange these

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1 -- often?

2 MR. PURPLE: I guess that I would defer
3 that to the licensee to ask because I don't know
4 that detail, whether they have plans for that. Do
5 you want to ask them now or --

6 CHAIRMAN PALLADINO: Yeah. I just as soon
7 get the answer to that --

8 MR. PURPLE: Sure.

9 CHAIRMAN PALLADINO: -- now, and then we
10 can --

11 MR. PURPLE: Sure.

12 CHAIRMAN PALLADINO: Do you have a
13 question, Bruce?

14 MR. KENYON: I'm Bruce Kenyon, Vice
15 President, Nuclear Operations for Pennsylvania Power
16 and Light. We have a common control room and, thus,
17 the shift supervisor and the control room supervisor
18 are managing the station's activities for both
19 units. We are currently operating with four
20 reactor operators, nominally two assigned to each
21 unit, but they are frequently rotated, I would say
22 roughly once a week. They will shift from one unit
23 to the other.

24 So, it's our intention to maintain all
25 of our operating personnel, fully cognizant of the

1 requirements on both units and move them back and
2 forth frequently.

3 CHAIRMAN PALLADINO: So, it does become
4 important for them to be quite familiar with the
5 differences in specs, at least --

6 MR. KENYON: That's right.

7 CHAIRMAN PALLADINO: -- to the extent
8 that their --

9 MR. KENYON: Our, our training programs do
10 that. They are in -- they are in a training program
11 once every five weeks, and we use the requalification
12 training as an opportunity to make sure that the
13 differences are understood.

14 CHAIRMAN PALLADINO: Okay. Thank you.

15 MR. PURPLE: That was all I intended to
16 say about the differences between Unit 1 and Unit 2
17 tech specs as they exist today. I'm prepared with
18 respect to these audits we did of the Unit 2 tech
19 specs with a little help from behind me to go into
20 any great detail you might want on the kinds of
21 things that were found in the way of different
22 discrepancies or whatever word is proper during
23 these audits.

24 I can -- as a bottom line, both groups --
25 no, I'm sorry. The EG&G review -- the EG&G review,

1 the contractor himself did not try to draw a bottom
2 line. He simply said, I note that the FSAR says one
3 thing, the tech spec says another. That --

4 CHAIRMAN PALLADINO: May I have some
5 examples of --.

6 MR. PURPLE: Yes, sir.

7 CHAIRMAN PALLADINO: It may help/understand
8 the significance.

9 MR. PURPLE: One would be the, the water
10 volume, the maximum water volume in the suppression
11 pool. The FSAR number for the maximum water volume
12 in the suppression pool was one number, and the tech
13 spec was a different number. So, they identified
14 that.

15 It turns out --

16 CHAIRMAN PALLADINO: Yeah, how significance
17 a difference?

18 MR. PURPLE: 1900 cubic feet. It was
19 enough that we were going to change the, the FSAR.
20 It turns out the tech spec was correct, as we look
21 into it -- I mean why are these numbers different
22 when you then -- just given that finding which is
23 all the contractor did was say I note that these
24 numbers are different.

25 It turns out that the FSAR was based on

1 a preliminary number and had never been brought up
2 to date, the FSAR having been written several years
3 before the tech specs were -- the tech spec number
4 was based on the, the actual numbers used in the
5 calculations and was correct.

6 The indicated action is that the licensee
7 will in his annual update of the FSAR correct the,
8 correct -- change the preliminary number in the FSAR
9 to be the actual number. So, in this case, it's
10 an example of where the tech spec was, was perfectly
11 correct but the contractor looking through had no
12 way of telling that. He simply said there was a
13 difference.

14 CHAIRMAN PALLADINO: I gather that didn't
15 lead to any significant change in either the analysis
16 --

17 MR. PURPLE: No.

18 CHAIRMAN PALLADINO: that they were
19 involved --

20 MR. PURPLE: No, because the analysis --
21 no, the tech spec was based on the number used in
22 the analysis, and it turns out that the FSAR number
23 where they were looking at it was just a preliminary
24 number. It was not the one actually used in the
25 safety analysis.

1 It's some of those kinds of things.

2 Another example where they would know
3 the difference, the diesel fuel oil tank capacity.
4 The FSAR had one number. They look in the tech
5 spect, they find a different number. So, the
6 contractor would say, that's a discrepancy.

7 We go to look at it more carefully and
8 find that, well, what's, what's in the FSAR is a
9 design number for the size of the tank, and the tech
10 spec is the number, the minimum amount that has to
11 be in the tank in order to declare the diesel
12 generators operable. Those two numbers should be
13 different and were.

14 It's that kind of thing. Now, there
15 were some, some changes -- some discrepancies like
16 the first one I mentioned, where having brought to
17 the licensee's attention, he may have found that
18 himself, but since we found it and brought it to
19 his attention, he would correct the FSAR.

20 There were some that would cause --
21 a chain that caused the change to the -- to the
22 technical specifications themselves. In some of
23 those cases, those changes were already in process
24 in the dialogue, the normal dialogue between our
25 tech spec review group and the applicant outside of

1 the context of this separate contractor review.

2 Out of all the systems, the -- for
3 example, EG&G's look which was comparing the tech
4 specs to the FSAR, they looked at 24 sections of
5 the tech specs; and I'm not sure how many pages
6 that is, but that's a lot of items, 24 sections,
7 including emergency cooling systems, containment
8 systems, electric power systems. It's very healthy
9 section of the tech specs.

10 By the time they narrow it down to all
11 of their noted discrepancies, they were talking eight
12 items, and I've given you two or three examples
13 of the kinds of items these were. There were similar
14 kinds of conclusions from the -- from the Franklin
15 Research --

16 CHAIRMAN PALLADINO: I'm satisfied --

17 MR. PURPLE: Okay.

18 MR. BERNTHAL: I guess I -- what I'd be
19 more interested in hearing, I don't need much in
20 the way of example or words, I guess, but the
21 Chairman's question in a slightly different way.
22 And when you look at all the tech spec discrepancies
23 and changes, can you pick out one or two that you
24 consider to be the most important or significant?
25 And are those, in fact, the ones you've just told

1 us about or --

2 MR. PURPLE: Well, I didn't think of it
3 that way. Give me a moment here.

4 (PAUSE)

5 MR. BERNTHAL: I mean one or two on the
6 top ten is fine. You don't need --

7 UNIDENTIFIED SPEAKER: The statement that
8 no significant --

9 MR. PURPLE: Yeah. It's kind of hard to
10 -- it's kind of hard to take down the next set and
11 pick out --

12 MR. BERNTHA: I'm just trying to get a
13 sense for what we're talking about here. Is a class
14 of thing we're talking about the number of gallons
15 in the suppression pool and the fuel tank or is
16 there a class that has a more significant ring to
17 it than that?

18 MR. PURPLE: Not a class because we're
19 really -- I said there was about eight items that
20 were found in all that the EG&G people looked at.
21 And out of the Franklin, there was really only one
22 with a few recommendations. That one that was
23 uncovered in the Franklin effort, and maybe I could
24 ask Richard to fill this one in, had to do with
25 the lack of quantitative criteria for limits which

1 setting.

2 There are criteria in the FSAR and not
3 in the tech specs, and I guess there's some difficulty
4 in applying those criteria and something needs to
5 be changed. That, I think, has gotten itself
6 resolved now, but we're --

7 MR. STAROSTECKY: If I can address that
8 later, but from my perspective in the region, --

9 CHAIRMAN PALLADINO: Yes.

10 MR. STAROSTECKY: -- the answer is the
11 equipment and the hardware that's installed is
12 reflected in the tech specs, and we found time to
13 get into other areas like the limits switch settings
14 on the vacuum breakers. And I can address that later
15 to give you a feel for what's involved, but it's,
16 it's a good issue that has been overlooked for
17 mark 2 containments (Phonetic) generically, and it's
18 going to get resolved.

19 It's a straightforward matter, that people
20 have the time to find it, but there is agreement
21 between what's in the plant and what the tech specs
22 require.

23 MR. PURPLE: That concludes what I had
24 prepared to speak. I'd like to turn the meeting over
25 to Tom Murley.

1 COMMISSIONER ASSELSTINE: Well, before you
2 do that, --

3 MR. PURPLE: Yes.

4 COMMISSIONER ASSELSTINE: -- I had a
5 couple of questions on the license.

6 MR. PURPLE: Okay.

7 COMMISSIONER ASSELSTINE: When I looked
8 at the draft of Supplement 7, the SER, there was a
9 statement on Page 1-2 under license conditions.
10 There was one issue for which a condition was included
11 in operating license NPF-22, which required satisfactory
12 resolution prior to exceeding 5% rated power.
13 Current status and section in which the staff
14 evaluates this issue is shown below. You list the
15 issue and you state that the status is resolved.

16 MR. PURPLE: There are more than one.

17 COMMISSIONER ASSELSTINE: Okay. So, that
18 was my question --

19 MR. PURPLE: So there are more than one
20 but only -- there's about three license conditions
21 plus a few of the confirmatory items in the attach-
22 ments of the basic license that refer to 5% power.

23 All of the others except this one are
24 simply confirmatory kinds of things. In other words,
25 the region goes and confirms that something was done.

1 It's not an evaluation that needs to be done.

2 I worried about this myself when I saw the
3 wording. I said, my goodness, this says there's only
4 one, and there's really a half a dozen. What we
5 meant in this SER was one that requires an evaluation
6 in an SER. The rest are confirmatory and have been
7 closed, either closed by confirmation from the
8 region or confirmation from the licensee in a letter
9 to us.

10 COMMISSIONER ASSELSTINE: Okay. So, I
11 can assume that for all of these other items that
12 were included in Enclosure 3, the license package,
13 that all of those items have been done?

14 MR. PURPLE: All that needed to be done
15 before -- yeah, before going to full power.

16 COMMISSIONER ASSELSTINE: So, qualifica-
17 tion and documentation, ERC, AIC back-up power
18 supply and invertor and all those other items have
19 been done?

20 MR. BDO: And that would include --
21 there are a number of others in there. I noticed
22 that were, were also prior to initial criticality
23 and I assume all of those have been done, as well.

24 MR. PURPLE: Yeah.

25 MR. PERCH: My name is Bob Perch. I'm

1 the Licensing Project Manager. All the items that
2 are listed as initial -- prior to initial criticality,
3 or prior to 5% have been closed out, either via
4 confirmation from the resident inspector or by letter
5 from the applicant confirming that those items are,
6 in fact, complete.

7 COMMISSIONER ASSELSTINE: Good. Thank
8 you.

9 CHAIRMAN PALLADINO: Can I ask a question
10 on fire protection. I think this comes under your
11 -- in SSEK-1 on Page 9-2, your staff indicates that
12 the licensee had committed to do certain -- regarding
13 your appendix (Phonetic) -- however, then the staff
14 says in the same section, upon completion of these
15 modifications, we conclude that the Susquehanna
16 Units 1 and 2 fire protection programs will meet
17 the, the intent of Appendix R.

18 And I guess I'm still confused as to when
19 we pick the intent and when we pick the letter of
20 -- the meeting or letter of Appendix R. Could you
21 explain what's meant by the intent here and why
22 we applied intent here and not to other reactors?

23 MR. PURPLE: I'll have to say, no, I
24 can't, but let me see if there's someone in the room
25 who could.

1 CHAIRMAN PALLADINO: -- Division of
2 Engineering for Tom.

3 MR. NOVAK: Tom Novak of the staff. I'll
4 offer one, again, sir.

5 MR. PURBLE: What's that?

6 MR. NOVAK: That is that these plants,
7 Susquehanna Units 1 and 2, are not required to meet
8 Appendix R regulation. This is a case where as an
9 NTOL, one, we look at the Appendix R plus the other
10 requirements that we think are necessary for an NTOL
11 plant.

12 So, I think the statement here is intended
13 to say it meets the intent of Appendix R, but that
14 may not be the only criteria upon which we would
15 judge the acceptability of the fire protection plan
16 for this unit.

17 CHAIRMAN PALLADINO: Then aren't we
18 requiring the letter of the law on operating with
19 -- operating licenses?

20 MR. NOVAK: Well, this is -- I think we've
21 talked about this before. My understanding is --

22 CHAIRMAN PALLADINO: Well, it's a totally
23 confusing matter to me.

24 MR. NOVAK: And I don't think I can do
25 any better than the people who have tried it before,

1 sir. If it -- if it were the -- as we look at
2 operating reactors that -- where their operating
3 license clearly falls under Appendix R, then the
4 statement would be --

5 CHAIRMAN PALLADINO: No, I, I understand
6 we have on several occasions, I've heard it said here,
7 oh, yes, we're resolving the Appendix R questions,
8 and it was one of the reactors where according to our
9 rule or order, it didn't have to be. And now we
10 come along with one where we talk about meeting the
11 intent.

12 Maybe I shouldn't beat that horse here today,
13 but it's one on which I think we need to have some
14 clear and reasonably consistent approach.

15 Well, thank you anyhow, Tom.

16 UNIDENTIFIED SPEAKER: I think we-- I
17 think we don't have the right people to attempt to
18 give you that clear story here today.

19 CHAIRMAN PALLADINO: Well, it does --

20 UNIDENTIFIED SPEAKER: We certainly can
21 do that, yeah.

22 CHAIRMAN PALLADINO: Okay.

23 COMMISSIONER ASSELSTINE: We are going to
24 have a meeting on fire protection, right, fairly
25 soon?

1 CHAIRMAN PALLADINO: We have agenda
2 planning coming up this afternoon.

3 COMMISSIONER ASSELSTINE: Yeah.

4 CHAIRMAN PALLADINO: Okay.

5 MR. PURPLE: Okay, Tom.

6 MR. MURLEY: We're going to talk from
7 the region's perspective of the basis why we have
8 confidence that the plant can be operated safely.

9 I'd like to start out with a few words
10 about the management. We believe that PP&L is a
11 very well managed company, and it's not often that
12 we sit around this table and are able to, to say those
13 good things, but the signs of good management are
14 just about everywhere we look.

15 They have had strong control of the
16 construction. They brought in good people from
17 outside. They have a lot of depth in the corpora-
18 tion, depth with experience, nuclear experience.
19 Their top management is, is knowledgeable about
20 the plant and is involved in the plant. They
21 periodically go there and review themselves.

22 We're told that at each Board meeting
23 monthly there is a presentation given to the Board
24 of the status of the operations at Susquehanna-1
25 and 2.

1 The SALP, Systematic Assessment of Licensee
2 Performance -- in fact, I just completed the most
3 recent one. In fact, I was up there with Rick
4 Starostecky on Monday, going over the SALP, and
5 they had systematically improved over the years.

6 In fact, Unit 2, now the SALP ratings
7 were all, all one ratings. So, they've done very
8 good. We find that they don't cut corners in the
9 -- in the construction in the operation of the plant.
10 And just to give some examples, they've had a
11 simulator, a plant specific simulator since before
12 TMI, before they became fashionable. They have a
13 first class emergency operations facility. And
14 they've done a probabilistic risk assessment for
15 the plant before Unit 1 started.

16 The training program is one of the better
17 ones we see in the region, maybe one of the best.
18 And, again, the signs are everywhere that it's well
19 managed. And this gives us confidence that they can
20 run the plant safely.

21 In addition, we believe the construc-
22 tion quality of the plant is high. And our
23 inspection program has verified this. And I'd like
24 to ask Rich Starostecky to, to go through some of the
25 details of the inspection program and why we draw

1 that confidence.

2 MR. STAROSTECKY: I'd just like to maybe
3 give you some more detailed statistics to support
4 bullet No. 1 which indicates that the inspection
5 program is complete and actual requirements in
6 licensee commitments are met.

7 And as Tom mentioned, PP&L has been a
8 very responsive licensee. We've had a low number
9 of open items and, in fact, were able to close them
10 out in an orderly fashion.

11 Susquehanna Units 1 and 2 together have
12 gotten about 26,000 hours of inspection time by
13 NRC. We assigned the construction resident
14 inspector to that site in September of 1978, and
15 I believe that's the first site in Region 1 that
16 received a construction resident.

17 A second resident inspector to help focus
18 on preoperational testing was assigned in October
19 1979. We've had -- almost a continuous basis. There
20 were some gaps and have had two resident inspectors
21 at that site since then.

22 Unit 2 itself received over 8,000 hours of
23 inspection time. There are an awful lot of common
24 features between the two units, and that's where
25 the bulk of the inspection program did go.

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1 In 1983, Unit 2 alone had over 3,500
2 inspection hours. The -- part of the program that
3 I think gives me an awful lot of confidence about
4 the inspection program and what it's telling us
5 is we have done several team inspections. And what
6 I'd like to do is highlight three in particular
7 to support what I mean by bullet No. 2.

8 CHAIRMAN PALLADINO: The, the new
9 inspection program --

10 MR. STAROSTECKY: The NRC inspection
11 program is current.

12 CHAIRMAN PALLADINO: Yeah. I had a
13 question what that meant.

14 MR. STAROSTECKY: The NRC inspection
15 program is current means that the -- there are
16 requirements that the Office of Inspection Enforcement
17 lays down and says these are what you have to go
18 look at and inspect in terms of the inspection
19 program, 2512, 2513. They have specific mod,
20 inspection modules that are done for each phase
21 of a reactor construction pre-up and start-up.

22 We, in essence, are satisfying, i.e.,
23 in terms of making sure that their requested
24 modules are being done. Now, --

25 CHAIRMAN PALLADINO: You're saying they're

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1 being done on a timely basis?

2 MR. STAROSTECKY: They have been done and
3 are being done on a timely basis, consistent with
4 what the utility is doing. In addition to that, we
5 have done some other things, and that's what I'd
6 like to highlight now.

7 In 1981, March of 1981 -- this relates
8 to Unit 1 which is already licensed -- in response
9 to a very poor SALP at the time, we had a team
10 inspection to follow up on quality assurance, design
11 control, construction control, maintenance and
12 surveillance over installed equipment. That team
13 inspection, as I say, involved about 350 inspection
14 hours.

15 (MR. HERZEL PLAINE LEAVES THE ROOM).

16 MR. STAROSTECKY: And it highlighted
17 to the region that the problems were not catastrophic,
18 that, in fact, they could be corrected and
19 subsequently were. That was the first team inspec-
20 tion.

21 In June of 1983 on Unit 2, the non-destructive
22 examination van (Phonetic) with a team of
23 inspectors was -- devoted over 600 inspection
24 hours to independently, using NRC techniques and
25 staff, radiographed 26 wells. We radiographed --

1 we, NRC, radiographed 26 wells, ultrasonically
2 tested 64 anchor bolts, liquid penetrate -- tested
3 15 wells and did a number of other chemical analyses
4 and hardness test of the material itself. The
5 bottom line is we didn't find any discrepancies.

6 In October 1983, we put together a team
7 of people, recognizing that Unit 1 prior to its
8 licensing, we had encountered some difficulties with
9 small bore piping hangers and supports. And we
10 put together a team to go -- do a detailed examina-
11 tion of several system that Unit 2, in particular,
12 in terms of the design drawings, the interface
13 between the mechanical, electrical, instrumentation,
14 and we examined the systems. We actually walked
15 down the systems and did a detailed examination
16 of the as-built systems and compared them with the
17 drawings, schematics, the FSAR and looked at all the
18 interfaces each system had with piping, mechanical,
19 electrical, instrumentation and so forth.

20 The three systems we looked at were
21 the stand-by liquid control system, the loop B
22 of the residual heat removal system, and the control
23 rod drive system. We found no recurrence of any
24 of the Unit 1 problems at Unit 2 in regard to small
25 bore piping and instrumentation.

1 We checked and found no problems with
2 the electrical, instrumentation and control wiring.
3 We reviewed 167 wells in the course spray RHR
4 mainsteam and reactor water cleanup system that were
5 being used for the preservice inspection program.

6 To provide some perspective in all of
7 this, we found that all the engineering drawings
8 and all the dimensional comparisons that were made,
9 that all the installed components agreed to what
10 was in writing and we found no discrepancies.

11 We found some weaknesses, and we had three
12 violations. We also found some shrank (Phonetic).

13 CHAIRMAN PALLADINO: Let's see. If you
14 found no deficiencies, what were the violations --
15 procedural?

16 MR. STAROSTECKY: The violations may have
17 related to records and documentation and corrective
18 action that may have been required or lack of
19 timely follow-up on it. I do not have the particulars
20 in front of me now. If you want, I can get them
21 for you.

22 CHAIRMAN PALLADINO: No, I just want to
23 know the nature --

24 MR. STAROSTECKY: The thrust of what
25 I'm trying to say is that we had no hardware

1 problems and yet there were some documentation
2 problems, but when you look at 631 inspection
3 hours and to come away with three violations,
4 and all of them what I would call minor significant,
5 is -- that's commendable performance.

6 COMMISSIONER ASSELSTINE: Rich, the
7 Q-A problems that are described in the third
8 paragraph of the construction Q-A write-up that we
9 were given. It's Enclosure 6 of the package. Are
10 they the same things you're talking about now and
11 weren't they all on Unit 1 as opposed to Unit 2?

12 MR. STAROSTECKY: Yes, and I'll go into
13 that in a little more detail later on. And this
14 relates to some of the earlier SALP, but these were
15 not catastrophic Q-A program breakdowns, I think.

16 What we -- what you see there in that
17 third paragraph were indications early on in terms
18 of control in the 1980 time frame.

19 (MR. HERZEL PLAINE REENTERS THE ROOM).

20 COMMISSIONER ASSELSTINE: Okay. I
21 guess I read it as continuing later than that,
22 particularly the sentence that says, but we found
23 the associated corrective actions to be acceptable
24 and the licensee's performance and -- quality to
25 be continually improving, but I didn't realize that

1 that's really all back in 1980 as opposed to
2 anything that's occurred since then.

3 MR. STAROSTECKY: There have been some
4 QATC violations since then. I don't want to mislead
5 you on that, Commissioner, but that paragraph,
6 I think, expands a four year time period, and I'd
7 much rather go through some of the SALPs and
8 highlights from the statements we made in the SALP.

9 But, yes, we have had some violations,
10 and there always are violations at these plants
11 with regard to documentation, lack of timely follow-
12 up, things of that nature.

13 In November of 1983, we also had a team
14 of people go out to Unit 2 to look, specifically,
15 at the procedures that were being developed for
16 Unit 2 and reviewed administrative procedures and
17 instructions and had 260 plus hours and found no
18 major problems, but, again, there were some viola-
19 tions and some inconsistencies, and they were
20 cited.

21 That's all I would like to, to state on
22 the inspection program other than we have taken the
23 time to go independently look at some things ourselves,
24 and the results are very favorable. And the
25 inspectors continue to be on-site monitoring the

1 start-up program now.

2 CHAIRMAN PALLADINO: This slide, are
3 you going to --

4 MR. STAROSTECKY: I'm going to continue
5 on this slide. What I'd like to do is address
6 Item 3 regarding the SALP Report. The latest SALP
7 Report covered the period of February 1, 1983 to
8 -- through January 31, 1984. And we issued these
9 about a month ago and had a meeting with the utility
10 on-site just this Monday.

11 For Unit 1, there were six category one
12 areas and three category two areas. In Unit 1,
13 we reviewed as an operating plant and addressed those
14 items particular --

15 Unit 2 received a separate SALP Report.
16 We did a separate report for Unit 2 in the light of
17 its different activities, and we had seven areas
18 addressing construction and preoperational testing.
19 They were all Category 1. And that's the only time
20 I seen a SALP Report -- construction facility has
21 so many Category 1's.

22 Four SALP reports --

23 COMMISSIONER ASSELSTINE: I guess they get
24 too many operating facilities that have that many
25 category ones, either.

1 MR. STAROSTECKY: And if they get one,
2 they, they usually wind up slipping down.

3 CHAIRMAN PALLADINO: Well, when there's
4 -- is the only way to go.

5 MR. STAROSTECKY: The four SALP reports
6 I'd like to just briefly highlight. The first
7 one covered the period January 1, 1980 through
8 December 31, 1980. This was the first -- one of
9 the first SALP approaches, and they had something on
10 the order of 20 functional areas that they looked
11 at.

12 One area was above average. Eighteen
13 areas were found average. Quality assurance was
14 below average. And the SALP came down pretty
15 heavily and addressed PP&L deficiencies and Q-A.

16 CHAIRMAN PALLADINO: That was on 1 or
17 2?

18 MR. STAROSTECKY: This, at the time, was
19 construction. So, we, in essence, looked at Units
20 1 and 2 as a construction site, both. And, so,
21 we had one SALP Report, a report to cover both.
22 This provided the emphasis for that first team
23 inspection that I, I mentioned go out and look at
24 the problem.

25 Subsequently, in March 1, '81 through

1 February 28, 1982, was the period of second SALP.
2 There were no Category 3s. There was improvements
3 in the Q-A area. And eight Category 2s and one
4 Category 1.

5 The first time I noticed that overall
6 responsiveness is noted as a strike in this SALP
7 Report of the utility, that they have taken
8 conscientious steps to respond to the deficiencies
9 identified in the previous SALP. The third SALP
10 Report covered the period February 1, 1982 through
11 January 31, 1983. And this was the first time
12 we split Unit 1 from Unit 2 and we, again, addressed
13 two separate SALP Reports.

14 From the construction standpoint, Unit
15 2 had two Category 1s and three Category 2s. So,
16 that's a plant that's doing about average. And as I
17 indicated for Unit 2, the latest SALP Report out of
18 the old Category 1 is a marked improvement.

19 On the Unit 1 standpoint, the SALP for
20 the February '82 through January '83 period, they
21 had five Category 1s and three Category 2s. This
22 latest SALP for Unit 1 has six Category 1s and three
23 Category 2s.

24 So, there has been a steady improvement
25 in SALP. The SALP themselves quantatatively -- I'd

1 like to maybe summarize some of the thoughts the staff
2 has expressed in summarizing SALPS for the latest year.

3 The management involved in the -- in the
4 latest SALP is viewed as a real strike, the
5 management control, but when you go back and read
6 the initial SALP, the initial SALP identifies a lot
7 of areas and even more direct licensee involvement
8 in and support of QA -- increasing the scope of Q-A
9 activities, demonstrating fulfillment of design
10 criteria during preoperational testing, responsiveness
11 to NRC findings, preventive maintenance of equipment
12 turned over to the plant staff and quality of
13 submittals to the NRC. Those were the deficiencies
14 that were identified four years ago.

15 As the SALP progressed, the deficiencies
16 were individually corrected and other items were
17 identified as needing some attention but they were
18 much lower significance.

19 In summary, from the -- for the SALP area,
20 one of the outstanding attributes the staff has
21 identified is the self-identification of problems
22 on the part of the licensee, responsiveness to the
23 NRC and the attitude towards the quality and safety
24 in that they will take the time to do the job
25 right. They don't skip corners.

1 There is a strong emphasis on training,
2 and the training has been very much improved over
3 the last four years than it is possible. Unless
4 there are questions on SALP, I'd like to conclude at
5 that point.

6 COMMISSIONER ASSELSTINE: I guess I just
7 have about three questions on the -- on the SALP
8 review. To what extent -- I understand the, the
9 usefulness of having SALPs for individual plants.
10 I guess I question a little bit having individual
11 SALP ratings for individual units at plants, particularly,
12 where there -- for example, in this case, where you
13 cost license to operators. Is it really possible
14 to differentiate between the units, to what extent,
15 for example, do they share not only operators but
16 non-licensed people, maintenance people, those kinds
17 of things, so that you really get a clear distinction
18 between the two units.

19 MR. STAROSTECKY: This is an artificial --
20 the use of SALP for two units is an artificiality
21 we've introduced only during the period when they
22 had different stages of construction and operation.
23 Because we prepared separate SALPs for both units,
24 we were able to use those SALPS to give guidance
25 to our inspectors on Unit 2, look at this area more or

1 look at this area less. We're using SALP as a
2 management tool in that regard.

3 We won't have another SALP for Susquehanna
4 that addresses both units. It will be one SALP for
5 both. You're correct, it doesn't make sense to
6 write a separate one for each, but when one is in
7 operation and one is in construction, there would
8 be different inspectors that would look at it.

9 COMMISSIONER ASSELSTINE: Okay. The
10 second question that I had, and I think you may have
11 already addressed it, was -- I don't want to take
12 anything away from the licensee in terms of its
13 performance and the -- and how its operating, but the
14 one question I had was comparing the, the quality
15 assurance construction Q-A write-up with the Category 1
16 rating.

17 I take it your view is that whatever
18 deficiencies or problems there have been, particularly
19 in the past year or so, they've really been minor,
20 minor items, and they fully wanted a, a Category 1
21 rating --

22 MR. STAROSTECKY: That is correct and, in
23 particular, when we found that the problems on
24 Unit 1 were corrected, not only Unit 1 but we didn't
25 find them on Unit 2, and that is very -- I think

1 a very positive indicator.

2 COMMISSIONER ASSELSTINE: The last question
3 I had had to do with an item I, I think you'll get
4 to in a few minutes, that is the list of enforcement
5 actions. I noticed that there, there have been a few
6 of those, particularly on Unit 1, and most of those
7 still seem to be open items where action is still
8 pending.

9 And I wondered to what extent when you,
10 you took those into account in the SALP ratings,
11 particularly for Unit 1.

12 MR. STAROSTECKY: On Unit 1, those enforce-
13 ment actions did affect the SALP ratings, and they
14 did reflect Category 2 of the plant operations area.
15 And I think we, you know, we'd like to address that
16 in more detail as we go along.

17 COMMISSIONER ASSELSTINE: Okay.

18 MR. STAROSTECKY: I would just like to
19 highlight, Unit 2 enforcement history has not been
20 substantive. Since 1981, we have had 14 -- Level 4
21 violations and nine Severity (Phonetic) Level 5
22 violations. That's extremely small for a construc-
23 tion plant. And with two residents being on site
24 and the number of hours we spent there, I was very
25 much impressed by that kind of enforcement for

1 Unit 2.

2 CHAIRMAN PALLADINO: What are more typical
3 average numbers or don't you -- you said they're
4 very small.

5 COMMISSIONER ASSELSTINE: I -- 3s have
6 been fairly rare until the past couple of years,
7 hadn't they, for construction site --

8 CHAIRMAN PALLADINO: For construction site --
9 listing numbers of violations?

10 MR. STAROSTECKY: 4s and 5s, you know. On
11 construction sites I would say a dozen 4s is not
12 unheard of on a construction site per year.

13 CHAIRMAN PALLADINO: And whether they have

14 --

15 MR. STAROSTECKY: For the 4s since 1981,
16 they had 14 Severity Level 4s and nine Severity No.
17 3's.

18 CHAIRMAN PALLADINO: Okay. Thank you.

19 MR. STAROSTECKY: The emergency preparedness
20 situation at Susquehanna -- as Tom mentioned, the
21 facilities are in place. They have got good first
22 class facilities and we have observed the exercise at
23 Susquehanna and, in fact, Region 1 does participate
24 in exercise with the State of Pennsylvania. We have
25 not yet participated with Pennsylvania at Susquehanna

1 and that would remain at some point in the future.

2 CHAIRMAN PALLADINO: Do you see my
3 observations parallel to yours or would they be
4 different?

5 MR. MURLEY: I don't think we've got
6 -- report yet, but my understanding is that there
7 were no significant findings. If there are, of
8 course, we'll let you know. Our findings of the --
9 of their performance on-site were good.

10 MR. STAROSTECKY: All right. Going on to
11 Viewgraph 10, the Unit 2 operating history. What
12 I'd like to do is expand on this viewgraph a little
13 bit and go beyond these points and address construc-
14 tion QAQC to some extent.

15 I would simply point out, as Unit 2
16 -- initial criticality, the plant had been in a
17 stable condition. There have been no -- the
18 construction QAC program, as Unit 2 has been the
19 same, is that for Unit 1.

20 One indication of the licensee approved,
21 licensee involvement in construction at Unit 2 has,
22 has been the number of not only managers on-site
23 but also -- we also tend to look at stop work orders
24 as a case in point.

25 There have been on the order of 38 stop

1 work orders issued at Susquehanna, 16 by the --
2 engineer, Bechtel, 22 by the licensee. And of the
3 licensee, not only do we just have 22 stop work
4 orders, but they were issued by a variety of organiza-
5 tional entities, the three of them being the, the
6 construction organization, the corporate engineering
7 organization and the operations department is even
8 --

9 In terms of audit, PP&L has had a total of
10 384 audits of the Susquehanna site. 340 of those 384
11 affected both units. Unit 1 had eight audits.
12 Unit 2 had 36. That was just PP&L -- quality
13 department. Bechtel also did audits.

14 In terms of third party reviews, the
15 licensee has had several third party reviews done.
16 I would just like to highlight two. One of them was
17 a Teledine(Phon.) effort that was done in support
18 of Unit 1 licensees regarding the independent design
19 review of the main feedwater system. And that
20 indicated no problem.

21 EG&G also did a review of the advance
22 control and design and examined the engineering
23 documentation and project controls, QAQC aspects.
24 As you may know, Susquehanna has a rather interest-
25 ing control room, a design --

1 One of the items that was interest -- of
2 interest to us was that in 1982, there was a problem
3 identified at another site relating to the enhancement
4 or ratographs (Phon.) by ITT Grennell (Phon.)

5 PP&L-inspected or reinspected 17,500.
6 radiographs for Unit 2 in July/August 1982 time
7 frame before IA issued its bullet in 8201. The
8 results there were that they found evidence of
9 falsification on ten records, and they found 62
10 cracks (Phon.) inclusions and other indicators that
11 required some corrective action. They did, in fact,
12 correct these deficiencies and were able to
13 address the problems in a very expeditious (Phon.)
14 schedule.

15 I simply mention that because the -- at
16 the time we had our resident inspectors mention it
17 to the construction sites and to have a utility
18 respond in this matter --

19 CHAIRMAN PALLADINO: Rich, you raised the
20 question. Is there any question here on typical
21 pipe cracks -- or do they -- do they have desensitized
22 steel in this plant or --

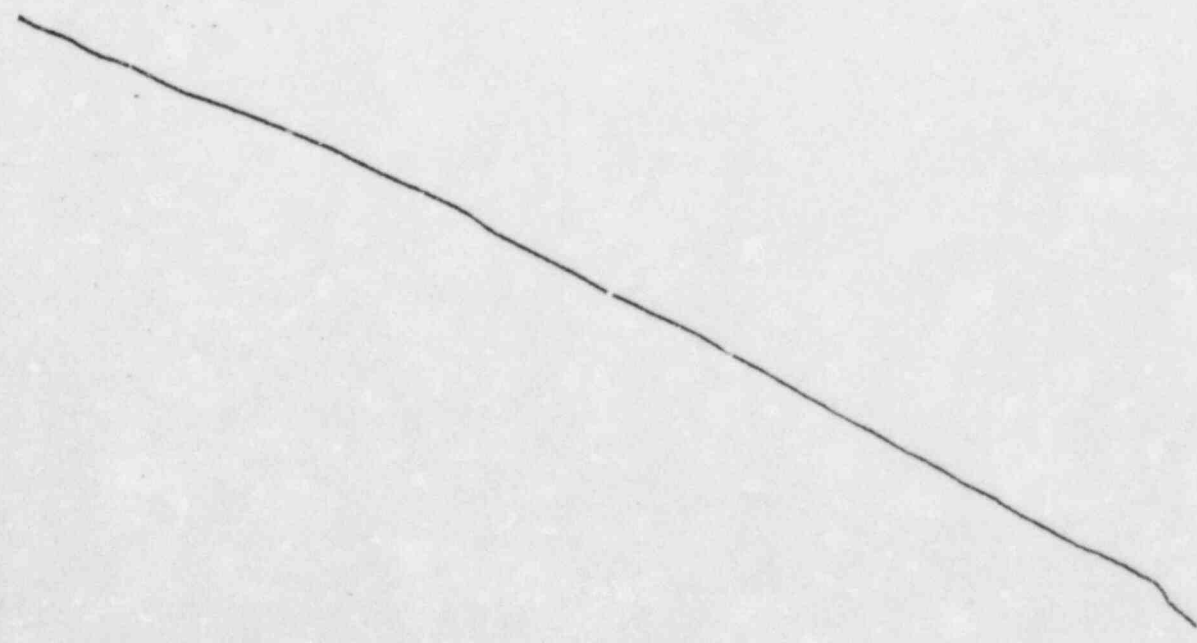
23 MR. STAROSTECKY: They've, they've got
24 two things. They've got the different materials
25 and they have done the induction --

1 MR. PURPLE: They have, although they
2 haven't completed all of it. We have a schedule to
3 complete all of that during the shut-down just
4 prior to commercial operation later on this fall.
5 I think there's something like 25 more wells yet
6 to be inspected.

7 CHAIRMAN PALLADINO: They do have the
8 desensitized stainless?

9 MR. STAROSTECKY: Either the desensitized
10 stainless or the -- induction heating that have
11 replaced the safe ends which were -- which were bad.
12 The licensee could simply fill us in in a lot more
13 detail if -- more on that. We are satisfied with
14 -- that we feel should be done in that area prior
15 to issuing even a lower power license.

16 (END OF TAPE)



P R O C E E D I N G S

1
2 MR. STAROSTECKY: My recollection is that they
3 have the both, the desensitized material, and they were in
4 the right, starting of the program on the induction.

5 CHAIRMAN PALLADINO: Well why would they induct,
6 the -- the induction heating of desensitized material. May-
7 be a representative from PP & L help us.

8 MR. CRIMMENS: My name is Thomas Crimmens I'm mana-
9 ger of -- Engineering for PP & L. From early, early on
10 in the investigation of Intergranular Stress Corrosion
11 Cracking, PP & O has been involed in taking mitigative action
12 on Susquehanna. In addition to the replacement of the safe
13 end switch, as was already mentioned, there have been other
14 pipe replacements with the superior materials, that have
15 been developed over the years. More, less sensitive mater-
16 ials due to granular stress corrosion cracking.

17 In addition, where applicable, we used the im-
18 proved welding techniques, and also induction at each stress
19 improvement IHSI, on sensitized materials.

20 On Unit One, we have yet to conduct the IHSI but
21 it will be conducted during the first refueling on it which
22 is scheduled early 1985.

23 On Unit Two, we managed to treat a hundred and
24 four wells prior to fuel load, and have twenty about twenty-
25 five or so remaining which we are going to catch in the

1 outcoming outages, late this year or early next year.

2 CHAIRMAN PALLADINO: Okay, Thank you.

3 MR. STAROSTECKY: If I could move on to slide 11.

4 (S L I D E 1 1)

5 MR. STAROSTECKY: The first allegation relates to
6 penetration. It's an allegation we received anonymously
7 In March of 1983, and it's an allegation that was I think,
8 principally effected Shorem at the time, and we also address
9 ed it at Susquehanna.

10 COMMISSIONER BERNTHAL: What's Biscoe?

11 MR. STAROSTECKY: Biscoe's the name of a manufac-
12 turer, and they manufacture and install felxible boots a-
13 round pipe penetrations, that go through floors and walls,
14 and the allegation anonymously stated that there was impro-
15 per installation of these devices, it's a flexible material,
16 a rubbery like type of material, and that is clamped to the
17 pipe and then to that penetration itself, and they were im-
18 properly installed, insufficent measurements were done, and
19 the material that is supposed to be put inside the seal,
20 for fueling purposes, was settling out, and did not perform
21 it's function.

22 This allegation effected an area that was specifi-
23 cally looked at in an inspection report at Susquehanna in
24 1982. In August inspectors has specifically reviewed this
25 area, and had found every was acceptable, with the as Built

1 inspection and the QC inspection. The item for all intents
2 and purposes was closed in 1983. Inspectors in the regional
3 office re-opened this matter, when finding the issue earlier
4 this year, we in fact, did, refact, re-inspect the seals
5 themselves and have found no problem and we're pursuing
6 documentation of the shielding effectiveness of the aggregate
7 material. We have not yet prepared an documentation, to
8 close out completely the issue, but for all intents and pur-
9 poses it is my judgement the issue is settled and resolved
10 and we do not have a problem.

11 CHAIRMAN PALLADINO: Is the allegation from a past
12 worker or?

13 MR. STAROSTECKY: The allegation was from a Biscoe
14 worker apparently at the Shorem site. We are also pursuing
15 this ame allegation at Shorem.

16 COMMISSIONER BERNTHAL: The allegation was from a
17 worker at the Shorem site?

18 MR. STAROSTECKY: Biscoe had a contract for both
19 Shorem and Susquehanna to install these boots, the -- seals

20 COMMISSIONER BERTHAL: But the worker had not
21 worked at the Susquehanna site?

22 MR. STAROSTECKY: He had not worked at the Susque-
23 hanna site. That, I should not say that, I do not know
24 whether he had worked at Susquehanna or not, the allegation
25 was received by an inspector but the documentation I've seen

1 I don't recall it was that specific but he says it applies to
2 both, and he would not give us his name and address, and we
3 have not been able to do follow up. We've looked at the
4 program, it statisfies us, we're looking at the details, it
5 statisfies us, and asked the licensee to do another inspec-
6 tion on their own and to examine the settling record them-
7 selves, there is no problem here because to my mind function-
8 ally the seals are performing their job, now, we can maintain
9 a differential pressure. The shielding is there only for
10 a post accident environment, if you have a large release of
11 radioactivity, and you would do a survey to look for stream-
12 ing effects, even before you let people go. So it's not any
13 immediate safety problem.

14 The second allegation, NR has documented and it
15 relates to the effectiveness of the wet well design, Brad
16 did you want to address that?

17 MR. PURPLE: Well this had to do with a, the input
18 sources that are used to do an analysis of chugging loads in
19 the supression pool. A former employee of the VECTO Cor-
20 poration expressed concern that a different series of compu-
21 ter algorithm were used or a type of computer algorithm was
22 used that went beyond, used beyond it's capabilities, and
23 therefore you couldn't trust the results.

24 The staff did look at the allegation, went back and
25 determined what had been used took a look at the difference

1 between the two models that were used, determined that the
2 model that was used, although different than the other one,
3 bounds, in a safety sense all possible load combinations and
4 concluded in the bottom line that the methodology that was
5 used was alright.

6 Related to this, is an inquiry regarding possible
7 discrimination against this employee, for having brought
8 this issues up. OI is looking into this as an inquiry at
9 the moment. But we believe since we're talking about a
10 VECTO Corporation thing, and not the operating licensee it's
11 not particularly pertinent to the decision here today.

12 CHAIRMAN PALLADION: I was going to ask you, are
13 there any other items referred to OI?

14 MR. PURPLE: That's the only one I'm aware of.

15 UNKNOWN: That's correct Sir, that's the only one
16 we have.

17 COMMISSIONER BERNTHAL: Is there anybody here be-
18 sides me, who doesn't know what a chugging load is?

19 MR. MURLEY: Yeah, you, basically it has to do
20 with the condensations of steam condensers in the pool. You
21 get loads that oscillate like that. They turn into chugging
22 load.

23 COMMISSIONER BERNTHAL: I see.

24 MR. MURLEY: Your technical assistant is an ex-
25 pert on that so he.

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1 MR. STAROSTECKY: By the way I would just like to
2 mention that the BISCOE seals are not used on any primary
3 containment reservations, just refers to the reactor build-
4 ing and -- So there's no impact on the dry well or the
5 suppression chamber. If I could, go to Slide twelve.

6 (S L I D E 1 2)

7 MR. MURLEY: This is the enforcement history that
8 Commissioner Asselstine referred to. There have been, six
9 enforcement activities on Unit One and Two over the last
10 15 months. This is an item that troubled me a bit, in fact,
11 trouble me a lot, and I tried to find out what's the reason
12 for this high enforcement activity, on the one hand we're
13 saying that we think the PP & L is a well managed utility,
14 on the other hand we see all this enforcement activity.

15 I don't have any conclusive answers to this. But
16 what I'm tending to conclude I don't like the answer. The
17 reason we, we don't find a common thread through these en-
18 forcement activities, that is, it's not poor training, it's
19 not, it's not a singled out in a single group or a single
20 individual or anything like that.

21 We don't find a common thread, except the follow-
22 ing and that is these recent plants that we've licensed just
23 in the last few years, have become very complex, and the
24 technical specifications for Susquehanna are much, much more
25 complex, then the older beat up --. And this has come

1 about since Three Mile Island, it's the natural result of,
2 I think, of it, adding this complexity.

3 Just to give you an idea we have over three thous-
4 and procedures, roughly three thousand separate procedures
5 that have they to follow on Susquehanna One and Two.

6 This is a large factor higher then the earlier
7 BWR's that we have in the region. I think, and we're find-
8 ing the same thing at LaSalle as amatter of fact in Region
9 Three, it's not unique to Susquehanna.

10 LaSalle is I think, propably the first BWR licensed
11 since Three Mile Island, and Susquehanna's the second, so
12 we have this history and one finds that for LaSalle there's
13 been seven enforcement activities in Two years there.

14 That's higher then we're used to also. I guess the
15 bottom line that I come to on this is.

16 COMMISSIONER REOBERTS: Well you've given us a
17 number, three thousand procedures, what, give me some num-
18 bers for much earlier licensed BWR.

19 MR. MERLEY: Well it might be only a few hundred.
20 So it may be a factor of five to ten greater.

21 COMMISSIONER REOBERTS: Would you make me observa-
22 tion of which plant might safer?

23 MR. MURLEY: Well I don't know, because these pro-
24 cedures reflect improved hardware, so I have no qualms in
25 saying that the hardware of Susquehanna, I think, makes it a

1 safer plant then, then a plant that was licensed ten years
2 ago. But the fact it's gotten so complex in terms of hav-
3 ing to operate it, I'm not sure that that's safer. And I
4 don't think we've really done enough study or got enough
5 experience on these plants to be able to say. But it cer-
6 tainly causes us concern yes.

7 So whereas I don't think we would regard any of
8 these specific enforcement activities as particularly major
9 safety voilations, I think it's something that we can prop-
ably come to expect, with these complex tech spec and pro-
11 cedures, with their current enforcement policy.

12 CHAIRMAN PALLADINO: Do you have enough experience
13 to know whether the situation improves as time goes on, or
14 is it more complex then that?

15 MR. RURLEY: Not really but you can see, Unit One,
16 it, it hasn't stopped we're still seeing them.

17 MR. STAROSTECKY: If I could provide some perspec-
18 tive on Unit One, when you look at some of these events
19 there's a mixture. The February '84 event regarding ex-
20 ceeding the 150 pound pressures, that's a technical specifi-
21 cation interpretation problem. You have to go to two or
22 three places in the technical specifications, you eventual-
23 ly figure out you can't really exceed the 150 pounds, in
24 certain conditions because you wind up changing conditons
25 when you go over that limit, and that's an interpretation

1 problem. The individuals at the time knew that high pressure
2 cooler injection system would not operate but they exceeded
3 the 150 pound pressure. So it's an interpretation question
4 that results in an LCL Voilation.

5 The second item is a personel error because drain
6 valves were left open, so we're not talking about major
7 system misalignments, we're talking about completeness of
8 procedures and making sure the drain valves are included.

9 I can go through the rest of these and I can say
10 a specific examples you have to get to that level or detail.
11 We, in Region One, I think have lowered our threshold in
12 Susquehanna in looking at these kinds of problems and have
13 tried to understand is there a trend here. I think that's
14 what Doctor.

15 CHAIRMAN PALLADINO: What is lowered your threshold
16 I didn't follow that.

17 MR. STAROSTECKY: We could have in October 1983 for
18 the violation that we had, issued a severity, level 5, viol-
19 ation and forgotten about it, and just looked for the cor-
20 rective action.

21 CHAIRMAN PALLADINO: So what did you do?

22 MR. STAROSTECKY: Instead we looked at that and
23 we found that in the very next report we had another viola-
24 tion, and we had an enforcement conference scheduled, to
25 discuss why we had two or three series of events occuring in

1 such rapid succession. The alternative option to us was to
2 issue a severity level four or five violation, and get cor-
3 rective action.

4 COMMISSIONER BERNTHAL: Tom I want to go back just
5 half a minute to comment three thousand procedures versus
6 whatever it was, three or five hundred. If, if it's true
7 what I think you're implying here, then you ought to seek
8 some sort of simple linear correlation between the number of
9 enforcement actions, the number of violations that we see,
10 now compared to the numbers that you saw earlier, is there
11 any evidence that that's the case, that it's just a direct
12 proportionality?

13 MR. STAROSTECKY: I don't think that it will be a
14 direct linear relation because one has to take into account
15 the quality of operation, and with, if you're comparing let's
16 say the Peach Bottom Plant with the Susquehanna Plant you
17 have to consider that they're different utilities and dif-
18 ferent operators running the plant, so I think if it were
19 just simply the number of procedures it probably would be
20 linear.

21 COMMISSIONER BERNTHAL: That's what I'm asking
22 you.

23 MR. STAROSTECKY: Yes, I think for a given type of
24 operation, given utility, given set of operators, the human
25 error rate would be more or less constant. If you've got

1 three thousand operations to do instead of three hundred
2 you're going to see that many more. They give us an example.

3 COMMISSIONER BERNTHAL: Somehow, well somehow
4 that's disturbing. They're missing something in the deve-
5 lopment of these additional systems and in automation or
6 something, it seems to me.

7 MR. MURLEY: I think it's something that bears
8 looking into yes, because I don't see signs that they're
9 getting less complex, if anything the tech specs are getting
10 daily almost more complex.

11 COMMISSIONER ASSELSTINE: Tom, I notice on four of
12 these items, for Unit Two, the enforcement action is, is
13 still pending, a couple of those, the October and November
14 one, are getting farther back in time now, when do you ex-
15 pect to, I take it that means you haven't made a decision
16 yet on what enforcement action to take.

17 MR. MURLEY: Partly the problem, as Rich alluded
18 to as we were rapping up what we decided to do on one, anot-
19 her would come along and as we'd get there yet another one
20 so.

21 COMMISSIONER ASSELSTINE: So you ten to look at
22 them as a package?

23 MR. MURLEY: Yeah we were looking at them really
24 now, all of these as one package, and I think we're, we've
25 sent some work into headquarters, and IME staff is looking

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1 at it now.

2 COMMISSIONER ASSELSTINE: Is it fair to character-
3 ize these as basically greater attention to detail being
4 needed, focusing in on, on the details of their requirements
5 Ex-spec, LCO's, and just insuring that those are adhered to?
6 Or is it?

7 MR. MURLEY: Again, I don't see a common thread,
8 if it's anything, individual errors, not the same individual
9 obviously and when we look into detail on this latest one
10 on Unit Two for example, the Resource Range Monitor Channel
11 function was by-passed, the person, or persons involved, are
12 generally good operators, and they scored high on tests and
13 they don't make mistakes frequently. Here they made a mis-
14 take, and I, we simply can't rule out human error it's
15 going to happen, and again I get back to the complexity
16 issue, I just wonder.

17 MR. STAROSTECKY: I don't believe that attention
18 to detail characterizes it properly, it goes beyond that.
19 There are anomalous situations and interpretations of the
20 footnotes, and what I would call attention to detail in
21 another plant I would not characterize it the same here.

22 COMMISSIONER ASSELSTINE: Do you think that these
23 kinds of problems are inconsistent with what one would
24 otherwise conclude say by looking at your last South evalua-
25 tions. I read the South evaluations basically as this

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1 is a truly outstanding performer across the, across the
2 board, and this would seem to indicate that while that may
3 be true there may be some problems there that still need to
4 be fixed.

5 COMMISSIONER PALLADINO: I think in addition to
6 the complexity of the plant I think there's also complexity
7 in our rules and regulations, you described on where you
8 have to read three different places to identify that you
9 weren't supposed to go above a certain pressure, and
10 maybe that's something we need to give attention to our-
11 selves.

12 MR. STAROSTECKY: I, I would just add one more
13 item and that is there were a series of problems on surveil-
14 lances and we had a management conference with this utility
15 to talk about missed surveillances. And I was very dis-
16 turbed at the time why are these thing occurring, first, what
17 I thought was personnel error, and so you sit down and look
18 at what controls the surveillances and it's the tech specs
19 again, and the large number of surveillances that have to
20 be done. That you have to sometimes put into perspective
21 what is that's missed versus, what is that has been done
22 properly, and what does it mean when you miss one or two or
23 these. So yes we have had a series of meetings and some peo-
24 ple would say yes, that this is a learning period, but I
25 don't think we're dismissing it and I think as Tom indicated

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2 5072 reports, how many reactor trips. In general concluded
3 that Susquehanna units are right in the average of everyone
4 else in the same period of time. For example if you look at
5 six selected plants during their low power license period,
6 between low power and getting full power authorization, you
7 find numbers for LER's that would run like 12, 14, 18, 19,
8 Susquehanna one of two that have 12 and 6, respectively.
9 They're all in the same ball park.

10 Reactor trips, Susquehanna one, if you looked at
11 Calender year '83 they had 14, if you look at the period
12 between May of '83 and May of '84 bringing us right up to
13 day they had 10.

14 The average for plants in their first three years
15 or less then three years of operations, and there's 12 of
16 those that we looked at, during 1983 the average trip rate
17 was 13. This unit was somewhere between 10 and 14 wherever
18 you see it, so that their experience here has been nominal.

19 You were through Tom?

20 MR. MURLEY: I just want to, you wanted to touch
21 n that.

22 MR. PURPLE: What' that?

23 MR. MURLEY: Vacuum breaker loader switches.

24 (S L I D E 1 4)

25 MR. STAROSTECKY: Well slide 14 is our conclusion
slide, but, well when the staff concludes that the licensee

1 has satisfied all the requirements for issuance of a full
2 power license, of course that does somewhat hinge on the
3 Commissioners consideration of the financial qualification
4 issue.

5 CHAIRMAN PALLADINO: I gather we have the license
6 clear, maybe we ought to hear what they's like to say at
7 this time.

8 MR. KENYON: My name is Bruce Kenyon, I'm Vice-
9 President of Nuclear Operations for the Pennsylvania Power
10 and Light Company. I'm please to have the opportunity to
11 address the commission on the occasion of your review of
12 PP & L 's readiness for Susquehanna Unit Two full power
13 license.

14 In attendance at this meeting are also John Cauf-
15 man, our Executive Vice-President of Operations, Jack Calhoon
16 our Senior Vice President, Nuclear, Norm Curtis Vice-Presi-
17 dent of Engineering and Construction, Charlie Roslie our
18 Senior Vice-President, Finance as well as many of our Senior
19 Nuclear Managers.

20 We believe PP & L is excellently prepared to safe-
21 ly and competently complete the start of testing of Susque-
22 hanna Unit Two, and manage the Unit into commercial operation.

23 This conclusion is based on two fundamentals.
24 First our success in operating Susquehanna Unit One, and
25 secondly our Unit Two state of readiness, particularly in

1 comparison to Unit One, at an equivalent point in time.

2 I'll briefly elaborate on each of these points.

3 With respect to our success in operating Unit One, briefing
4 One Personnel have already provided a fairly extensive re-
5 view, I will just highlight the following.

6 Our Unit One start of test program, now I'm refer-
7 ring to the receipt of an operating license, to the end of
8 testing was completed in 8.4 months. This is 22 percent less
9 time than the 10.8 month average of the nine previous BWR
10 start-ups all of which were pre TMI.

11 Also using the same comparison basis these nine
12 previous BWR's the start up was completed with 39 percent
13 less unplanned reactor shutdowns.

14 With respect to the one other post TMI, BWR to
15 reach commercial operation, this was LaSalle unit One, our
16 start up time was roughly one half of theirs.

17 Unit One was declared commercial on June 8, 1983,
18 from that time to the end of 1983 a capacity factor of 67.5
19 percent was achieved, as such it ranked sixth out of twenty-
20 four domestic BWR's and this is in spite of a shut down in
21 December 3rd, to commence an extensive outage to intertie the
22 two units in preparation for Unit Two start up.

23 The tie-in outage was was a very challenging
24 outage for us, we had over two thousand work activities to
25 accomplish and over one hundred design changes, almost im-

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1 immediately following that outage it was necessary to conduct
2 another outage to make a repair to the discharge valve in
3 the reactor recirculation system, this was a difficult re-
4 pair in the sense that the valve had to be maintained closed
5 while we accomplished a stem ring replacement.

6 That went very well, particularly because we bene-
7 fited from LaSalles experience where they had had to do a
8 similar repair, somewhat ahead of us.

9 Since that time, this the start up on that outage
10 which was on March 23rd, Unit One has been at essentially
11 a hundred percent power.

12 So over this period of time we've seen good opera-
13 tions, we've also tested our outage management and work
14 process skills and these have done well.

15 So we're very please with this start-up and initial
16 operating record of Unit One, I believe this is supported by
17 the very favorable comments received in the South report.

18 With respect to Unit Two, in preparing operating
19 in preparing to operate Unit Two, we believe there's been
20 considerable benefits derived from our Unit One experience.
21 The time difference between the wo units has been approxi-
22 mately 18 months, and in our opinion this interval worked
23 very well. We were able to accomplish a smooth transitor.
24 of engineering and construction personnel from Unit ONE to
25 Unit Two, and were thus able to keep the same people involved

1 in the project, it was a good continuity.

2 This also gave us sufficient time to incorporate
3 many Unit One design and construction lessons into Unit Two
4 and this had just been referred to previously.

5 Similarly our testing personnel have had time to
6 incorporate improvements in the Unit Two testing program,
7 and with respect to this interval I think frankly it would
8 of been very difficult to accomplish it on a much shorter
9 interval and still do justice to the Unit Two pre-operational
10 testing program as well as the power and assention and
11 commercial operation of Unit One.

12 As a result of these efforts Unit Two is in a much
13 higher state of material readiness then was Unit One at an
14 equivelent point in time. There's a substantially lower
15 remaining number of construction open items.

16 The preoperation testing program was accomplished
17 in less then half the time it took on Unit One, partially
18 because we propably started the program too early on Unit
19 One, partilly because they were common systems that had al-
20 ready been tested.

21 But as a result the number of test exceptions is
22 also substantially less. Since receiving our low power
23 license, we've moved very well to the, to the start up prog-
24 ram, we~ have a milestone schedule that takes us through
25 commercial operation at the end of this year.

1 At the beginning of fuel load, we are a couple
2 days behind schedule at the end of loading fuel we're about
3 eight days ahead of schedule, with initial criticality, we're
4 thirteen days ahead of schedule, and we hope to synchronize
5 the generator roughly a week ahead of schedule, so we're
6 moving well with respect to our program.

7 CHAIRMAN PALLADINO: When would that be?

8 MR. KENYON: Generator synchronization has been
9 scheduled for June 22nd, we hope to beat that by about a
10 week.

11 CHAIRMAN PALLADINO: When you say synchronization
12 what -- have to do?

13 MR. KENYON: What we have to do before that is to
14 complete the testing necessary to go above five percent
15 power. The major events after that are rolling the turbine
16 up to rated speed. Doing some turbine testing, doing some
17 generator testing and then, which is done up to about 20%
18 power and then shortly thereafter we synchronize.

19 CHAIRMAN PALLADINE: What's your best guess as to
20 when you'll be ready to go above five percent?

21 MR. KENYON: As was mentioned earlier, our moninal
22 schedule is to be ready to go above five percent in the vic-
23 inity of June 4th or June 6th. The major testing that is
24 left to do is a testing and grooming of the Hipsee Control
25 system we've allowed some time in that schedule for problems

1 in doing that, it's conceivable that that could go very well
2 and we would be ready sooner then that. Also as was mention-
3 ed earlier we have one valve in the RHR system which appears
4 to be leaking excessively, we're still lookingat that if it
5 turns out that we have to repair that valve that will extend
6 the schedule from five to seven days roughly.

7 CHAIRMAN PALLADINO: Five to seven days?

8 MR. KENYON: Yes. So there is really very little
9 in the way of testing and perhaps this one valve repair to
10 do before we're ready to go above five per cent power.

11 CHAIRMAN PALLADINO: Thank you. You don't have to
12 do TDID tests?

13 MR. KENYON: No we do not.

14 COMMISSIONER BERNTHAL: Think he's just saying
15 there must be something wrong here.

16 MR. KENYON: I've talked about our material readi-
17 ness, briefly address our organization personnel, reference
18 has already been made to the strength of our management or-
19 ganization. We're very proud of that, we went to considera-
20 able effort to acquire very experienced Nuclear managers,
21 ones that also had very sound management skills, there is
22 not a seperate organization for Unit Two, there's the same
23 management organization, the same workers, the technicians
24 the operators, will operate and manage both units. So
25 we have the same team, it's now even more seasoned, I think

tape 2
page 21

1 this might be the appropriate time Commissioner Asselstine,
2 to address your question on operator experience.

3 We have a combined control room, and thus the
4 shift supervisor and the control room supervisor are indivi-
5 duals that manage the activities on both units.

6 A reference was also made to an assistant unit
7 supervisor, that is a position that is not required by the
8 plant technical specifications. As far as I know we're the
9 only licensee that has a supervisory individual outside of
10 the control room.

11 With respect to the individuals required by tech
12 specs and specifically the shift supervisor and the SRO, in
13 the control room, both of these individuals for all shifts
14 are original licensed unit one personnel.

15 A couple of, in looking at that table that was
16 shown the couple of individuals who have less experience
17 are former SDA's who are recently licensed, and are function-
18 ing in this auxiliary assistant unit supervisor position,
19 outside the control room.

20 So our control room experience is very good, in
21 those top three positions we have at least five and a quar-
22 ter years, this is combined now, of hot operating license
23 experience at Susquehanna.

24 We have the technical specifications require three
25 reactor operators, we are currently operating with four per

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1 shift, nominally two assigned to each unit, two of the re-
2 actor operators are original licensed on Unit One, one was
3 licensed roughly a year ago, and the other was licensed
4 roughly recently. So in terms of the three reactor operator
5 required by tech spec they all have at least one year exper-
6 ience.

7 Again looking at the combined number we have al-
8 most five years of hot licensed experience at the RO level,
9 on each shift in the control room, so we think our, as you
10 would expect for a second unit that we think our experience
11 our situation is very good.

12 COMMISSIONER ASSELSTINE: Thank you.

13 MR. KENYON: The various managements programs
14 and procedures to control activities on Unit two, are clearly
15 the same for both units. They were developed on Unit One,
16 they've been refined, and incorporated numerous improvements.

17 I believe that the quality of our preparations,
18 again talking construction completion, and our procedures
19 our organization and personnel, the quality is reflected in
20 Unit Two South report which has been mentioned previously
21 where we got all categories ones.

22 A question was, or discussion took place earlier
23 with regard to our technical specifications. Our Unit one
24 technical specifications were developed based on BECTAL GE
25 and particular PP & L, extensive review. They have been

tape 2

page 23

1 in use since we, since we received our license, back in July
2 of '82, and we feel our experience with those Tech specs,
3 is very good. We've had a relatively few number of changes
4 to deal with plant modifications, the need to tie in common
5 systems, NRC requirements and so forth. So we feel good
6 about the Unit One tech specs.

7 With respect to Unit Two, we did an extensive re-
8 view of the differences etween the unit one tech specs and
9 the unit two tech specs, the differences have already been
10 characterized, we feel, as a licensee, that the differences
11 are, are relatively minor, our personnel have been trained
12 on these differences and we are not really concerned about
13 having to operate for some small period of time with these
14 differences in the tech spec. They are mostly administra-
15 tive in nature, or well understood design differences.

16 In, in summary we feel that we have proven or-
17 ganization and programs to start up and operate unit two.
18 We have substantially fewer construction open items and test
19 exceptions, and this unit's in a high state of materials
20 readiness and we're very much ready to complete what we
21 have to do to go above five per cent power and go through
22 an orderly program to a hundred percent power and commercial
23 operation.

24 CHAIRMAN PALLADINO: Okay Thank you Mr. Kenyon,
25 any questions?

1 with particular attention to understanding and control of
2 evolutions and the progress in abnormal conditions.

3 We have an independent safety assessment group.
4 We asked that group to do a round the clock assessment of
5 what's going on in the control room, over a period of five
6 days, with particular attention to watch relief, log keeping
7 responsiveness to alarms, we brought in some consultants who
8 are assessing the control room environment.

9 What we're looking for here is whether or not there
10 are any factors in the control room, in terms of how we do
11 work or the general environment, which, unduly detracts the
12 operator from his fundamental responsibility. We are in-
13 tending to make visits to other plants to identified by
14 IMPO as having exemplary control room watch standing prac-
15 tices, to see if we can spot any, any differences there.

16 IMPO which has previously looked at operator
17 watch standing as a portion of it's plant assessment has
18 agreed and is now, doing a special assistance visit for us
19 to see if they spot anything.

20 And in the possibility that we are missing some-
21 thing in identifying root causes of, with respect to human
22 error we have volunteered to be one of six or seven plants
23 piloting an IMPO human performance evaluation program, a
24 portion of which is a very meticulous approach to the in-
25 vestigation of incidents involving human error.

tape 2
page 24 1

2 COMMISSIONER ASSELSTINE: I guess not, only I, you
3 will obviously have to respond at some point to the enforce-
4 ment items that Region One people mentioned, I don't know
5 if you want to make any comments at this point or not, I'd
6 just leave it up to you, whether, whether you see a common
7 thread in those items?

8 MR. KENYON: In looking at the past enforcement
9 conferences with respect to the last four, and particularly
10 the first three of the last four, in reviewing those inci-
11 dents and not, right now trying to go through the details
12 but just looking at those instances we felt that in each
13 case we were able to clearly identify causes, contributing
14 factors and corrective actions. And thus with respect to
15 those three we felt that the actions we've taken were very
16 responsive to what happened and we were not concerned.

17 With respect to the most recent incident on Unit
18 Two, we were troubled by the fact that we really could not
19 identify a fundamental cause. It would appear to us that
20 the, it was, simply a case of an operator inattention, and
21 frankly we don't like to accept that as an answer.

22 Consequently we went in to considerable other
23 actions to try and find out if there are any other factors
24 at work. I'll mention just a few of these, the once a
25 shift we brought on a member of management other than super-
vision normally present to assess control room activities,

1 Well, in looking at these past events, we feel
2 very good about the action we've taken, we are troubled a
3 little bit by this last one, it's it's, operator's clearly
4 an important line of defense but the only line of defense,
5 and to just say that the operator missed it is a conclusion
6 we don't like to make, even though that's also the conclusion
7 that the Regions Inspection Report made.

8 So we are doing all of these other things, to
9 satisfy ourselves that we haven't missed anything, and that
10 the operators are doing well. I would also point out that
11 these few instances are in sharp contrast to the many oc-
12 casions where the operators have reacted very well. Antici-
13 pated events, prevented challenges to safety systems based
14 on something going on, and thus I feel quite good in terms
15 of their overall performance but, certainly we want to look
16 at this area closely.

17 COMMISSIONER ASSELSTINE: Thank you very much.

18 COMMISSIONER BERNTHAL: Thank you that was an
19 excellent presentation. I'd just like to comment I think
20 in many ways the most impressive part of your presentation
21 was your answer to Commissioner Asselstines questions, and
22 I'd like to complement you on that.

23 COMMISSIONER ASSELSTINE: It certainly bears out
24 some of the comments that the Region made earlier in terms
25 of your responsiveness and attention to dealing with any

1 problems that you find.

2 CHAIRMAN PALLADINO: Now we don't have financial
3 qualification yet. Hersel is this something that we talk
4 publically or?

5 MR. PLAINE: I regret to say that this is a matter
6 that should be discussed in a close session because, it
7 does have a direct bearing on what one would call, litiga-
8 tion status. There fore we need the benefits of using ex-
9 ception ten, of the Sunshine Act. On short notice.

10 CHAIRMAN PALLADINO: Well I think that the
11 Commission is willing to close the meeting for a while. I
12 think though any decision we make, has to be made at an open
13 meeting. Is the Commission willing to close the meeting?

14 MR. PLAINE: It shouldn't take us too long I
15 hope.

16 CHAIRMAN PALLADINO: Open the meeting for the.

17 MR. PLAINE: That may be the better way to do it,
18 I guess.

19 CHAIRMAN PALLADINO : It also gives me an
20 excuse for a break.

21 MR. PLAINE: Which you need anyway.

22 CHAIRMAN PALLADINO: And if it turns out that
23 what we discuss in the closed meeting isn't appropriate then.

24 MR. PLAINE: Of course.

25 CHAIRMAN PALLADINO: What would be the exemption?

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MR. PLAINE: Exception 10 the sunshine act.

COMMISSIONER BERNTHAL: That's I defer to General Counsel on these matters, as I always do.

CHAIRMAN PALLADINO: So why don't we close the meeting and while we're clearing the room, you can have a short break.

MR. KENYON: Excuse me could the applicant interest I don't know if this is appropriate, but just say one or two words before you go into closed session?

CHAIRMAN PALLADINO: On what?

MR. KENYON: On the financial qualification. We just have a vital interest and we'd just like to share just two thought with you.

CHAIRMAN PALLADINO: We're going to open the meeting again. Maybe that might be a better time. I think any decision we make will be made in open, and you can speak at that time.

MR. KENYON Thank you.

(Whereupon, the foregoing meeting was adjourned to reconvene after a short closed meeting.)

PROGRAMS

1
2 COMMISSIONER PALLADINO: And now we're going to
3 have a public meeting in which we take up the question of
4 voting on the Susquehanna 2 power ascension. So we shall
5 convene that meeting. I'll need a vote to hold it on short
6 notice.

7 COMMISSIONERS: Aye.

8 COMMISSIONER PALLADINO. Alright, now are there
9 further questions or comments that individual Commissioners
10 have with regard to the question of approving power sanction
11 for Susquehanna 2?

12 COMMISSIONER ASSELSTINE: I just have, I guess, one
13 brief comment and it relates to the financial qualification
14 issue just to explain my vote. I'm going to abstain on the
15 vote on the license. I regret that, I think it's unfortu-
16 nate. I think with the exception of the financial qualifi-
17 cations issue everything I've heard today indicates that
18 this plant is ready to go above 5% power and I have no re-
19 servations about it on any other respect other than finan-
20 cial qualifications. If the Commission had acted on the
21 financial qualifications issue early on, when the issue was
22 first presented to us about a month or so ago, I think we
23 could have had a Licensing Board decision on the outstand-
24 ing financial qualifications issue at this point and that
25 would have enabled me to vote for the license, but because

1 that issue has not been resolved I'm going to abstain from
2 the vote. I feel quite confident that when this gets to the
3 courts ultimately that issue is going to have to be reopened
4 and addressed.

5 COMMISSIONER BERNTHAL: Well, I will just say
6 that, aside from the financial qualifications issue, which
7 is a considerably larger issue I should say than has any-
8 thing to do with this particular utility, an issue which
9 they happened to get caught up in, I've been very impressed
10 with the presentation that we've heard here today both from
11 our staff and the utility. In fact, I'm moved to wonder in
12 view of my reading of the newspapers at least some utilities
13 have begun to diversify whether they maybe shouldn't go into
14 management consulting. I think we've some very good things
15 about the management, in particular, and so I'm prepared to
16 vote in favor of the full power operating license.

17 COMMISSIONER PALLADINO: Well then let me call for
18 a vote. All those in favor of authorizing to permit the
19 Susquehanna unit #2 to proceed above 5% power when the staff
20 feels it is ready, say aye.

21 COMMISSIONERS: Aye, Aye.

22 COMMISSIONER PALLADINO: Opposed?

23 COMMISSIONER ASSELSTINE: I abstain.

24 COMMISSIONER PALLADINO: And I gather Commissioner
25 Gilinsky is not participating in anything further to come

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before us. Thank you for participating. Adjourned.

CERTIFICATE OF PROCEEDINGS

1
2
3 This is to certify that the attached proceedings before
4 the NRC COMMISSION

5 In the matter of: Commission Meeting
6 Briefing - Discussion/Possible
7 Vote on Full Power Operating
8 License for Susquehanna-2

9 Date of Proceeding: Thursday, May 24, 1984

10 Place of Proceeding: Washington, D.C.

11 were held at herein appears, and that this is the
12 original transcript for the file of the Commission.
13

14 KIM SCHROEDER
15 Official Reporter

16
17 *Kim Schroeder / KTS*
18 Official Reporter

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COMMISSION BRIEFING

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

FULL POWER AMENDMENT

MAY 24, 1984

BRIEFING OUTLINE

- LICENSEE/PLANT BACKGROUND AND UNIT 2 STATUS AND SCHEDULE
- SELECTED REVIEW TOPICS
 - SHIFT STAFFING/EXPERIENCE LEVELS
 - TECHNICAL SPECIFICATIONS
- OPERATING EXPERIENCE
 - READINESS FOR FULL POWER OPERATION
 - UNIT 2 OPERATING HISTORY
 - ALLEGATIONS
 - ESCALATED ENFORCEMENT HISTORY
- CONCLUSIONS

LICENSEE/PLANT BACKGROUND

- PENNSYLVANIA POWER & LIGHT COMPANY
- BECHTEL - A/E
- SUSQUEHANNA UNIT 2 (BWR - 4; MARK II CONTAINMENT)
- SATISFACTORY STATION EMERGENCY PREPAREDNESS DRILL
CONDUCTED APRIL 4, 1984
- SUSQUEHANNA UNIT 1 OL ISSUED JULY 1982

UNIT 2 STATUS AND SCHEDULE

- | | |
|----------------------------|------------------|
| ● LOW POWER LICENSE ISSUED | MARCH 23, 1984 |
| ● INITIATED FUEL LOADING | MARCH 28, 1984 |
| ● FUEL LOADING COMPLETE | APRIL 13, 1984 |
| ● INITIAL CRITICALITY | MAY 8, 1984 |
| ● READY TO EXCEED 5% POWER | MAY 28, 1984 (E) |

SELECTED REVIEW ITEMS

SHIFT STAFFING/EXPERIENCE LEVELS

- 5 SHIFT OPERATION
- STAFFING NEEDS - UNITS 1/2 TOTALS ON SHIFT
 - 2 SROs
 - 3 ROs
 - 1 STA
- ALL SROs AND ROs LICENSED TO OPERATE EITHER UNIT
- PP&L HAS 47 LICENSED PERSONNEL ON SHIFT FOR DUAL OPERATION:

SHIFT SUPERVISORS (SRO)	-	8
CONTROL ROOM SUPERVISORS (SRO)	-	5
AUXILIARY ^{ASST} UNIT SUPERVISORS (SRO)	-	7
AUXILIARY ^{ASST} UNIT SUPERVISORS (RO)	-	2
PLANT CONTROL OPERATORS (RO)	-	25

SHIFT STAFFING/EXPERIENCE LEVEL

	<u>NO.</u>	<u>AVERAGE (MONTHS)</u>	<u>NUCLEAR EXPERIENCE RANGE (MONTHS)</u>	<u>NO. WITH 6 MONTHS HOT</u>
SHIFT SUPERVISORS	8	129.8	101.4-173.5	8
CONTROL ROOM SUPV. } AUXILIARY UNIT SUPV. }	14	102.3	42.5-147.5	9
PLANT CONTROL OPERATORS	25	70.8	23.5-107.5	18

● STAFFING EXPERIENCE EXCEEDS INDUSTRY RECOMMENDATIONS

TECHNICAL SPECIFICATIONS

- PP&L PROVIDED CERTIFICATION THAT TECHNICAL SPECIFICATIONS ARE CONSISTENT WITH FSAR AND AS-BUILT PLANT
- SIMILAR TECHNICAL SPECIFICATIONS AS UNIT 1. UNIT 2 TECHNICAL SPECIFICATIONS WERE PREPARED BASED ON UNIT 1 TECHNICAL SPECIFICATIONS (WITH CHANGES)
- TRAINING WAS CONDUCTED ON SPECIFIC DIFFERENCES BETWEEN UNIT 1 AND UNIT 2
- AUDIT PERFORMED BY EG&G IDAHO REGARDING UNIT 2 TECHNICAL SPECIFICATIONS AS COMPARED TO FSAR AND SER
- AUDIT PERFORMED BY FRC REGARDING UNIT 2 TECHNICAL SPECIFICATIONS AS COMPARED TO AS-BUILT PLANT
- NO SIGNIFICANT DISCREPANCIES

OPERATING EXPERIENCE
(REGION I SLIDES)

READINESS FOR FULL POWER OPERATION

UNIT TWO

1. CONSTRUCTION AND PREOPERATIONAL TESTING INSPECTION IS COMPLETE AND CONFIRMS THAT NRC REQUIREMENTS AND LICENSEE COMMITMENTS ARE MET.
2. THE NRC INSPECTION PROGRAM IS CURRENT.
3. THE SALP REPORT ISSUED MAY 4, 1984 RATED ALL UNIT TWO AREAS AS CATEGORY 1.
4. EMERGENCY PREPAREDNESS USES THE SAME EMERGENCY PLAN FOR BOTH UNITS. NRC OBSERVATION OF THE APRIL 4, 1984 EMERGENCY PREPAREDNESS EXERCISE FOUND NO SIGNIFICANT DISCREPANCIES.
5. NO OPEN INSPECTION ITEMS PRECLUDE LICENSE ISSUANCE.

UNIT 2 OPERATING HISTORY

5/8/84 INITIAL CRITICALITY ACHIEVED.

5/16/84 HEAT UP IN PROGRESS - HOLDING AT LESS
THAN 150 PSIG

ALLEGATIONS

- BISCO PENETRATION SEAL ADEQUACY. INSPECTION HAS FOUND NO INADEQUACIES.

- CHUGGING METHODOLOGY ANALYSIS CODE ADEQUACY. EVALUATION BY NRR FINDS CHUGGING METHODOLOGY ADEQUATE. CONFIRMATION OF DATA IN PROGRESS.

SUSQUEHANNA ESCALATED ENFORCEMENT HISTORY

UNIT 2

APRIL 1984 -- LOADING FUEL WITH SOURCE RANGE MONITOR CHANNEL "A" SCRAM FUNCTION BYPASSED. (ENFORCEMENT ACTION PENDING)

UNIT 1

FEBRUARY 1984 -- DURING STARTUP, 150 PSIG PLANT PRESSURE WAS EXCEEDED FOR TWO HOURS WITH HIGH PRESSURE COOLANT INJECTION SYSTEM INOPERABLE. (ENFORCEMENT ACTION PENDING)

FEBRUARY 1984 -- PLANT STARTUP BEGAN WITHOUT COMPLETION OF LINEUP OF HIGH PRESSURE COOLANT INJECTION SYSTEM AND OF REACTOR CORE ISOLATION COOLING SYSTEM (ENFORCEMENT ACTION PENDING)

NOVEMBER 1983 -- MAIN CONDENSER OFFGAS TREATMENT SYSTEM EXPLOSIVE GAS MONITORING SYSTEM INOPERABLE FOR ABOUT THREE DAYS WITHOUT REQUIRED GRAB SAMPLES BEING TAKEN. (ENFORCEMENT ACTION PENDING)

OCTOBER 1983 -- A SEVEN-HOUR LOSS OF INDEPENDENCE OF ONE OF THE TWO OFFSITE POWER SUPPLIES FOR ONE OF THE FOUR DIESEL BUSES. (ENFORCEMENT ACTION PENDING)

FEBRUARY 1983 -- STANDBY HAS TREATMENT SYSTEM INOPERABLE FOR ABOUT 24 HOURS (\$60,000.00 CIVIL PENALTY)

UNIT 1 OPERATING HISTORY

09/10/82 - INITIAL CRITICALITY

11/12/82 - FULL POWER AUTHORIZED

02/04/83 - ACHIEVED 100% POWER

04/04/83 - COMPLETED STARTUP PROGRAM

1983 AVAILABILITY 75.8%

CONCLUSIONS

THE STAFF CONCLUDES THAT THE LICENSEE HAS SATISFIED ALL
REQUIREMENTS FOR ISSUANCE OF A FULL POWER LICENSE.

MAY 1984

DRAFT

NUREG-0776
Supplement No. 7

SER RELATED TO THE OPERATION OF SUSQUEHANNA STEAM ELECTRIC STATION,
UNITS 1 AND 2

Safety Evaluation Report

related to the operation of
**Susquehanna Steam Electric Station,
Units 1 and 2**

Docket Nos. 50-387 and 50-388

Pennsylvania Power & Light Company
Allegheny Electric Cooperative, Inc.

**U.S. Nuclear Regulatory
Commission**

Office of Nuclear Reactor Regulation

May 1984



NUREG-0776, Supp. 7

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A CONTINUATION OF CHRONOLOGY OF NRC STAFF RADIOLOGICAL REVIEW OF SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2	

ABSTRACT

In April 1981, the staff of the Nuclear Regulatory Commission issued its Safety Evaluation Report (NUREG-0776) regarding the application of the Pennsylvania Power & Light Company (the applicant and/or licensee) and the Allegheny Electric Cooperative, Inc. (co-applicant) for licenses to operate the Susquehanna Steam Electric Station, Units 1 and 2, located on a site in Luzerne County, Pennsylvania.

Supplement 1 to NUREG-0776 was issued in June 1981 and addressed several outstanding issues. Supplement 2 was issued in September 1981 and addressed additional outstanding issues. Supplement 2 also contains NRC staff responses to the comments made by the Advisory Committee on Reactor Safeguards in its report dated August 11, 1981. Supplement 3 was issued in July 1982 and addressed five items that remained open and closed them out. On July 17, 1982, Operating License NPF-14 was issued to allow Unit 1 operation at power levels not to exceed 5% of rated power. Supplement 4 was issued in November 1982 and discusses the resolution of several license conditions. On November 12, 1982, Operating License NPF-14 was amended to remove the 5% power restriction, thereby permitting full-power operation of Unit 1. Supplement 5 was issued in March 1983 and addressed several issues that required resolution before licensing operation of Unit 2. Supplement 6 was issued in March 1984 and addressed the remaining issues that required resolution before licensing operation of Unit 2 and closed them out. On March 23, 1984, Operating License NPF-22 was issued to allow Unit 2 operation at power levels not to exceed 5% of rated power.

This supplement to NUREG-0776 addresses those issues which required resolution prior to allowing Unit 2 operation at power levels exceeding 5% rated power.

1 INTRODUCTION AND GENERAL DISCUSSION

1.1 Introduction

In April 1981, the staff of the Nuclear Regulatory Commission (NRC) (the staff) issued its Safety Evaluation Report (SER) (NUREG-0776) regarding the application of the Pennsylvania Power & Light Company (PP&L) (the applicant and/or licensee) and the Allegheny Electric Cooperative, Inc. (the co-applicant) for licenses to operate Susquehanna Steam Electric Station, Units 1 and 2. In June 1981, the staff issued Supplement 1 to NUREG-0776, which documented the resolution of several outstanding issues in further support of the licensing activities. In September 1981, the staff issued Supplement 2 to NUREG-0776, which addressed the open items identified in the SER and Supplement 1. In July 1982, the staff issued Supplement 3 to NUREG-0776, which addressed all remaining open issues from previous supplements and closed them out. On July 17, 1982, Operating License NPF-14 was issued for Unit 1. Operation was restricted to fuel loading and low-power testing at levels not to exceed 5% rated power. In November 1982, the staff issued Supplement 4 to NUREG-0776, which addressed the resolution of several Unit 1 license conditions that had been met. On November 12, 1982, Amendment 5 to Operating License NPF-14 was issued removing the 5% power restriction, thus allowing Unit 1 operation at power levels not to exceed 100% rated power. In March 1983, the staff issued Supplement 5 to NUREG-0776, which addressed several issues that required resolution before Unit 2 could be licensed for operation. In March 1984, the staff issued Supplement 6 to NUREG-0776, which addressed the remaining issues the required resolution before licensing operation of Unit 2. On March 23, 1984, Operating License NPF-22 was issued for Unit 2. Operation was restricted to fuel loading and low-power testing at levels not to exceed 5% rated power.

Each section containing issues addressed in this report, Supplement 7 to NUREG-0776, is numbered and titled to correspond to the sections of NUREG-0776 and its earlier supplements where they are previously discussed. This report addresses the remaining issues that require resolution before Unit 2 can be licensed for full power operation and closes them out.

Copies of this report are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C., and at the Osterhout Free Library, 71 South Franklin Street, Wilkes Barre, PA 18701. Copies of this report also are available for purchase from the sources indicated on the inside front cover.

The NRC project manager for Susquehanna is Mr. Robert L. Perch. Mr. Perch may be contacted by writing to the Division of Licensing, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555.

The following additional NRC staff member contributed to this report, which is a product of the staff.

<u>Name</u>	<u>Position</u>	<u>Branch</u>
Jerry Mauck	Reactor Engineer	Instrumentation and Control Systems

1.10 License Conditions

There was one issue for which a condition was included in Operating License NPF-22 which required satisfactory resolution prior to exceeding 5% rated power. The current status and section in which the staff evaluates this issue is shown below:

<u>Issue</u>	<u>Status</u>	<u>Section</u>
Additional instrumentation and control concerns	Resolved	<u>7.7.2</u>

7 INSTRUMENTATION AND CONTROL

7.7 Control Systems Not Required for Safety

7.7.1 General Discussion

Common Electrical Power Sources or Sensor Malfunctions Causing Multiple Control System Failures

During the Instrumentation and Control Systems Branch (ICSB) review of the Susquehanna Steam Electric Station (SSES) Final Safety Analysis Report (FSAR), the staff noted that the analysis reported in Chapter 15 is intended to demonstrate the adequacy of the safety systems in mitigating anticipated operational occurrences and accidents, including those related to control systems. Based on the conservative assumptions made in defining these design basis events and the review performed, it was likely that the Chapter 15 analyses adequately bounded events initiated by a single control system failure. However, to assure that the Chapter 15 analyses adequately bound events caused by multiple control system malfunctions due to failures of shared power supplies, sensors or sensor lines, the staff requested that the licensee perform a review to determine what, if any, design changes or operator actions would be necessary to assure that these malfunctions would not complicate the event beyond the FSAR analysis.

High Energy Line Breaks and Consequential Control System Failures

If control system are exposed to the environment resulting from the rupture of reactor coolant lines, steam lines or feedwater lines, the control systems may malfunction in a manner which could cause consequences to be more severe than assumed in the FSAR safety analyses.

The staff requested Pennsylvania Power & Light Company (PP&L) to perform a review to determine what, if any, design changes or operator actions would be necessary to assure that these multiple control system malfunctions would not complicate the event beyond the FSAR analysis. In response to this concern, PP&L initiated a review to determine whether High Energy Line Breaks (HELBs) could have an effect on multiple controls systems and to investigate the impact of failure of the applicable systems on the FSAR Chapter 15 analysis.

7.7.2 Specific Findings

Common Electrical Power Sources or Sensor Malfunctions Causing Multiple Control System Failures

By letters dated October 14, 1983 and February 27, 1984 from N. W. Curtis (PP&L) to A. Schwencer (NRC), the licensee provided reports that presented the results of a design review, evaluation and plant walkdown addressing this concern for Unit 1 and Unit 2 respectively.

The methodology that the licensee utilized for this design review was divided into a two phase approach as discussed below. Phase 1, the "identification phase", consisted of identifying the following key items:

- (1) Plant safety functions
- (2) Control systems
- (3) Power supplies and sensors to the control systems
- (4) Power supplies and sensors common to control systems.

For these key items, Control System Identification Diagrams (CSID) were generated to document the information and to assist in further analysis. Power supply and sensor commonality was determined using the CSIDs. A second diagram, the Commonality Diagram (CD), was generated to show the control systems that were affected by each common power supply or sensor failure.

Phase 2, the "analysis phase", consisted of the analyses of the failure of these common power supplies and sensors with respect to their associated control systems. The control system failures were analyzed with respect to the following criteria:

- (1) Plant response as per Chapter 15
- (2) Plant conditions within operator and safety system capabilities
- (3) Reanalysis or modifications required to correct any problems not covered by the first two criteria.

The methodology employed in the analysis phase was based upon Failure Modes and Effects Analysis (FMEA). This technique was performed on each common power supply and sensor to determine the effect of the failure on the control system and on plant performance.

A total of ten power supply and sensor commonalities for Unit 1 and eleven for Unit 2 were identified and analyzed. Of these commonalities, all were of the power supply type, except one which was of the sensor type. The review identified one commonality which required a detailed analysis concerning the loss of a 125V DC bus (1D635 for Unit 1 and 2D635 for Unit 2).

The control systems affected by this power supply failure in Unit 1 are the Reactor Feedwater, and the Pressure Regulator and Turbine/Generator (T/G) Control Systems. In addition to these, the recirculation runback circuitry is affected in Unit 2. The conditions that required a detailed analysis however, were specifically limited to the Feedwater Flow Control and Reactor Feedwater Pump Turbine (RFPT) control subsystems worst case failures. The loss of these power supplies did not generate conditions outside the boundary of the Chapter 15 safety analyses for the Pressure Regulator and T/G Control Systems or the Recirculation Runback Control System (Unit 2 only). The sequence of events for Unit 1 (Unit 2 is similar) that result from the loss of power supply 1D635 for the Feedwater System is as follows:

- a. While operating at 100% reactor power, the plant experiences a loss of 1D635. The feedwater flow signal from the B train instrumentation powered by 1D635 (Flow Transmitter FT1N002B and SRU 6) changes to zero due to the loss of 1D635. Since the feedwater flow signals from trains A, B and C are summed, the total feed flow signal changes from 100% feed flow to 67% feed flow subsequent to receiving the erroneous zero signal from the B train. This introduces a mismatch between steam flow, which is still at 100%, and feed flow which is at 67%.
- b. In response to this steam flow, feed flow mismatch, the Feedwater Flow Control System sends a signal to the three RFPT's to increase feed flow to make up for the erroneous 33% decrease in flow. Actual feed flow at this point would be approximately 135%.
- c. Since actual feed flow is significantly greater than that required, the increase in reactor vessel level may reach the Level 8 (high level) trip set point.
- d. If the Level 8 trip set point is reached, a trip signal will be sent to RFPTs A, B, and C and the T/G. RFPTs A and B and the T/G trip. RFPT C fails to trip because its trip circuit was disabled upon loss of 1D635.

Based on the assumption that the Level 8 setpoint is reached due to excessive feedwater demand, it was found that the resulting conditions were not explicitly addressed by the Chapter 15 safety analyses. Chapter 15 states that the plant response to a Level 8 condition, initiated by excess feedwater flow, should include the trip of all RFPTs and the T/G. Since the conditions generated subsequent to the failure of RFPT C to trip are not known, it could not be determined if the plant system capabilities were within the bounds governed by the existing safety analyses.

However, it was evident that the operator retained the ability to take manual control of RFPT C to mitigate the effects of its continued operation. The operator would have been alerted to the using reactor vessel level by the Level 7 alarm. This condition, therefore, appeared to be within the capabilities of the operator. To provide a further analysis of this event, the licensee utilized a RETRAN computer code to simulate the event.

It should be noted that the NRC staff and their technical assistance consultants at Argonne National Laboratory have concluded that the use of the RETRAN computer code to perform licensing basis calculations is acceptable (with the understanding that the generic review of RETRAN is not complete, and the acceptability of all reviews is predicated on the anticipated successful completion of this generic review), that the selection of options and input to RETRAN provide a reasonable and adequate representation of the thermohydraulics, and that the results of these calculations can determine an acceptable set of input and initial conditions for the critical power ratio calculations.

The first RETRAN run was performed simulating the loss of one feedwater flow element. This run indicated that the reactor water level would rise to 53.3 inches in 50 seconds and then become stable. While this level is below the 54 inch Level 8 setpoint, it is close enough that normal instrument drift could cause trips. Therefore, a second RETRAN run was performed so that the effects of the Level 8 trip could be examined. The computer code was modified to force a trip at 53.3 inches and to force a minimum feedwater injection rate of 25%.

The licensee stated that this simulation was over conservative in that the transient run had a steadily increasing water level due to the 25% assumed feedwater injection rate, when in actuality, upon a RFPT B trip, the false feedwater flow vs. steam flow mismatch is corrected and the feedwater controller will attempt to control reactor water level to the controller setpoint. Even with a feedwater pump running, the controller has the ability to terminate feedwater injection. Actual feedwater injection will terminate at approximately 70 to 90 seconds after the turbine trip due to a feedwater controller setback which was not modelled by the RETRAN code.

The results of the RETRAN simulated transient run indicate that the event is, in fact, bounded by the Chapter 15 safety analysis for thermal limit considerations. Therefore, the staff has concluded that the safety limits of Chapter 15 are not violated, and in addition, the resulting conditions are within the capabilities of the plant operators and safety systems. All of the remaining control system commonalities were determined to be either bounded by the results of the Chapter 15 safety analyses or did not impact plant safety.

The staff requested the licensee to identify all significant non-safety related multiple control system events caused by failures of shared sensor impulse lines. The licensee stated in a letter dated April 12, 1984 from N. W. Curtis to A. Schwencer, that based on the analysis performed, no significant non-safety related multiple control system events were caused by failures of shared sensor impulse lines. The staff then requested the licensee to verify that for each failed shared power supply, sensor and sensor impulse line, or the subsequent multiple control system failures, redundant safety-related systems are available (i.e., unaffected by the event) to mitigate the effects of the event. The intent was to assure that the consequences of the event can be mitigated given a single failure within the system used to mitigate the event. The licensee stated in the April 12 letter that for each multiple control systems failure event analyzed, redundant safety systems are available to mitigate the event and are unaffected by the multiple control system failure event. Furthermore, the licensee stated in the April 12 letter that with the exception of the feedwater level 8 trip, no credit was taken in the analysis for non-safety related equipment to mitigate the effects of these failures. Since the level 8 trip is used to terminate the feedwater controller failure in FSAR Chapter 15, the licensee stated that the level 8 trip can be used to mitigate the effects of various multiple control system failure events when they are analyzed against the feedwater controller failure event in Chapter 15. The level 8 trip has been incorporated into the Susquehanna Technical Specifications and its use to mitigate the effects of the feedwater controller failure event was found to be acceptable by the staff during the Operating License (OL) review (FSAR Question 211.139).

In conclusion, the licensee stated the plant conditions that result from these multiple control system failures do not exacerbate the conditions that result from the events analyzed in Chapter 15 from a 10CFR100 guidelines perspective. In each case, the worst case event combinations are bounded by the radiological consequences currently provided for each Chapter 15 event.

High Energy Line Breaks and Consequential Control System Failures

By letters dated October 14, 1983 and April 2, 1984 from N. W. Curtis (PP&L) to A. Schwencer (NRC), PP&L provided reports that presented the results of a design review, evaluation and plant walkdown addressing this concern for Unit 1 and Unit 2 respectively.

The methodology that was utilized by the licensee for this review was designed to meet the following objectives:

- (1) to identify potential HELB which could impact two or more control systems either by pipewhip, jet impingement, or the resultant harsh environment.
- (2) to analyze the effects of the HELBs on the components/cables which comprise the control systems and to determine the impact of the specific component failures on the control systems.
- (3) For simultaneous malfunctions of control systems due to a single HELB, determine if the combined failures are bounded by the Chapter 15 analyses and are within the capabilities of operators and safety systems.

A two phase approach was used as part of this methodology. Phase 1, the "identification phase", consisted of identifying the following terms:

- (1) Plant safety function
- (2) Control system components and cables
- (3) Control system components and cable locations
- (4) HELBs common to control system components/cables

Phase 2, the "analysis phase", consisted of the analysis of the multiple control system failures as a result of a single HELB. The control system failures were analyzed with respect to the following criteria:

- (1) Plant response as per Chapter 15
- (2) Plant conditions within operator and safety system capabilities
- (3) Reanalysis or modifications required to correct any problems not covered by the first two criteria.

The methodology employed in the analysis phase was based upon Failure Modes and Effects Analysis (FMEA). The FMEA technique was used to generate failure effects information on each control system as it pertains to the specific HELB.

The licensee performed the HELB study using the guidelines noted above. The results of the study indicated that all postulated events satisfy the criteria for infrequent events, i.e., that the dose consequences do not exceed 10% of the 10 CFR 100 criteria.

A total of 4 HELB/multiple control system commonalities were identified. Of these, one is located inside primary containment, one in the reactor building outside primary containment, and 22 in the turbine building.

Because high energy lines (main steam, feedwater, and condensate) are located in almost every area of the turbine building, over 20 multiple control system/HELB interactions were identified. The most severe interaction was in a plant area adjacent to the control structure. This area contains a majority of the cable, routed from the sensors in the turbine to the control structure for the turbine/generator control, feedwater control, recirculation flow control, and reactor manual control systems. All of this cable would be affected by a jet from a 20 inch feedwater line longitudinal break. This pipe is the inlet to the feedwater heater. The initial pressure is assumed to be 400 psia based on the feedwater pump suction pressure requirements and the condensate pump discharge pressure. The turbine building is a large structure which is relatively open. This provides free communication of air and, following a major steam or feedwater line break, would result in a harsh environment (100°F) for a majority of the turbine building areas. Because of this, the licensee used the "sacrificial" approach, where all components and cables are assumed to fail in their worst mode due to harsh environment following a main steam or feedwater line break.

A postulated break of a main steam or feedwater line represents the largest steam or liquid lines outside of containment and provides the envelope evaluation relative to this type of occurrence in the turbine building. The break spectrum analysis for the complete range of reactor conditions indicates that the limiting fault event for breaks outside the containment is a complete severance of one of the four main steam lines. The feedwater system break is less severe than the main steam line break in terms of reactor response. The consequences of the main steam line break which envelopes all of the HELB/multiple control system interactions listed by the licensee are as follows:

- (1) Largest steam line circumferentially breaks at a location downstream of the outermost isolation valve in the turbine building.
- (2) Flow from the upstream portion is limited by the flow restrictor upstream of the inboard isolation valve.
- (3) Flow from the downstream side is limited by the total area of the three unbroken lines.
- (4) MSIVs start to close at 0.5 seconds on a high steam flow signal and are fully closed at 5.5 seconds.

- (5) Reactor vessel level rises due to rapid depressurization and increased void formation.
- (6) Recirc pumps trip on high reactor vessel pressure signal.
- (7) Reactor scrams on high reactor vessel level or MSIV closure.
- (8) Reactor feed pumps trip due to termination of steam flow to pump turbines following MSIV closure.
- (9) Safety relief valves cycle to maintain vessel pressure at approximately 1100 psi.
- (10) Turbine trips on MSIV closure or high reactor vessel level.
- (11) Reactor water level above core begins to drop slowly due to loss of steam through the safety valves. Reactor pressure still at approximately 1100 psi.
- (12) RCIC and HPCI would initiate on low water level (RCIC considered unavailable, HPCI assumed single failure and therefore not available).
- (13) Operator initiates ADS. Vessel depressurizes rapidly.
- (14) Low pressure ECCS systems initiated. Reactor fuel uncovered partially.
- (15) Core effectively reflooded and clad temperature heatup terminated. No fuel failure.

Following this event, none of the components located in the turbine building for the T/G control system, recirc control system, and feedwater flow control system are required to operate and there is no adverse affect on plant safety.

The staff requested the licensee to verify that for each HELB event and its consequential control system failures, redundant safety related systems are available (i.e., unaffected by the event) to mitigate the effects of the event. The intent was to assure that the consequences of the event can be mitigated given a single failure within the system used to mitigate the event. The licensee stated in a letter dated April 12, 1984 from N. W. Curtis to A. Schwencer that the conditions that resulted from the failure of multiple control systems due to HELBs were analyzed against each event in Chapter 15 to determine if these resultant conditions in combination with the conditions described in each specific Chapter 15 event were within the response capabilities of the plant safety systems.

In each case, the redundant safety systems that were available to mitigate the Chapter 15 event were unaffected by the additional failures of the control systems due to HELBs. Furthermore, the licensee stated in the April 12, 1984 letter that with the exception of the feedwater level 8 trip, no credit was taken in the analysis for non-safety related equipment to mitigate the effects

of these failures. Since the level 8 trip is used to terminate the feedwater controller failure in FSAR Chapter 15, the level 8 trip can be used to mitigate the effects of various HELBs when they are analyzed against the feedwater controller failure event in Chapter 15. The level 8 trip has been incorporated in the Susquehanna technical specifications and its use to mitigate the effects of the feedwater controller failure event was found to be acceptable by the staff during the operating license review (FSAR Question 211.139).

In conclusion the licensee stated that the plant conditions that result from the HELBs do not exacerbate the conditions that result from the events analyzed in Chapter 15 from a 10 CFR 100 guidelines perspective. In each case, the worst case event combinations are bounded by the radiological consequences currently provided for each Chapter 15 event.

7.7.3 Summary

Common Electrical Power Sources or Sensor Malfunctions Causing Multiple Control System Failures

Based on our review which indicates that the radiological consequences of the worst case multiple control system failure event is bounded by the radiological consequences currently provided for each Chapter 15 event, the staff finds that the conclusions of the analyses of the anticipated operational occurrence and accidents as presented in Chapter 15 have been used to confirm that plant safety is not dependent on the response of the control systems. The staff concludes that multiple failures of control systems as a consequence of a failure of shared power supplies, sensors or sensor impulse lines will not result in plant conditions more severe than those bounded by the Chapter 15 safety analysis.

Therefore, License Conditions 2.C.(25)(a) for Unit 1 and 2.C.(10)(a) for Unit 2 of the Susquehanna facility (operating License NPF-14 for Unit 1 and NPF-22 for Unit 2) have been acceptably resolved.

However, it should be noted that the final resolution of this concern is predicated on the anticipated successful completion of the generic review of the RETRAN computer code utilized in the licensee's study. This generic review is being conducted by the staff and their technical consultants at Argonne National Laboratory. Although this review is not complete, enough progress has been made to date so that along with the information submitted by the licensee, adequate basis has been established to perform the review for this analysis.

High Energy Line Breaks and Consequential Control System Failures

Based on our review of the licensee's study which indicates that the radiological consequences of the worst case event combinations are bounded by the radiological consequences currently provided for each Chapter 15 event, the staff finds that the HELB concern is resolved. Therefore, License Conditions 2.C.(25)(b) for Unit 1 and 2.C.(10)(b) for Unit 2 of the Susquehanna facility (Operating License NPF-14 for Unit 1 and NPF-22 for Unit 2) have been acceptably resolved.

APPENDIX A

CONTINUATION OF CHRONOLOGY OF NRC STAFF RADIOLOGICAL REVIEW OF SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1 AND 2

Appendix A in the Safety Evaluation Report and Supplements 1, 2, 3, 4, 5, and 6 provided a chronology of the NRC staff's radiological safety review of the application for the period April 10, 1978 to March 15, 1984; the purpose of this appendix is to update that chronology.

February 29, 1984	Letter from applicant concerning schedule for completion of Regulatory Guide 1.97 requirements.
March 1, 1984	Letter from applicant concerning revised response to Generic Letter 83-28.
March 1, 1984	Letter from applicant transmitting proposed Amendment 37 to License NPF-14.
March 2, 1984	Letter to applicant approving Change F to the Physical Security Plan.
March 5, 1984	Letter to applicant concerning Susquehanna Unit 2 Technical Specifications.
March 7, 1984	Letter from applicant concerning Preoperational Primary Reactor Containment Integrated Leak Rate Test.
March 8, 1984	Representatives from NRC and Pennsylvania Power & Light Company meet at the Susquehanna Steam Electric Station Site in Luzerne County, Pennsylvania for an NRC Management Site Visit and Readiness of Susquehanna Unit 2 for Licensing. (Summary issued March 30, 1984)
March 8, 1984	Letter from applicant transmitting a supplemental report on the detailed control room design review.
March 9, 1984	Letter from applicant concerning operating experience.
March 9, 1984	Letter from applicant transmitting Amendment 56 to the operating license application containing Revision 34 to the Final Safety Analysis Report.
March 12, 1984	Representatives from NRC and Pennsylvania Power & Light Company meet in Bethesda, Maryland, to discuss staff evaluation of Susquehanna Detailed Control Room Design Review Report. (Summary issued March 30, 1984)

March 12, 1984 Letter from applicant transmitting a special report on fire protection.

March 13, 1984 Letter from applicant concerning clarification of Emergency Operations Facility Operation.

March 13, 1984 Letter from applicant transmitting the Monthly Operation Report for February 1984.

March 13, 1984 Letter from applicant concerning conformance to Regulatory Guide 1.97.

March 14, 1984 Letter from applicant concerning Generic Letter No. 82-33.

March 15, 1984 Letter from applicant concerning Human Engineering Discrepancies - Unit 2 Control Room.

March 15, 1984 Letter from applicant responding to request for additional information - Unit 2 SQRT Program.

March 15, 1984 Letter from applicant concerning feedwater check valve analysis.

March 16, 1984 Letter from applicant concerning notification of Unit 2 construction completion.

March 16, 1984 Letter from applicant concerning Final Safety Analysis Report Revision to Chapters 6, 7 and 18.

March 20, 1984 Letter from applicant concerning certification of Unit 2 Technical Specifications.

March 22, 1984 Letter from applicant transmitting the annual financial report.

March 23, 1984 Letter to applicant transmitting 2 copies of Supplement No. 6 to the Safety Evaluation Report Related to Operation of Susquehanna Steam Electric Station, Units 1 and 2 (NUREG-0776).

March 23, 1984 Letter to applicant transmitting Facility Operating License NPF-22 for Susquehanna Steam Electric Station, Unit 2. The license is restricted to 5% of full power pending Commission approval for 100% power.

March 28, 1984 Letter from applicant transmitting the Annual Personnel Monitoring Report.

March 29, 1984 Letter from applicant transmitting an amended response to Final Safety Analysis Report Question 110.57.

April 2, 1984 Letter from applicant concerning evaluation of high energy line breaks on control systems study for Unit 2.

April 5, 1984 Letter to applicant transmitting 20 copies of Supplement No. 6 to the Susquehanna Steam Electric Station Safety Evaluation Report - NUREG-0776.

April 6, 1984 Letter from applicant concerning major modification to initial test program for Unit 2.

April 10, 1984 Letter from applicant transmitting the Monthly Operating Report for March 1984.

April 10, 1984 Letter from applicant concerning milestone dates for Unit 2.

April 10, 1984 Letter from applicant transmitting proposed Amendment 38 to License No. NPF-14 and Proposed Amendment 1 to License No. NPF-22.

April 10, 1984 Letter from applicant transmitting proposed Amendment No. 2 to License no. NPF-22.

April 12, 1984 Letter from applicant transmitting a response to NRC Letter, dated November 8, 1983.

April 18, 1984 Representatives from NRC and Pennsylvania Power & Light Company met in Bethesda, Maryland to discuss Main Steam Line - High Radiation Setpoint Technical Specification Change request. (Summary issued April 30, 1984)

April 24, 1984 Letter to applicant concerning feedwater check valve analysis.

April 24, 1984 Letter to applicant concerning Susquehanna Units 1 and 2 Annual Emergency Preparedness Exercise.

April 27, 1984 Letter to applicant concerning proposed Transco Gas Pipeline near the Susquehanna Site.

April 27, 1984 Letter from applicant transmitting one signed copy of Amendment 3 to Indemnity Agreement B-90.

May 1, 1984 Letter to applicant concerning Staff Review of Susquehanna DCRDR Summary Recommendations for the Resolution of Human Engineering Discrepancies.

May 1, 1984 Letter from applicant concerning Final Safety Analysis Report changes for radiation source terms and shielding.

May 1, 1984 Letter to applicant concerning Revision of Startup Test ST-2.

May 1, 1984 Letter from applicant concerning Final Safety Analysis Report changes for Radiation Source Terms and Shielding.

May 3, 1984 Letter from applicant transmitting proposed Amendment 3 to NPF-22 and Revision 1 to proposed Amendment 37 to License NPF-14.

May 4, 1984 Letter from applicant transmitting proposed Amendment 39 to License NPF-14 and proposed Amendment 4 to License NPF-22.

May 11, 1984 Letter to applicant requesting additional information regarding proposed Main Steam Line - High Radiation Setpoint Technical Specification Change.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

PENNSYLVANIA POWER & LIGHT COMPANY

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-388

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

License No. NPF-22
Amendment No.

1. The U. S. Nuclear Regulatory Commission (the Commission or the NRC) having found that:
 - A. The application for license by the Pennsylvania Power & Light Company and the Allegheny Electric Cooperative, Inc., (licensees), complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, for the Facility Operating License No. NPF-22, paragraph 2.C.(1) is hereby amended to read as follows:

- (1) Maximum Power Level

Pennsylvania Power & Light Company (PP&) is authorized to operate the facility at reactor core power levels not in excess of 3293 megawatts thermal (100% power) in accordance with the conditions specified herein and in Attachment 1 to this license. The preoperational tests, startup tests and other items identified in Attachment 1 to this license shall be completed as specified. Attachment 1 is hereby incorporated into this license.

3. This license amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Date of Issuance:

3/84

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Attached are copies of a Commission meeting transcript(s) and related meeting document(s). They are being forwarded for entry on the Daily Accession List and placement in the Public Document Room. No other distribution is requested or required. Existing DCS identification numbers are listed on the individual documents wherever known.

Meeting Title: Discussion / Possible Vote on Full
Power Operating License for Susquehanna 2

Meeting Date: 5/23/84 Open Closed

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1. TRANSCRIPT <u>w/ Viewgraphs</u>	<u>1</u>	*	<u>1</u>	<u> </u>
2. <u>Safety Evaluation Report</u>	<u>1</u>	*	<u> </u>	<u>1</u>
<u>Msg 0776, Supp 7 (Draft</u>		*		
3. <u>Amendment to Facility</u>	<u>1</u>	*	<u> </u>	<u>1</u>
<u>Operating License</u>		*		
4. <u> </u>	<u> </u>	*	<u> </u>	<u> </u>
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