

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of:

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

PUBLIC MEETING

B410170126 B41004
PDR 10CFR
PT9.7 PDR

Location: Washington, D.C.

Pages: 1 - 83

Date: Thursday, October 4, 1984

1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION
3 DISCUSSION/POSSIBLE VOTE ON FULL POWER OPERATING
4 LICENSE FOR CALLAWAY-1
5

6 PUBLIC MEETING
7

8 Nuclear Regulatory Commission
9 1717 H Street, N.W.
10 Room 1130
11 Washington, D.C.

12 October 4, 1984

13 The Commission met, pursuant to notice, at
14 10:09 a.m.

15 COMMISSIONERS PRESENT:

16 NUNZIO PALLADINO, Chairman of the Commission
17 THOMAS ROBERTS, Commissioner
18 JAMES ASSELSTINE, Commissioner
19 FREDERICK BERNTHAL, Commissioner
20 LANDO W. ZECH, JR., Commissioner

21 STAFF AND PRESENTERS SEATED AT COMMISSION TABLE:

22 S. Chilk, Secretary
23 H. Plaine, General Counsel
24 E. Christenbury
25 J. Holowich
D. Eisenhut
H. Denton
C. Norelius
J. Keppler
R. Black
H. Thompson
B. Little
W. Houseton
J. Knight
D. Schnell, on behalf of licensee

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

DISCLAIMER

This is an unofficial transcript of a meeting of the United States Nuclear Regulatory Commission held on October 4, 1984 in the Commission office at 1717 H. Street, N.W., Washington, D.C. The meeting was open to public attendance and observation. This transcript has not been reviewed, corrected, or edited, and it may contain inaccuracies.

The transcript is intended solely for general informational purposes. As provided by 10 CFR 9.103, it is not part of the formal or informal record of decision of the matters discussed. Expressions of opinion in this transcript do not necessarily reflect the final determinations or beliefs. No pleading or other paper may be filed with the Commission in any proceeding as the result of or addressed to any statement or argument contained herein, except as the Commission may authorize.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

PROCEEDINGS

CHAIRMAN PALLADINO: Good morning, ladies and gentlemen. We are meeting this morning to be briefed by the staff on the readiness of the Callaway nuclear facility for a full power license amendment.

The low power license was issued by the staff on June 11 and they understand that the plant achieved initial criticality two days ago.

As part of the briefing this morning, we would like the staff to comment on the licensee's operational performance to date and identify what further staff activities must take place before the amendment is issued should the Commission authorize its issuance.

Also I want to note for the record that we received a set of allegations from GAP two days ago that ~~they~~^I understand is being treated as a 2.206 petition.

I understand that the staff will address the allegations today to the extent that they can, in view of the late submittal of the allegations.

Nonetheless, I believe that the Commission would be interested in how the staff intends to deal with them.

Assuming that the staff will be seeking Commission authorization for full power at Callaway, I will be polling the commissioners at the end of the meeting on their positions on whether or not to grant the

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

authorization. Are there any other comments before we begin?

If not, then let me turn the meeting over to ...

COMMISSIONER ROBERTS: I have a question. I want a clarification. We're going to hear from the staff, is that correct?

CHAIRMAN PALLADINO: That's right.

COMMISSIONER ROBERTS: And only the staff.

CHAIRMAN PALLADINO: Unless the Commission decide, otherwise.

COMMISSIONER ROBERTS: Thank you.

CHAIRMAN PALLADINO: All right.

MR. DENTON: Thank you, Mr. Chairman. We have here today Jim Keppler, regional administrator of Region III, the region in which the plant's located.

Chuck Norelius on my right, who is director of projects in that region. Darrell Eisenhut, director of licensing, Joe Holonich, the project manager for Callaway, Ed Christenbury, chief hearing counsel.

We have a rather brief presentation that will cover those two areas that you mentioned. ^{They are} The only two activities that we think need to be resolved prior to issuing a full power license, that is to review the performance of the licensee during the upcoming low power testing and to review the issues raised in the

1 2.206.

2 We have looked at the 2.206 to the extent that we
3 decided not to suspend the effectiveness of the low
4 power license, and we'll cover that in more detail.

5 Let me turn it over to Darrell to begin the
6 presentation.

7 MR. EISENHUT: Thank you. May I have the next
8 slide, please. I'm sorry, this is the correct slide.

9 The format we'll use today is a little bit
10 different than we have in the past. Usually the staff
11 has gone through and picked out the half dozen or so
12 detailed technical subjects that at least in our view
13 we were focusing on.

14 They will try to give you an overview of hitting
15 the higher points and really focusing on the
16 significant issues as we see ^{it} the review is largely
17 done, and then turning over to the region ^{as they see it} to go through
18 as they see it from the experience.

19 There is one matter which wasn't in the agenda
20 which I'll just mention, and that is as a related
21 parallel matter, we will be issuing an exemption to
22 Appendix J on this plant very similar to what we have
23 on every other OL.

24 We did not make this briefing package simply to an
25 oversight, but it would be handled as a separate

1 document as we have ^{done} ~~been~~ on all the other plants.

2 With that, I'd like to turn the briefing over to
3 the project manager. He'll go through it. As you can
4 see here on the outline, we have provided to the
5 Commission as background slides, the information or
6 more of the detailed information which is ^{historically} ~~directly~~
7 sometimes.

8 We have gone through and provided for information
9 only in this case. We do not plan to walk through that
10 in any depth.

11 With that, Joe, I'll turn it over to you.

12 MR. HOLONICH: Thank you, Darrell. And the next
13 slide, please. The Callaway plant is owned and
14 operated by Union Electric Company of St. Louis,
15 Missouri.

16 The plant is a four-loop Westinghouse ^P ~~R~~ BWR, has a
17 thermal core power, 3411-megawatts with an electrical
18 output of 1186 megawatts.

19 The architect engineer was Bechtel Corporation,
20 Gaithersburg, Maryland. General contractor was Daniel
21 International.

22 Callaway site is located in Central Missouri ^{on} ~~by~~ the
23 Missouri River. The nearest town is Fulton, which is a
24 distance of approximately ten miles from the site, and
25 has a population of 11,046.

1 The population center is Jefferson City, which is
2 approximately 25 miles from the site, has a population
3 of 33,594.

4 The off-site emergency planning review has been
5 completed. The emergency exercise was conducted on
6 March 21, 1984.

7 The FEMA evaluation of June 26, 1984 concludes that
8 the off-site plan is adequate.

9 It might be noted that there was some changes to
10 the off-site plan by the state subsequent to the June
11 26th letter.

12 The staff has received the FEMA input and it still
13 supports the original conclusion that the plan is
14 adequate.

15 Next slide, please. Callaway is one of two plants
16 being licensed using the duplicate plant^e design option
17 in Appendix N of CFR 20 as part of the SNUPPS
18 organization where SNUPPS stands for Standardized
19 Nuclear Unit Power Plant System.

20 SNUPPS was formed in the early seventies,
21 approximately in the 1972-73 time frame and originally
22 had five utilities constructing four sites.

23 The original membership included the Tyrone units 1
24 and 2, which were being built by Northern States Power.
25 That project was subsequently cancelled in March of

1 1979.

2 The Sterling project being built by Rochester Gas &
3 Electric, whose participation in SNUPPS stopped in
4 February of 1980 when they cancelled that project.

5 The Wolf Creek project, which was being constructed
6 by Kansas City Power and Light and Kansas Gas and
7 Electric and Kansas Electric Co-Op, which does not show
8 on this slide since it was not an original member in
9 the SNUPPS organization.

10 And, of course, the Callaway plant unit 1 and 2,
11 which was being built by Union Electric.

12 Unit 2 was eventually cancelled in October of 1981.
13 The SNUPPS concept was to design and build a
14 standardized portion of the plant known as the power
15 block, which covered the following areas: the
16 containment, fuel, diesel, control, auxiliary, turbine
17 and radwaste buildings.

18 The power block is designed to the most severe site
19 characteristics imposed by any of the four original
20 sites.

21 Other than that, there are no real unique design
22 features to the SNUPPS projects.

23 The licensing review of SNUPPS covered two areas, a
24 common FSAR, which was submitted in support of both
25 Callaway and Wolf Creek plants, and that entailed the

1 single staff review for both plants, and other
2 features, including the site which were done on a
3 plant-specific basis and whose description are
4 contained in the site addendum to the SNUPPS FSAR.

5 Next slide. As stated earlier, Callaway was
6 licensed on June 11, 1984 and began fuel loading on
7 June 13 and completed fuel loading on June 20.

8 Initial criticality was achieved this past Tuesday,
9 on October 2nd, and that is when low power testing
10 began.

11 The licensee anticipates that low power testing may
12 take 10 to 15 days, and that would be October 12th as
13 the earliest.

14 However, they informed us this morning that they
15 believe they may be ready this coming Monday to achieve
16 operation above 5% power.

17 MR. EISENHUT: Let's see. The slides we sent down
18 to you previously, I think, had the dates we
19 anticipated back when we sent this down in August.

20 So you'll notice the dates here and the dates that
21 Joe has mentioned are updates even as they continue
22 making progress.

23 CHAIRMAN PALLADINO: Has any plant gone from
24 criticality to power ascension above 5% in as short a
25 period of time as the Monday date would indicate?

1 MR. EISENHUT: I would say probably in that ball
2 park. Sometimes there's really not that much to be
3 done between going critical and going above 5%,
4 depending on the variations in the approach to low
5 power testing that's been laid out.

6 CHAIRMAN PALLADINO: Well, the only reason for my
7 question is this progression toward ascension an
8 orderly process or is it something that's being rushed
9 and gives any cause for concern?

10 MR. DENTON: I think other utilities may have
11 planned such a short schedule, but it's been my
12 experience it's seldom achieved because of
13 unanticipated mechanical problems as they go through
14 the process.

15 So it's not uncommon for it to take as long as a
16 month between initial criticality and completion of all
17 the 5% power tests because of the first of a kind
18 aspects of starting up in the plant.

19 CHAIRMAN PALLADINO: Well, I'd like to make sure
20 that the staff is on top of the situation well enough
21 to know that it is being done in a logical way.

22 ^{EISENHUT}
MR. ~~DENTON~~: That's a good point. We will be
23 addressing that a little bit later on.

24 MR. HOLONICH: May I have the next slide. The
25 Callaway FSAR ...

1 CHAIRMAN PALLADINO: Excuse me. Something I forgot
2 to mention in my introductory remarks. Commissioner
3 Asselstine is delayed because of an unavoidable
4 personal commitment.

5 He does hope to be here some time around 10:30 or
6 shortly thereafter. Excuse me.

7 MR. HOLONICH: The Callaway FSAR and application
8 for license were filed in October 1979, the detailed
9 staff design review covered the power block and the
10 plant-specific areas and took approximately 28 staff
11 years.

12 At this point, I would like to turn it over to Mr.
13 Charles Norelius from Region III, who will discuss the
14 rest of the slides.

15 MR. NORELIUS: The construction of the plant was
16 completed adequately, and we've listed, I think, some
17 key things that make us confident in saying that.

18 One is that our staff spent over 19,000 man hours,
19 inspection hours during the construction process over a
20 period of about nine years and following construction
21 items.

22 MR. DENTON: Slide number nine.

23 MR. NORELIUS: I think we're just going to talk
24 over the slides.

25 COMMISSIONER BERNTHAL: As a matter of curiosity,

1 does that include the on-site people or is that
2 independent of on-site?

3 MR. NORELIUS: No, that includes our resident
4 inspectors and the regional inspectors that come to the
5 plant.

6 COMMISSIONER BERNTHAL: So it's 19,000 hours over
7 ten years, roughly.

8 MR. NORELIUS: About nine years, I think. I might
9 mention that this is somewhat in excess of what's
10 normally budgeted for a plant under construction for
11 the inspection program.

12 COMMISSIONER BERNTHAL: I think the last time Jim
13 Keppler sat at this table and he ^cited 30,000 hours for
14 another plant, I pointed out that that amounted to a
15 total NRC/Federal Government commitment of one and a
16 half people over ten years for what amounted in that
17 case to a \$4 billion investment. Just a comment I
18 would make again in passing.

19 CHAIRMAN PALLADINO: You mean on inspection.

20 COMMISSIONER BERNTHAL: On inspection, right.

21 MR. NORELIUS: We did have a couple of special
22 inspections. In 1981, when a number of problems
23 surfaced at construction sites, Zimmer, Midland, and
24 others, the region put together a construction
25 assessment team in which we went out to the plants

1 under construction in our region and tried to focus on
2 the key factors that we saw as problems in the plants
3 that were having problems at that time.

4 And of the five plants that we assessed at that
5 time in the region, Callaway came out, I would say, at
6 the top of those, and we were very satisfied with that
7 special inspection.

8 Additionally, the Office of Inspection and
9 Enforcement conducted a special independent design
10 inspection in 1982.

11 They also were very satisfied with the results of
12 that. They determined that there was a control design
13 process in place, there were no hardware problems
14 identified, and based on the results of that
15 inspection, a decision was made not to have the company
16 perform an independent verification of the design
17 process.

18 Then also ...

19 COMMISSIONER ROBERTS: They must be the exception
20 to the rule. Mr. Denton is smiling.

21 (Laughter.)

22 MR. DENTON: There may be one or two more,
23 Commissioner, that you'll hear through the ... you're
24 right.

25 COMMISSIONER ROBERTS: I would be encouraged to

1 hear more.

2 MR. NORELIUS: We sent down a packet in the
3 briefing packet to the Commission on the Callaway QA
4 program and it has in there some of the things I've
5 just mentioned, plus a listing of the audits that were
6 conducted by Union Electric, SNUPPS, and the
7 construction company, Daniel.

8 And I think what it shows is that there was an
9 ongoing QA program during the construction process.
10 They did find problems.

11 They even stopped work to correct them, and that
12 indicates that it was a working QA program, by and
13 large, during the construction.

14 (Note: At 10:23 a.m., Commissioner Asselstine entered
15 the room.)

16 MR. NORELIUS: So in summary, as far as construction
17 is concerned, we were satisfied that that was completed
18 quite well.

19 We thought the QA program that was in place worked
20 quite well at the site, and we had no major problems
21 during construction.

22 The plant moved into preoperational testing. We
23 also did our inspections there. And we found that they
24 had well-developed ^{procedures} ~~features~~.

25 They had brought in a number of consultant people

1 and had a very experienced staff on the preoperational
2 testing program.

3 And that program went through essentially on
4 schedule with no major problems involved.

5 I might just mention, next go on to the next bullet
6 on the slide has to do with inspection issues, and I
7 want to wait 'til the end to talk about the allegations
8 that are before us.

9 So let me move to the next one, which talks about
10 the SALP program.

11 CHAIRMAN PALLADINO: What slide number is that?

12 MR. NORELIUS: We're still on the same slide,
13 number six, the issue on the SALP program.

14 CHAIRMAN PALLADINO: All right.

15 MR. NORELIUS: We've had four SALP reports that
16 we've issued on the Callaway site. They have shown an
17 improving trend over that period.

18 The last SALP period which essentially was
19 conducted at the completion of the construction program
20 showed in the construction area, five ratings of
21 category one and three ratings of category two.

22 I believe this was the highest plant that we rated
23 within our region which is under construction at this
24 time.

25 During the construction and preoperational testing

1 programs, we had no escalated enforcement action of any
2 kind.

3 Now subsequent to the issuance of the license,
4 there is an issue that may lead to an escalated
5 enforcement.

6 I'll address that when I talk about events that
7 have occurred.

8 COMMISSIONER BERNTHAL: Are you going to talk
9 further about SALP? Or is now the time to ask?

10 MR. NORELIUS: Go ahead and ask.

11 COMMISSIONER BERNTHAL: I'm sorry I'm having
12 trouble finding the document to support my recollection
13 here, and correct me if I'm wrong, but I was under the
14 impression that before these glitches, shall we say,
15 and reports during their start-up procedures began, the
16 utility received a rather consistently good SALP
17 evaluation, including in areas of operations.

18 And I was curious when I learned this on visiting
19 the plant a few weeks ago as to how it was that
20 operations looked so good, and yet we ran into so many
21 problems during preoperational testing.

22 MR. NORELIUS: I think when the SALP was conducted,
23 there were two parts to the ratings. One dealt mostly
24 with construction and preoperational testing, which was
25 passed.

1 And that had very favorable findings, generally.
2 Now at that time, we had done some looking ahead to
3 see the readiness for plant operation in terms of
4 looking at the various areas, security, health,
5 physics, operating procedures, and the ratings in that
6 area are based on what you have to look at at that
7 time.

8 And in that segment, we had only one area that we
9 rated a category one, which was the radiological
10 controls area, and other areas were rated two, which
11 was to say it was acceptable, but we did not have any
12 major problems that we could foresee in what we had to
13 review at that time.

14 COMMISSIONER BERNTHAL: I see. But to what would
15 you attribute, then, the difficulties that were
16 experienced during these preoperational tests?

17 Were they difficulties in procedures and
18 management, and if so, why wouldn't something like that
19 be picked up earlier?

20 MR. NORELIUS: I think it was a combination of
21 things. Obviously there is a difference between
22 preparing to do something and actually doing it.

23 And once they got the initial low power license,
24 and they had to then integrate the operations, they
25 were then operating under the technical specifications

1 which required a lot of additional surveillance tests.

2 I think in some ways they were rushing at the
3 beginning, trying to go too fast in too many things.
4 And I think these are the kinds of things.

5 There were a few procedural deficiencies that were
6 found, too. Part of that you might expect when they
7 first began to use them.

8 But I think it's a combination of things that
9 occurred once they began to prepare for going ^{up in} ~~to low~~
10 power.

11 MR. DENTON: I don't think we know the clear answer
12 to that. When Jim Keppler and I were there prior to
13 issuing the low power license, we were quite satisfied
14 with the preparation for operation.

15 In terms of objective measures, they seemed to
16 fully satisfy it. Since they did have the unusual
17 number of LERs and personnel errors, there's been a
18 major effort by the region to follow what's going on
19 and the commitments and programs by the licensee. And
20 we're prepared to talk about those, and we still need
21 to observe the licensee's performance during low power
22 testing.

23 But your perception is correct; right up to the
24 time they began operation, we had a very high
25 confidence in the ability of the utility to operate.

1 It's been shaken somewhat by events, and I
2 cautioned them when I was out there about being over-
3 confident.

4 And at that time, they seemed to...this was before
5 the license was issued, they were quite sure that
6 operating the reactor was no great challenge, and they
7 could do it.

8 I think now they've perhaps learned a little bit
9 more about what the difficulties are. Jim, maybe you'd
10 like to comment.

11 MR. KEPPLER: I think also our approach has been to
12 act very conservatively here. The staff, the utility
13 staff has not had a lot of prior nuclear experience,
14 and we wanted to make sure that we stayed on top of
15 these things early in the game and that the lessons
16 that were to be learned were learned at this stage of
17 the start-up program and not when they got up to full
18 power.

19 COMMISSIONER BERNTHAL: I guess the reason for my
20 comment, as you may sense, is that perhaps as much at
21 this point, ~~that~~ as directing them at anything the
22 utility did, which is kind of water under the bridge by
23 now, what matters is where they are today.

24 It might be that we need to look carefully at some
25 of our procedures, how we might better sniff out

1 procedural or management issues that could point the
2 way to those kind of problems.

3 I think that Commissioner Zech, in fact, I'll let
4 him speak for himself, ~~but~~ had picked up from
5 reflecting his years of experience in such matters an
6 issue that kind of struck home with me that was very
7 ~~compelling.~~ ^{telling}

8 I don't know whether you want to mention that or
9 not.

10 COMMISSIONER ZECH: I visited the plant not too
11 long ago, and at the time they were having some of the
12 license event reports perhaps in numbers that would at
13 least cause some concern and to look into, the fact as
14 to just why that was taking place, why would they seem
15 to be having a few more than perhaps they should.

16 I think that as I understand it, as a result,
17 though, of...well, let me just say that there's a
18 difference, in my experience, going from construction
19 phase to operations phase.

20 And it's kind of...at least it's been my experience
21 that there's a mental change of pace that you must go
22 through.

23 It's a wall almost, you must go through, change
24 your attitude, and your whole outlook on the many
25 things from construction to operation.

1 Then when you have a group that's relatively
2 inexperienced, it's awfully important that you have the
3 experienced people assisting and participating in a
4 very direct sort of way.

5 And it is my feeling that that was a rather normal
6 shift from construction to operations, but it was
7 something that management should look into.

8 And I understand that there has been an INPO assist
9 in it since then, and perhaps you could tell us some of
10 the substance of that in assessment of the results of
11 that visit.

12 Has it, do you think, helped the situation and has
13 it given added confidence to you that the plant is
14 ready to operate?

15 MR. NORELIUS: I think there have been a number of
16 things that transpired in the late July-early August,
17 late August time frame that have addressed this
18 question.

19 We raised some issues and concerns late in July.
20 Mr. Keppler had a management meeting with them on this
21 subject in early August.

22 Then they had an event occur which I said I would
23 comment on. They valved out the containment spray
24 system.

25 That occurred right in that same time frame. And

1 as a result of that, we had a subsequent enforcement
2 conference to discuss that issue and also to discuss
3 the same thing we're discussing here, what can be done
4 to try to improve with regard to the number of errors
5 that are being made.

6 One of the things they did commit to as a result of
7 that meeting was making sure that all of their crews
8 had experience in changing modes of the plant, heating
9 up the plant, going critical and they've done some of
10 that and still are in the process of doing that.

11 They also...I just did...they did have INPO in, as
12 you mentioned, and I think based on that visit, what we
13 had discussed with them, and I believe some of their
14 own conclusions, they had developed a soap panel, a
15 special advisory committee of experienced people to
16 review various incidents.

17 And I think they contributed also to the changes.
18 But one of the things they did was to slow down the
19 operation, try to be more deliberate and controlled in
20 how they do their business.

21 They also took their operations supervisors and
22 placed them in the control room as a management control
23 valve, if you will, to try to be aware of what was the
24 work load going on in the control room, and if there
25 were unexpected things come up, be in a position to

1 say, "No, we cannot do that. Stop. Slow down." That
2 seems to have been effective.

3 COMMISSIONER ZECH: That's a very important
4 contribution, if I may say so, because that has
5 brought the experienced people at least right to the
6 scene, and that is, in my judgment, a very important
7 part of the phase shift from construction to operation,
8 to have your experienced people at the scene, and I
9 think that's the way it should be done.

10 CHAIRMAN PALLADINO: I might comment that I visited
11 the plant several weeks ago, and the same subject was
12 discussed.

13 I discussed it with their top management, as I know
14 Commissioner Zech did, and expressed concern about
15 their trying to move ahead to the speed that was not
16 consistent with their state of development.

17 Now I understand that you have a continuing
18 augmented inspection of the operations. Has this shown
19 some improvement?

20 And incidentally, that's why I was worried when you
21 said, well, they went critical two days ago and by
22 Monday they expect to be ready for power ascension.

23 I think there again, they appear to be moving fast
24 compared to the average and in view of the experience
25 prior to this time, I question whether that's a smart

1 move.

2 The concept of making it a slower and orderly
3 process is appropriate.

4 MR. NORELIUS: Let me first tell you some other
5 things that they've done so you get the complete
6 picture.

7 CHAIRMAN PALLADINO: All right.

8 MR. NORELIUS: And then I'll talk about our
9 augmented program. They switched the location in the
10 control room of their shift supervisor and operation
11 supervisor, and the thrust of that was to get the
12 operation supervisor in a position where he is more
13 dedicated to watching what's going on in the board and
14 what the operators are doing.

15 And the shift supervisor can handle more of the
16 administrative type of activities from the back room in
17 the control room.

18 And then they also made a number of physical
19 changes in removing files and some administrative
20 people that were there, that were not necessary, to get
21 them out of the control room.

22 So control room traffic has slowed down
23 considerably. And also they've developed a standard
24 dress code for their operators. That's just very
25 simply dress shirt, dress pants, but everybody has the

1 same kind of thing and they have identification tags
2 as to what their position is on shift.

3 You mentioned the augmented inspection program. We
4 began that on August the 29th, and that was when they
5 went into the mode three, in preparation for going
6 critical.

7 And in addition to the two senior residents that we
8 have on site, we have utilized other people from the
9 regional office and other resident inspectors from
10 other sites.

11 And we have been there during all shift changes and
12 basically we've been there from about 5:00 in the
13 morning 'til around 10:00 o'clock or so at night.

14 Now they only have two shift changes, I should
15 mention, because they've gone to a four shift, 12-hour
16 rotation.

17 That is also a change that they have made. They
18 feel it has benefited them. One of the things is to
19 minimize shift changes so you don't have to go through
20 three different shifts.

21 CHAIRMAN PALLADINO: What's the staff's position on
22 this arrangement? That's one of the questions I was
23 interested in getting an answer to.

24 MR. NORELIUS: We have accepted it. We have talked
25 to some of the operators at the site to get their view.

1 Generally we find their views favorable in terms that
2 it's better than what they were doing.

3 Because of a lot of work, they had been going eight
4 hours, and then the next shift an individual would work
5 a double shift.

6 So they'd work actually 16 hours. That's what they
7 were doing before. And so going to a standard 12-hour
8 shift was viewed as an improvement by the operators.

9 Now, we still have some concerns that a 12-hour
10 shift is a long time on a routine basis. They have
11 taken some steps to reduce the overtime.

12 They were on a five-day 12-hour shift, 60 hours a
13 week. They're now down to, I believe, 54 hours
14 average. They are trying to bring the overtime down.

15 COMMISSIONER ASSELSTINE: I was concerned about the
16 60 hours. That's a pretty long week, especially if
17 you're working 12-hour shifts.

18 MR. NORELIUS: But I guess we still have some
19 concerns with it, and we've been watching it. There is
20 no problem that has arisen that we can attribute to
21 that at this point.

22 COMMISSIONER BERNTHAL: I think it needs to be said
23 that they're not the only utility that is still
24 experimenting or has adopted the 12-hour shift, I
25 guess, has adopted the 12-hour shift.

1 I continue to have questions about that myself, and
2 I guess we've all in our various ways at various times
3 inquired in some detail after that issue.

4 Whatever they do, however, on the question of 12-
5 hour shifts does seem to me, and I agree with Jim on
6 this point, that 60 hours is a long week, and there
7 should be advantages because you don't have three
8 people changing hands, three sets of people changing
9 hands during the day and only two, so there is direct
10 contact.

11 That was one of the positive advantages of this
12 cited during my visit. But I still wonder about the
13 whole concept.

14 And I would hope that staff is continuing to watch
15 that very carefully.

16 COMMISSIONER ASSELSTINE: Twelve hours with four
17 days on and three days off bothers me less than five.

18 COMMISSIONER BERNTHAL: Oh, certainly, yes.

19 MR. DENTON: Let me ask...

20 CHAIRMAN PALLADINO: I was interested also in the
21 long term approach, because I think we all share the
22 same concern.

23 COMMISSIONER ASSELSTINE: Yes. The price you pay
24 with four shifts is you don't have a shift for training
25 as well.

1 MR. DENTON: Let me ask Hugh Thompson might like to
2 address this issue.

3 MR. THOMPSON: This is Hugh Thompson, Director of
4 Division of Human Factor Safety. We too looked at this
5 very carefully with the region before we agreed to have
6 this short period of time which is limited to the end
7 of December for allowing the four shift at 12-hour
8 operation.

9 We've been looking at this issue, I guess, for
10 about two and a half years, and 12 hours appears to be
11 the maximum length of time that you really want your
12 operators in.

13 For any long period of time, there's really only
14 one plant that's out with some extended operation right
15 now with the 12-hour shift, and that's the Duke Power
16 Company in the McGuire activities.

17 And they do have a very structured routine which
18 only allows the 12-hour shifts for three days. They
19 tend to be three days off.

20 There is also a clear training crew and time for
21 the training, whereas the present arrangements don't
22 have that.

23 We've looked at the Duke experience very carefully.
24 There is reduction in human errors, there's a reduction
25 in the typical unexplained absences, the job

1 satisfaction appears to be much higher.

2 We also looked for a long term arrangement where
3 the operators actually don't stay on the control panels
4 the entire 12 hours.

5 During start-up periods of time, there's a lot more
6 activity, there's lots of reasons to keep the operators
7 alert.

8 And as long as we can eliminate the double
9 shifting, the 16-hour shift, in our data today based on
10 looking at the FAA data, other organizations who are
11 looking at this, the railroad transportation people,
12 indicate that 16 hours is just too long.

13 We have, as an agency, have always tried to limit
14 it down to the 40-hour or so time period and with the
15 five-shift rotation, you can get that on the average.

16 So we are looking at this. The particular
17 arrangement that Union Electric is on in this
18 particular situation is one where it's a limited period
19 of time, we will evaluate this before it becomes a long
20 term approach, and we would do this, I would
21 anticipate, well before the end of December.

22 CHAIRMAN PALLADINO: But in the power ascension,
23 what sort of shifts are they going to have?

24 MR. THOMPSON: They are on the 12-hour shifts.
25 Typically we have approved that for two reasons. In

1 addition to the smaller turn over, you actually have
2 more people on shift and available, and we look at that
3 in, one, having more attention to the details, and
4 number two, it is a training evolution.

5 This is an important period for the operators to
6 get experience and, as you know, they do not have a
7 significant amount of experience in the operating
8 staff.

9 COMMISSIONER BERNTHAL: Yes, in fact, it may serve
10 a number of useful purposes during power ascension, it
11 would seem to me.

12 The adrenalin presumably is somewhat elevated under
13 any circumstances during that period of time. And for
14 the record, I should say that it seemed to me when I
15 discussed it with the utility management and having
16 listened to your comments again now, that it may very
17 well be that it's desirable and it's an innovation that
18 other utilities would want to pursue.

19 But there do seem to be some possible negatives
20 that we ought to keep an eye on the thing.

21 MR. THOMPSON: There are, and we are, as I said
22 earlier, carefully looking at this issue, and I'm sure
23 I'll be making a recommendation to Mr. Denton probably
24 within the year about some proposals for the Commission
25 may wish to take.

1
2 COMMISSIONER ZECH: I'd just like to say that I,
3 too, have looked into this issue, and in fact, I've
4 experimented in the past with various numbers of hours
5 on watch and all, and it's a subject that can be
6 debated at great length, but it does have certain
7 advantages for 12-hour watches.

8 It also has certain disadvantages, and I think if
9 you have more than four sections, perhaps it may be
10 certainly a reasonable way to go.

11 I do think that with four sections and 12-hour
12 shifts, although I've spent many more hours than 12 on
13 shift sometimes when it was necessary for short periods
14 of time, I do think it's something that should be
15 considered a rather short term project.

16 From my understanding, the staff is taking that
17 viewpoint and watching it carefully, and I would submit
18 that that's the appropriate thing to do.

19 Also I'd like to make one other related comment, if
20 I may, on the statement that was made, and that is that
21 putting your control room operators in uniform, some
22 kind of a uniform, that may sound like a small point,
23 but to my way of looking at it, it's indicative of a
24 formality which is necessary in the control room, a
25 more businesslike approach, and I do think that it's
not going to necessarily be by itself any great perhaps

1
2 significant contribution to safety, but that with other
3 approaches does increase, in my judgment, the attitude
4 of formality and businesslike approach which I think
5 is an appropriate thing to do.

6 I would think that that would be not only correct
7 for this power plant, but I've seen it in other plants
8 that I've visited, too, and I think it does lend itself
9 to increased formality, and I think that's the right
10 way to go.

11 COMMISSIONER ASSELSTINE: Before we go on, Harold,
12 I wanted to go back and just comment briefly on the one
13 statement that you made.

14 I think you and I went to the plant about the same
15 time, and I guess my sense of the utility's attitude
16 was just a little bit different than yours.

17 Your sense was that they thought that operating a
18 nuclear power plant was a fairly simple thing. I'm not
19 sure I would go quite that far.

20 I think my sense was at the time that they
21 recognized that it was fairly difficult and complex,
22 but they did feel very confident in their capabilities
23 to do it.

24 I suspect that one of the things that the
25 difficulties they've had shows is that like many other
new utilities starting out in operation, they tended to

1
2 underestimate a bit the complexities of dealing with
3 the tech specs, the security plan, all of a sudden when
4 you go into operation.

5 I think that says perhaps a bit about the lack of
6 experience, perhaps a little bit about underestimating
7 the challenges of operating under the tech specs.

8 I suspect it also says a bit about the complexity
9 of the tech specs for the new plants. I think that's
10 something we really do need to look at.

11 When I look at the size of the new tech specs for
12 the new plants, it really begins to worry me about how
13 much operators have to absorb and be able to deal with.

14 I think that it emphasizes the need to continue
15 with the effort that I think you all are starting to
16 take a look at the standard tech specs and decide
17 whether there's a way to differentiate between those
18 elements that really are important and those that are
19 of somewhat lesser importance.

20 MR. DENTON: I agree. One of the things Jim and I
21 did when we were ~~at~~ here was require the utility to
22 make a self-assessment of their readiness, because we
23 didn't have the feeling it had been looked at
24 'organizational unit by organizational unit.

25 And they did provide us a report on what was the
experience and skills and knowledges within maintenance

1
2 and within I & C, and within health physics. I wanted
3 to bring that bit of formality to the company before we
4 moved ahead.

5 COMMISSIONER ASSELSTINE: Yeah.

6 MR. DENTON: On tech specs, it doesn't relate to
7 Callaway; it's a generic issue. But we've attempted to
8 achieve reliability of safety-related equipment through
9 these very prescriptive functional requirements of
10 surveillance.

11 COMMISSIONER ASSELSTINE: Yes.

12 MR. DENTON: And it is a question that the staff is
13 trying to address now, are there other ways to assure
14 reliable performance of safety equipment when you need
15 it other than by requiring it to be tested often and...

16 COMMISSIONER ASSELSTINE: Particularly during plant
17 operation.

18 MR. DENTON: I think that's what is driving us to a
19 real interest in this preventive maintenance issue,
20 that if you can, through a proper preventive
21 maintenance program, assure reliable equipment, then
22 you're not testing equipment in order to determine how
23 reliable it is.

24 Somehow you're maintaining it so it is reliable,
25 and that would allow reduction, especially on the
surveillance part of tech specs, which is where the

1
2 great protest has been.

3 COMMISSIONER ZECH: Let me say I share Commissioner
4 Asselstine's views on that, a very important issue. I
5 think tech specs and procedures are absolutely
6 necessary, and I think, most would agree with that,
7 that have had operational experience.

8 But I do think that you can overdo them to the
9 point where they almost become burdensome and some
10 cases not as useful as they should be.

11 So I commend the staff's efforts in that regard
12 because it is not necessarily useful to see how many
13 steps you can make in a procedure.

14 The most important thing is to make sure the steps
15 that you put down are understood and they're proper,
16 and they're used.

17 So there has to be some discipline to the system,
18 and I think that the efforts as I understand are being
19 made now are commendable.

20 And I'd suggest that you pursue that with a
21 considerable amount of vigor.

22 COMMISSIONER ASSELSTINE: I think that maintenance
23 initiative is particularly important when you look at
24 the number of errors that we see from surveillance
25 testing programs and maintenance programs during plant

1 operation.

2
3 I think that's a good way to cut down on some of
4 those as well.

5 COMMISSIONER BERNTHAL: I think we might be able to
6 learn from the experience of some foreign countries in
7 that respect, because at least one or more of them have
8 adopted that philosophy, not just for nuclear power
9 plants, I might say.

10 I have one last question on the issue of the
11 shifts, and I don't recall whether the utility
12 indicated that they are planning to go to five shifts.

13 Are they aiming toward five shifts in the future?
14 Still 12-hour shifts, I understand, but what's the ...

15 MR. NORELIUS: They're staffed for a six-shift
16 rotation. They intended to start out with a five-shift
17 rotation and then what they are now on the four-shift,
18 and they are planning to continue that through the end
19 of the year, at which time they're reevaluate.

20 And that's where we are now.

21 MR. DENTON: We saw it as a short-term practice
22 that they had adopted, not as a long-term effort. And
23 as you said, we were thinking the end of the year would
24 be time to reassess and try to get on a more routine
25 effort.

COMMISSIONER BERNTHAL: And that would be a five-

1
2 shift rotation then?

3 MR. DENTON: Five or six.

4 COMMISSIONER BERNTHAL: Presumably five or six.

5 Okay.

6 CHAIRMAN PALLADINO: And how long will the shifts
7 be?

8 MR. DENTON: They would be then the conventional
9 eight-hour shifts.

10 COMMISSIONER BERNTHAL: Oh, I see. I didn't
11 understand that.

12 MR. DENTON: At least that's my understanding.

13 MR. THOMPSON: I believe their proposal...we
14 haven't seen it. I think it's been discussed with some
15 of the regions. It would be a five- or six-shift 12-
16 hour rotation.

17 COMMISSIONER BERNTHAL: That's what I thought.

18 MR. THOMPSON: Very similar to the Duke Power
19 Company proposal right now, but we would want to have
20 some dialogue and discussion before we approve that to
21 make sure we understand how the training program is
22 going to be run, particularly the requalification
23 training area.

24 MR. DENTON: I wasn't aware they were going to pick
25 up the Duke experience. The end of the year was the
time we had planned to re-look at that.

1
2 Let me mention on the maintenance. One thing you
3 may not be aware of, we have made arrangements with a
4 foreign country to exchange maintenance plans between a
5 power company in that country and a power company in
6 the U.S. that operates a sister plant.

7 So we have a situation where two plants are
8 identical, and we're going to take a very hard look at
9 maintenance practices there versus maintenance
10 practices here and we've gotten the two companies to
11 agree to this cooperative effort.

12 COMMISSIONER BERNTHAL: Could you give us a brief
13 summary of that comparison when you've made it?

14 MR. DENTON: We certainly intend to.

15 COMMISSIONER ASSELSTINE: Are you going to look at
16 number of unplanned trips?

17 MR. DENTON: The country that we're cooperating
18 with is Japan, and they ...

19 MR. EISENHUT: They have very few unplanned trips.

20 (Laughter.)

21 MR. DENTON: About three-tenths of an unanticipated
22 trip.

23 CHAIRMAN PALLADINO: Okay.

24 COMMISSIONER ASSELSTINE: Just before we leave the
25 operational area, I have one other question. This
utility is among the smaller group that's had a plant-

1
2 specific or plant-reference simulator for a
3 considerable amount of time, and one at the site fairly
4 recently and before that, one at least recently nearby.

5 Do you have a sense for how much that has helped or
6 contributed to their ability, particularly given the
7 lack of prior commercial operating experience on the
8 crew, to operate the plant and do the recent
9 experiences in the preop testing programs say anything
10 about that?

11 MR. NORELIUS: The simulator was functional there,
12 I believe, in March of 1982. They had about two years
13 with the simulator on-site.

14 COMMISSIONER ASSELSTINE: Then they had a plant-
15 specific one at Zion, I think, for several years before
16 this.

17 MR. NORELIUS: But we felt that the on-site
18 simulator was very beneficial to the training. We
19 thought they had a good training program.

20 I think it proved itself in terms of licensing
21 exams. They had a very high success ratio of those who
22 tried to take the exam and passed.

23 To the extent that it applies or may impact on some
24 of the problems, I don't think any of the problems were
25 the kind that you would train for in the simulator.

The problems are more the interface types of things

1
2 that arise when you begin actually manipulating the
3 plant and have to deal with other organizations and do
4 the surveillances in between.

5 COMMISSIONER ASSELSTINE: Okay.

6 CHAIRMAN PALLADINO: And familiarity with what
7 they're supposed to be doing and what the plant...

8 MR. DENTON: The value of the simulator perhaps
9 hasn't shown up yet.

10 CHAIRMAN PALLADINO: However, I did observe the
11 simulator was there, as a matter of fact, gave them an
12 exercise that kept compounding, starting with steam
13 generator tube leak and stuck valves and loss of off-
14 site power and everything I could think of along the
15 way.

16 (Laughter.)

17 CHAIRMAN PALLADINO: And I must say that I was
18 impressed by their ability to cope with this situation,
19 read and their give-and-take, which was quite formal,
20 and a concept that Commissioner Zech has pointed out.

21 And I thought they showed some good discipline and
22 knowledge about the plant under at least circumstances
23 that we identified there.

24 But I do think, and this is the way I approached it
25 to their management, I think they need more familiarity
with the mechanical details of their plant,

1
2 particularly valves and valve alignments and
3 instrumentation that relates to action they're going to
4 take on a more routine basis because the accident
5 scenarios apparently they do train well for, the more
6 routine thing is where they need more attention.

7 COMMISSIONER ASSELSTINE: I agree with that. I did
8 the same kind of exercise when I was there on some of
9 the emergency transients and I was impressed by the
10 ability of the operators to deal with those.

11 But I noticed that at some plants, utilities are
12 beginning to use their simulators not only to test
13 those kinds of things but also during the preop program
14 to test out normal operating procedures, to test out
15 normal operating procedures, and to familiarize the
16 operating crews with those aspects as well.

17 It has the advantage of first working out some of
18 the bugs in the normal operating procedures and tech
19 specs.

20 Second, at least giving some familiarity. I
21 recognize you're not going to get the interface
22 problems worked out that way, but I find that that's
23 kind of an inventive approach to using simulators not
24 only for the accident transients but also for more
25 normal operation.

COMMISSIONER BERNTHAL: You know, we spent some

1
2 time and I would say heated discussion on the issue of
3 simulators and the relative merits and demerits as
4 compared to the so-called hot hand...maybe that is the
5 word, hot operating experience, hands-on operating
6 experience with the sweaty palms factor included.

7 And I recall that in Germany when I visited there,
8 some of their operating plants a few months ago, their
9 people stated emphatically that they attached
10 considerably more importance to the simulator training
11 because you simply could not in any way duplicate the
12 many situations, great and small, on a true operating
13 circumstance in a plant under operations.

14 I have to say that again, when I view the
15 simulator, and I caution that it's when you have a true
16 reference simulator, you have a replica, essentially,
17 of the plant that the operators will be in, I am just
18 becoming more and more convinced that the simulator is
19 terribly important.

20 And I'm also not convinced that when they know if
21 not a commissioner, perhaps their plant manager or
22 utility president is standing in the box watching their
23 performance, that the sweaty palms factor isn't maybe
24 'pretty well there almost as well as it might be in an
25 operating plant.

So I just really believe that we are now with the

1
2 improved programming available and the improved
3 computer simulation capability, moving into an era
4 where we need to keep up in this business and attach
5 the appropriate significance to simulator training.
6 That's the end of my speech on that subject.

7 CHAIRMAN PALLADINO: Thank you. Can we go on?

8 MR. NORELIUS: Yes. Let me pick up on one comment
9 you asked about the schedule. I guess I'd just like to
10 say that we saw the schedule this morning and we
11 consider that to be an optimistic view of the schedule,
12 just based on our experience and the things we see that
13 need to be done, and I would just say that until the
14 actual recommendation for a license, we would satisfy
15 ourselves that they are ready to do that. I just make
16 that point.

17 We are continuing this augmented inspection program
18 that we have up into the power ascension program.
19 That's our plan.

20 We don't have an end point yet, but we plan to
21 follow it somewhat further and have to convince Mr.
22 Keppler at such time that I think we can back off.

23 CHAIRMAN PALLADINO: Well, has the augmented
24 inspection programs shown improvement on the part of
25 the operations?

MR. NORELIUS: Actually, it's been quite favorable

1
2 and the number of LERs has dropped off. Those
3 significant ones, those related to personnel areas,
4 have dropped off since late August. So we do think we
5 have seen improvements.

6 CHAIRMAN PALLADINO: One point that I know you know
7 about is the fact that quite a number of LERs have to
8 do with their security system which, to me, indicates
9 that maybe they have a cumbersome security system that
10 they ought to reexamine.

11 MR. NORELIUS: There were several factors
12 attributed to that. One, when they instituted the
13 security program, they still had something like 2,000
14 construction people on site to do clean up and
15 finishing up.

16 And the system just was unable to handle that.
17 Since now that the construction numbers have been
18 reduced, construction people been reduced, that has
19 improved.

20 They also had some sophistication in that internal
21 controls of certain doors that were not required and
22 they have taken some of those out of the system to try
23 to reduce this complication.

24 In other busy areas, they've posted guards in
25 places, using the key system. They've ordered a larger
computer to handle it.

1
2 So they've taken those steps and I think that has
3 improved greatly in the last month or so.

4 COMMISSIONER BERNTHAL: Since we're on this issue
5 of the events that are related to the security system,
6 I also wanted to ask whether the current situation, and
7 it might be the utility will have to tell us, give us
8 the answer to this, whether the situation has improved
9 on the sheer number of security events that are flowing
10 into their security clearance center.

11 I was, I must say, a little disturbed to see one
12 person working furiously with, I don't know, maybe an
13 average of six, eight, or ten on the screen at any
14 given time.

15 And that seems to me a security event should be an
16 unusual event that makes you sit up and take notice,
17 and made me wonder whether that whole system may not
18 need some rework.

19 CHAIRMAN PALLADINO: I think the LERs in this
20 matter suggest that there is something that needs
21 improvement.

22 I gather they are improving.

23 COMMISSIONER BERNTHAL: Well, the question I had,
24 though, is what about the sheer frequency of the
25 events?

I mean, was that just an artifact of construction

1
2 or ...

3 MEMBER OF AUDIENCE: Are you speaking of the one
4 event that you were here for?

5 COMMISSIONER BERNTHAL: No, no, I'm talking about
6 the large number of events. I don't mean events in the
7 sense that we define them at the table here, not LERs.

8 I'm talking about simply the alarms, alarms is the
9 correct word, that are coming into the screening
10 center, flooding in, I would say, compared with any
11 other plant that I've looked at.

12 And the concern is not that they're important; the
13 concern is that they're unimportant, and therefore
14 might obscure the important event.

15 MR. LITTLE: I'm Bruce Little. I'm the senior
16 resident inspector operations at Callaway plant. I
17 can't speak about the comparison with the other plants.

18 I know the alarms have gone down significantly in
19 number. The half dozen or eight that we experienced on
20 your visit, several of those were our putting the
21 badges in wrong on the trip-down tubes.

22 (Laughter.)

23 MR. LITTLE: It's a very sophisticated system. If
24 you put the cards in backwards, you get the alarm, and
25 several of the tour group did that.

(Laughter.)

1
2 COMMISSIONER BERNTHAL: Are you suggesting a
3 commissioner might have put the card in backwards?

4 (Laughter.)

5 MR. NORELIUS: The only other bit of light I might
6 shed on it is that our security people from the region
7 were down and visited the site, I believe just last
8 week, and they reported that they thought that there
9 had been improvements.

10 I did not ask them specifically about number of
11 alerts, and so I can't respond to that.

12 COMMISSIONER BERNTHAL: I'd love to let you off the
13 hook that easily, but I think the fact is that there
14 were a lot of things flooding in independently of all
15 of those door alarms and to be sure, they were
16 unimportant, but we reached 12, in fact, as I recall,
17 at one point.

18 And this constant effort just trying to clear off
19 the unimportant things, I would hope that an alarm is a
20 rather unusual event by the time we begin power
21 ascension there.

22 I trust that it will be.

23 MR. NORELIUS: Okay. We will look at it further.

24 COMMISSIONER BERNTHAL: And if the utility wants to
25 respond on that, I'd certainly be willing to listen
here.

1 CHAIRMAN PALLADINO: Well, I suggest we go on.

2 COMMISSIONER BERNTHAL: Okay.

3 CHAIRMAN PALLADINO: Depending on the time. We can
4 look at that in more detail.

5 MR. NORELIUS: Okay. Then next I thought I would
6 move into this area of allegations that have come up.
7 To give you a little background, in May of this year,
8 we first became aware that the GAP organization was
9 developing allegations with regard to construction of
10 the Callaway plant.

11 And we initiated some contacts with them and were
12 able to interview two individuals with them to
13 determine the specific allegations which they might
14 have.

15 We came up with about 25 separate allegations
16 presented to us at that time.

17 Many of these were issues that we were familiar
18 with generally, in that they had been addressed by us
19 or through the licensee's own QA system prior to that
20 time.

21 And those we were not familiar with, we looked into
22 and we resolved all of those items.

23 CHAIRMAN PALLADINO: All of the items out of the
24 25?

25 MR. NORELIUS: I think there were 25, somewhere on

1
2 that order. And we believe we've resolved those
3 satisfactorily.

4 We did not find anything that we consider to
5 present a substantial safety issue.

6 COMMISSIONER ASSELSTINE: Do those pretty much
7 attract the items in this September 28 letter?

8 MR. NORELIUS: No, no, that's a new issuance. We
9 just received two days ago, as we mentioned at the
10 beginning, a copy of the .206 request to the Commission
11 to suspend low power operation.

12 There are 48 separate allegations and statements in
13 that submittal. We find that these are very general in
14 nature and we do think, again, that they generally
15 speak to areas that we have addressed in the past.

16 I believe two or three of them are the same as what
17 we looked at earlier on in the summer.

18 COMMISSIONER ASSELSTINE: Most of these seem to do
19 with welding. Were the ones you looked at earlier in
20 the summer welding ones, or are they separate?

21 MR. NORELIUS: I don't recall that specifically.
22 John?

23 JOHN: Some of them were welding.

24 COMMISSIONER ASSELSTINE: Okay.

25 MR. NORELIUS: What we intend to do is to pursue
these in the manner consistent with the proposed staff

1
2 position to provide to the Commission on the subject,
3 first of all because the allegations were made in a
4 public document.

5 We have provided them to the utility, and we have
6 asked them to begin looking into these to the extent
7 possible.

8 Secondly, based on our initial review, we don't
9 believe there are any issues that prohibit low power
10 operation.

11 And what we intend to do next is to have the staff
12 review them in considerable detail to see if there are
13 any that we think might require resolution prior to
14 going above the 5% limit.

15 And if there are any of those identified as
16 such, then we will move promptly to try to resolve
17 those.

18 And we have asked that GAP meet with us so we might
19 more specifically understand what the allegations are,
20 because many of them are so general that they're
21 difficult to deal with in the form presented.

22 CHAIRMAN PALLADINO: Over what time frame do you
23 expect to treat these allegations?

24 MR. NORELIUS: Well, I would think ...

25 CHAIRMAN PALLADINO: Or at least do the screening
to determine ...

1 MR. NORELIUS: The screening we would hope to have
2 done within the next couple of days. Then, as I said,
3 if we identify any that would affect 5% operation,
4 well, then we would plan to deal with those promptly,
5 you know, to address those issues before they reach
6 that plateau.

7 On the others, we would plan to resolve in due
8 course when we get on to it, if they don't impact on
9 the 5% limit. We will do those later.

10 So that is our plan on the allegations.

11 CHAIRMAN PALLADINO: Okay. Thank you.

12 MR. KEPPLER: Let me make sure the Commission
13 understands the point we're making. We will screen
14 these, we will identify any that staff feels needs to
15 be resolved before permitting the plant to go above 5%,
16 and we will deal with those before we recommend the 5%
17 license.

18 But the remainder...

19 CHAIRMAN PALLADINO: You mean above 5%.

20 MR. KEPPLER: Before going above 5%. The remainder
21 we will deal with in a timely manner, but we do not
22 propose holding up the license for that.

23 CHAIRMAN PALLADINO: I gather this is consistent
24 with what you've done on the other plants.

25 MR. DENTON: That's correct. We intended to follow

1 the practice of the staff paper we sent down.

2 COMMISSIONER BERNTHAL: I would just like to say
3 that at some point, I don't know whether there are any
4 GAP representatives here or not, but I would like to
5 know how many of these allegations were known, what the
6 time frame of knowledge of these allegations was,
7 because I'd just like to say here for the record that
8 it just isn't going to work to come in here on the 28th
9 of September on a document that I receive on the 2nd of
10 October, tossing all of this on the table.

11 I simply find it difficult to believe, reading
12 through here, that many of these were not known for
13 some period of time.

14 It's a duty to the public, a duty to the
15 Commission, I think, to let these things be known in a
16 timely manner so they can be dealt with in an orderly
17 and timely manner.

18 CHAIRMAN PALLADINO: I suggest maybe that would be
19 a worthwhile question to put in writing and seek a
20 response.

21 All right. Other subjects?

22 MR. NORELIUS: That was all I intended to cover in
23 the briefing. In summary, I would say that based on
24 all the things that I've described, we would certainly
25 endorse a Commission vote for the full power license,

1 recognizing that we still have to go through the
2 completion of the low power testing.

3 They still have to do the plant cycling that we
4 talked about to assure the various shifts have had that
5 experience and then to resolve any issues that may come
6 out of the allegation review before the region would
7 recommend to Mr. Denton the issuance of such a license.

8 CHAIRMAN PALLADINO: I wonder if I could ask a
9 question on a subject that I don't think we've covered
10 this morning.

11 On the sister plant, there was a problem identified
12 referred to as a control room fire problem, and I
13 wonder if you could explain the nature of the problem,
14 how it came about, and what the resolution is so I
15 understand it.

16 MR. NORELIUS: Joe will address that.

17 MR. HOLONICH: Mr. Chairman, the problem was that
18 some of the circuits that transferred control from the
19 control panel down to the auxiliary shutdown panel, if
20 you had an instantaneous fire which damaged that
21 circuit and resulted in a hot short, blowing a fuse,
22 you could change the isolation switch but with the
23 blown fuse, you could not obtain control from the
24 auxiliary shutdown panel.

25 The issue was discovered on fire inspection audit

1 down at Wolf Creek. We had several meetings with the
2 utilities, both Kansas Gas & Electric and Union
3 Electric.

4 They've submitted a revised safe shutdown analysis.
5 We've reviewed that and our findings were forwarded to
6 you in a memo dated October 1st, I believe.

7 They have to modify four or five switches which are
8 presently in there, and install an additional five
9 switches to achieve the isolation that they need at the
10 auxiliary shutdown panel.

11 They anticipate the schedule for that right now is
12 the first extended outage of known duration greater
13 than two weeks following February 15th or before
14 restart following the first refueling outage.

15 CHAIRMAN PALLADINO: Say that again. When are they
16 going to get the switches?

17 MR. HOLONICH: Okay. The switches will be
18 installed during the first outage of known duration
19 greater than two weeks following February 15th or prior
20 to restart following the first refueling outage.

21 CHAIRMAN PALLADINO: And why is it it's being
22 delayed? Why is the fix being delayed until that time?

23 MR. HOLONICH: Procurement of switches, design.
24 They're still doing the engineering design,
25 qualification of the switches and procurement of

1 switches.

2 They feel that they will not have the equipment
3 on hand until after February 15th.

4 CHAIRMAN PALLADINO: Well, what they view as a risk
5 in the meanwhile?

6 MR. HOLONICH: Well, they have interim procedures
7 which accomplishes the functions necessary to achieve
8 hot shutdown until they install the switches.

9 CHAIRMAN PALLADINO: What's the nature of the
10 interim procedure?

11 MR. HOLONICH: Okay, I don't know the exact detail.
12 We do have several members from the staff here who may
13 be able to ...

14 MR. HOuseton: Wayne Houseton from the Division of
15 Systems Integration, NRR staff. My understanding of
16 the situation being found acceptable on an interim
17 basis is based upon the fact that in the first
18 instance, the staff's traditional position in this area
19 is that it should not be necessary for operators to
20 perform any kind of repairs or replacement of fuses.

21 For instance, it may have been fire damage in order
22 to affect the full capability of the alternate shutdown
23 panel.

24 In this particular case, the items at issue are
25 associated with activities in the hot shutdown process

1 that do not...are not required very early in the
2 process, and therefore the part of the procedure does
3 permit the replacement of fuses if that is necessary
4 because of fire damage that has occurred.

5 In the long run, however, the staff position is
6 that the capability for isolation and transfer should
7 occur without any credit being given for time available
8 and with respect to when fire damage may occur to items
9 in the control room.

10 COMMISSIONER ASSELSTINE: Where are the fuses
11 located?

12 MR. HOUSETON: I can't tell you the physical
13 location of them in the control room.

14 COMMISSIONER ASSELSTINE: But they're in the
15 control room?

16 MR. HOUSETON: I believe they are. I'm not sure of
17 that. I'm not sure of that.

18 CHAIRMAN PALLADINO: I gather you're satisfied with
19 both the interim and the long term.

20 MR. HOUSETON: We are satisfied, yes.

21 COMMISSIONER ASSELSTINE: I had a little bit
22 related question, Joe.

23 CHAIRMAN PALLADINO: Yes, go ahead.

24 COMMISSIONER ASSELSTINE: On the auxiliary shutdown
25 panel. I notice that in the supplement to the SER,

1 page 22-2, there was a reference to the control room
2 design review and looking at some modifications to the
3 auxiliary shutdown panel.

4 As I look at different plants, I'm amazed at the
5 difference between auxiliary shutdown panels. And my
6 impression was that this one was a very good one.

7 I'd be interested in whether the staff had the same
8 view. For example, both trains were there. I just
9 went to another plant that only has one train on its
10 remote shutdown panel.

11 Before that, I went to two other plants that don't
12 have a remote shutdown panel; they've got four or five
13 panels scattered throughout the plant that do different
14 things.

15 MR. DENTON: Appendix R doesn't require a shutdown
16 panel. It requires the ability in one train to safety
17 shut down a plant.

18 COMMISSIONER ASSELSTINE: Yeah.

19 MR. DENTON: I think you'll find in all the new
20 plants the approach has been more as you see on
21 Callaway.

22 In the operating plants, there's a variety of
23 approaches, some of which we agree with, some of which
24 we decided not to.

25 But let me see if anyone wants to comment further

1 on that point.

2 MR. THOMPSON: Hugh Thompson, NRC staff. We did
3 look at this remote shutdown panel and found it to be
4 one of the better ones we've looked at.

5 It had a few activities or I guess meter locations
6 up high that wasn't in the normal range for the
7 anthropometrics of the normal population of the United
8 States, but other than that, it was well-designed,
9 after they removed the panel after you could actually
10 get to them.

11 (Laughter.)

12 COMMISSIONER BERNTHAL: Run that word by us once
13 more.

14 (Laughter.)

15 MR. THOMPSON: My staff practices it on me so I'll
16 learn a few words. Anthropometrics, how tall you are.

17 COMMISSIONER ASSELSTINE: I have to ask about the
18 door.

19 COMMISSIONER ROBERTS: You just woke me up.

20 (Laughter.)

21 MR. THOMPSON: I'll use it more often.

22 (Laughter.)

23 COMMISSIONER ROBERTS: Oh, no, please don't.

24 COMMISSIONER ASSELSTINE: I have to ask you about
25 the door. Did they have to put in a bigger door

1 between the two little rooms, the two panels?

2 MR. THOMPSON: The doors we were talking about were
3 the paneled doors on the panel that were going to be
4 removed rather than the door.

5 COMMISSIONER ASSELSTINE: Okay.

6 CHAIRMAN PALLADINO: Any other questions you'd like
7 to ask?

8 COMMISSIONER ASSELSTINE: I had one other one as
9 well. I noticed in the supplement to the SER, you
10 describe a seismic and dynamic qualification program
11 for this plant.

12 My impression was that went beyond what has been
13 done for a lot of plants, that's sort of the next step
14 beyond environmental qualifications. Am I right about
15 that?

16 Is this kind of an extraordinary program that was
17 done? And I was particularly interested in whether a
18 similar review was done for Diablo Canyon. On page 3-1.

19 MR. EISENHUT: Jim Knight is looking at it. There
20 is a license condition in the previous license which is
21 pretty much a standard license condition.

22 We've been asking for the depth of the review.
23 I'll ask Jim to ...

24 MR. KNIGHT: Jim Knight, NRC staff. The seismic
25 and dynamic qualification program is a standard

1 requirement.

2 COMMISSIONER ASSELSTINE: Okay.

3 MR. KNIGHT: For all plants. And historically the
4 depth of the programs that we now see probably has its
5 genesis back at the time when we first started looking
6 at the Hosgri evaluation on Diablo Canyon.

7 COMMISSIONER ASSELSTINE: Okay. So this is pretty
8 much standard.

9 MR. KNIGHT: Yes.

10 COMMISSIONER ASSELSTINE: I see.

11 CHAIRMAN PALLADINO: Another question? Let me ask
12 one question, Harold. Could you highlight in general
13 terms what further staff activities must take place
14 before the amendment would be issued if the Commission
15 authorized it?

16 MR. DENTON: They are the ones, I think, that have
17 been mentioned. First, I would await confirmation from
18 the region that the licensee's performance during the
19 low power testing that remains to be done has been
20 satisfactory and that he concurs in issuing the license
21 for any higher operation.

22 That would require that we watch and observe that
23 performance and be comfortable with it, be sure it's
24 still on the right track.

25 Secondly, I would need to get the GAP petition

1 reviewed and have documented in-house whether or not
2 there were any issues raised that had to be resolved
3 more on the decision to go above 5% power.

4 They are the two principal issues, and let me ask
5 the project manager if there are other details.

6 MR. HOLONICH: There are no other details on
7 the license conditions.

8 MR. DENTON: So in any event, if you authorize it
9 today, we would not propose to actually issue a license
10 to go above 5% until those two conditions were resolved
11 to our satisfaction.

12 COMMISSIONER ROBERTS: Mr. Chairman, I propose that
13 we vote to authorize the staff to outline those steps
14 that Harold Denton has just outlined.

15 COMMISSIONER ASSELSTINE: Are we going to hear from
16 the licensee? This is our usual practice.

17 COMMISSIONER ROBERTS: I wouldn't say it's usual.
18 Sometimes we do, sometimes we don't.

19 COMMISSIONER ASSELSTINE: I thought we agreed a
20 while back that we would always get a brief
21 presentation from the licensee.

22 COMMISSIONER ROBERTS: I'm not aware of that.

23 CHAIRMAN PALLADINO: We have followed that
24 practice.

25 COMMISSIONER ROBERTS: Sometimes we have, sometimes

1 we haven't. There has been no consistency.

2 COMMISSIONER BERNTHAL: May I ask one more question
3 before we hear from the licensee or decide not to?

4 (Laughter.)

5 CHAIRMAN PALLADINO: Go ahead.

6 COMMISSIONER ASSELSTINE: I have one other question
7 as well.

8 CHAIRMAN PALLADINO: All right.

9 COMMISSIONER BERNTHAL: I think aside from the
10 details of this plan, there's value in seeing what
11 lessons we learn every time we go through a licensing
12 procedure.

13 I'm curious to know, looking back now, we have two
14 of these SNUPPS plants that were supposedly
15 standardized, although only two turned out to be
16 standardized.

17 Is your retrospective look now, does it support the
18 idea that this did introduce substantial deficiencies
19 into the licensing process?

20 Are two plants not enough to tell? If there had
21 been four, would you guess that it would have made our
22 job as well as the various utilities' job much simpler?

23 Or how do we feel about that?

24 MR. DENTON: Our experience has been favorable.
25 This plant was designed down to a level of detail,

1 uncommon level of detail by the vendor and architect
2 engineer.

3 And so we only had to do one review of the so-
4 called base plant, if that's the correct term. And
5 therefore, we achieved economies by just doing one
6 review, and that same base would have sufficed for any
7 number of plants that were being proposed at the time.

8 We then had to do the same custom review of the
9 site-related features and of the utility-related
10 features.

11 So to that extent, it didn't save time. I think
12 it's going to make our review of Wolf Creek and has
13 facilitated our review of Wolf Creek because we, by
14 having done it on Callaway, we're satisfied that those
15 same features hold at Wolf Creek.

16 Vice versa, in doing the fire protection review at
17 Wolf Creek, we had immediate feedback, we knew it
18 applied to Callaway, and we didn't have to send out
19 bulletins to ask how the plant was designed.

20 So I think from a licensing standpoint, it's a very
21 positive approach. Jim can speak from the inspection
22 side.

23 MR. NORELIUS: I might just add that we felt it
24 helped in their overall construction effort because of
25 the detail which was designed.

1 There were no field design changes. Any design
2 changes that were suggested in the field had to go back
3 to the SNUPPS organization and be incorporated in the
4 basic design. We felt that helped in the construction
5 process.

6 MR. DENTON: I understand from the utility that
7 it's helped them in their preoperational testing
8 program to have had one utility, having Callaway go
9 through preoperational testing and fix up all the bugs
10 in the plans.

11 COMMISSIONER BERNTHAL: They were lucky they got to
12 go first.

13 (Laughter.)

14 CHAIRMAN PALLADINO: Okay? Jim?

15 COMMISSIONER ASSELSTINE: Does this plant require
16 any exemptions from our regulations?

17 MR. DENTON: Darrell mentioned some.

18 MR. EISENHUT: Yes, I mentioned at the very
19 beginning one exemption that wasn't in the package here
20 that is required is an exemption to Appendix J.

21 That's basically the standard exemption. We will
22 be adding that. It is written as a separate document.
23 And since we adopted that approach, it didn't make it
24 into this briefing package.

25 I have held up signing that exemption, though, 'til

1 the briefing at the same time. But that would be the
2 exemption that's added.

3 There was one in the previous license, I believe,
4 also.

5 COMMISSIONER ASSELSTINE: Okay.

6 MR. EISENHUT: That's the exemption.

7 COMMISSIONER BERNTHAL: I just had one other
8 comment, not really a question, that I think is worth
9 noting, that if you look at the senior management of
10 this plant and this utility, you're struck by the
11 longevity of the various individuals on-site, if not
12 in general, perhaps.

13 And that, one doesn't want to act as though you
14 can't win either way. There certainly can be some
15 disadvantage to an organization that is an island unto
16 itself, which I trust this one is not, but by and
17 large, it seemed to me that was one of the real
18 strengths of many of the organizations in Europe that
19 manage to retain their people over a long period of
20 time.

21 And there was a sense of loyalty and obviously a
22 sense of institutional memory and experience that you
23 only get that way.

24 And it's worth noting that in fact, at least so
25 far, the Callaway project management, a lot of years of

1 experience there on-site. And I think that's helpful.

2 CHAIRMAN PALLADINO: Jim, you raised the question
3 of whether or not we wanted to hear from the licensee.
4 Is there a specific thing you'd like to hear?

5 COMMISSIONER ASSELSTINE: I had two questions that
6 if we're not going to give them a couple of minutes to
7 make a presentation, I had two questions that I'd like
8 to raise with them, although I say as a general matter,
9 I think it's a good idea for us to give a licensee a
10 few minutes just to say a few words to us. I think we
11 ought to do that every time we vote on a full power
12 license.

13 COMMISSIONER ZECH: Frankly, I don't think it's
14 necessary.

15 COMMISSIONER ROBERTS: I don't think it's
16 necessary.

17 COMMISSIONER ZECH: But I wouldn't object to
18 hearing from them, and perhaps it is appropriate. I
19 just think if it's considered appropriate, why,
20 certainly we'll hear from them.

21 CHAIRMAN PALLADINO: Okay. Let me ask you, Jim,
22 was there any particular point you'd like them to
23 comment on?

24 COMMISSIONER ASSELSTINE: The two points I was
25 going to ask was, first, what their sense is of the

1 LERs and the operational problems that have occurred
2 during the start-up testing program, both what they
3 think has contributed to those problems and what their
4 sense is of where they are now in being able to go
5 forward.

6 And the second item that I was going to or would
7 like to hear some brief comment on is the PUC ruling
8 that they're faced with.

9 I recognize that in the real world, the PUC ruling
10 saying that the plant has to be in commercial operation
11 by a certain time, otherwise they have to go a
12 different route, that kind of ruling by PUCs bothers me
13 a bit because it seems to me that that puts a good deal
14 of pressure on utilities to rush the start-up testing
15 program and the start-up program in general.

16 And I'd be interested in their view on what kind of
17 impact that ruling has had on them in terms of has that
18 been a force that's been pushing them to hurry things
19 along.

20 CHAIRMAN PALLADINO: Yes, from that standpoint, I
21 think it would be appropriate.

22 COMMISSIONER ASSELSTINE: You expressed that same
23 kind of concern earlier.

24 CHAIRMAN PALLADINO: Yes.

25 COMMISSIONER ASSELSTINE: Those are the two points

1 that I would be interested in just hearing some brief
2 comment on, together with what other brief comments the
3 licensee wants to make.

4 CHAIRMAN PALLADINO: All right. Who is here?

5 MR. DENTON: Mr. Don Schnell is here, I think
6 representing the company and a number of other company
7 high officials.

8 CHAIRMAN PALLADINO: I wonder if we might have Mr.
9 Schnell or one other member. That's all right, you can
10 stay there.

11 MR. SCHNELL: Mr. Chairman, commissicners,
12 gentlemen, my name is Don Schnell. I am vice president
13 of nuclear for Union Electric.

14 And I am responsible for design, construction, and
15 operation of the plant. I am one of those old-timers
16 that Commissioner Bernthal referred to.

17 And I guess that makes it personally gratifying for
18 me to be here today, since I started with the Callaway
19 project in 1971, so it's been a long time, and I'm
20 happy to see this day come.

21 Before I address the questions that were posed by
22 Mr. Asselstine, let me make a few remarks, if you
23 would, about some of the questions that came up during
24 the briefing.

25 COMMISSIONER ASSELSTINE: By the way, if you'd feel

1 more comfortable, you're perfectly free to sit at the
2 table.

3 MR. SCHNELL: Good.

4 COMMISSIONER BERNTHAL: It might make it easier.

5 COMMISSIONER ASSELSTINE: Yeah.

6 (Laughter.)

7 MR. SCHNELL: Thank you. That's better. There was
8 some concern expressed relative to whether or not in
9 this four-shift rotation we'd have opportunities to
10 continue our normal training.

11 You know, the basis of our staffing was that we'd
12 have enough people for six shifts and during this
13 period of intense activities, we have gone to this
14 four-rotation arrangement which allows us to have more
15 licensed people on the shift and, as was explained
16 earlier, pay more attention to the work and organize
17 the work in a more efficient manner.

18 We think that's helpful at this time. Now,
19 eventually, as we get through this power ascension
20 phase, as was stated, by the end of the year we would
21 expect to go through a more normal rotation.

22 We have, as was mentioned earlier, already started
23 to reduce the overtime for both licensed people and the
24 technicians that are engaged in the surveillance and in
25 the start-up activities now.

1 A feature of our staffing plan was that one week in
2 every six would be spent in training for our licensed
3 people, and we are able to accommodate that because we
4 do have several days during the week when we have
5 double crews.

6 So there are people available for training even
7 with this program of four-shift rotation that we now
8 have.

9 So training has not been forgotten. As a matter of
10 fact, prior to going critical, we've had our crews go
11 through the operation of boron dilution so that they'd
12 have a last-minute refresher on things that they'd be
13 seeing on the simulator, see what they'd be seeing in
14 the control room. So we think that's been a factor.

15 One other point. We mentioned to the staff before
16 our briefing that the low power test program is going
17 well.

18 As far as the engineering tests go, these are more
19 or less confirmatory things, as you know, and they are
20 going exceedingly well.

21 And being optimists with schedule development, it
22 would appear that we could do the remainder of those
23 tests by early next week.

24 On the other hand, let me assure you that we are
25 not rushing headlong through this LP test program. I

1 think some of you gentlemen, when you were out,
2 cautioned us about being deliberate.

3 We are being deliberate. We are not doing anything
4 irresponsibly or taking any risks with the plant, but
5 the thing that we can least afford now, and we know
6 that more than anyone, is to have something happen to
7 us that might be the result of haste during this
8 period. We are not rushing this test program.

9 Someone earlier mentioned the security system.
10 Yes, we have a very sophisticated security system at
11 the plant.

12 Whether it's possible to do what you said, Mr.
13 Bernthal, as far as eliminating the chaff from the
14 wheat kind of thing, as far as the alarms go, I think
15 experience with that system is improving our operation.

16 Fewer alarms certainly are being experienced. I
17 shouldn't admit to this, but before your arrival, the
18 rate of alarms, you know, the weeks before had been
19 even worse than you saw, but on the other hand, I think
20 our people are trained to handle that system and eight
21 alarms may not be too bad to handle at any one time.

22 But the situation is definitely improving with
23 respect to security.

24 I wanted to mention just one other thing prior to
25 addressing your questions, Mr. Asselstine, and that is

1 the GAP allegations.

2 Let me just say that as we have in the past, we'll
3 continue to cooperate fully with the region in
4 investigating and clearing up any of these allegations.

5 We have a task force consisting of our quality
6 assurance people who already are involved with the
7 residents to try to identify as quickly as possible any
8 problems that might be indicated by those allegations.
9 So we'll do anything we can to help in that regard.

10 Let me address the LER situation and what we've
11 done to correct that situation. It is true that we had
12 a burst of LERs immediately after loading fuel into
13 Callaway.

14 Now there isn't any question, as Mr. Zech pointed
15 out, it's like hitting a brick wall when you go from
16 construction into an operating plant under the detailed
17 technical specifications that we have for this unit.

18 I don't know if there would be a way to better
19 prepare for handling that. I think some of those
20 things are inevitable.

21 You just run into that, and you get jarred and you
22 have to reassess the situation and move on from there.
23 We've made a number of changes.

24 Let me point out one other thing, and that is if
25 we've given anyone the idea or the impression that we

1 take operation of this reactor in a cavalier manner,
2 let it be corrected right now.

3 We understand the responsibility that we have with
4 that plant, and there isn't any room for over-
5 confidence, and I'm the first one to admit that and to
6 preach that to the staff at the plant.

7 Going on from there, the LERs, we did a number of
8 things that I think have proved to be successful in
9 turning around that situation.

10 Most of them have been discussed already by the
11 staff and with you gentlemen. The 12-hour shift
12 rotation is improved because of only two shift changes
13 per day.

14 Putting more supervision on the shift has certainly
15 helped our licensed people handle the amount of work.
16 The details of these surveillance tests really are
17 opportunities for LERs because just the human factors
18 of going through those detailed surveillances make it
19 very difficult to perform at least the first time
20 through without making any errors.

21 The INPO visit did a lot of good with respect to
22 restructuring the control room activities. We've
23 tightened the access to the control room.

24 You wouldn't recognize the place now compared to
25 the way we were conducting operations at the time of

1 your visit.

2 But we've generally improved the work environment
3 in the control room and that's bound to add to the
4 orderliness and the businesslike way of doing business
5 during this period.

6 The shift supervisor, the redirection of his
7 responsibilities, letting him be the shift manager and
8 let him let the operating supervisor and his ROs manage
9 the routine operation of the control room, I think,
10 again has helped us a great deal, and we are reducing
11 the overtime for all the people as you already heard.

12 I think those things will prove to be the
13 difference and to turn around our activities and bring
14 our LERs certainly down to a manageable level,
15 something that you'll be satisfied with and we'll be
16 satisfied with.

17 Do you have any other questions on that LER
18 situation?

19 Let me talk about the Public Service Commission.
20 We do have a very challenging situation with respect to
21 the Missouri Public Service Commission in their
22 investigation of the prudence of our management in
23 building the plant.

24 Those hearings will start in October. Actually now
25 they've been delayed to November and into December. We

1 have a set of commercial operating conditions that have
2 been ordered by the Commission which include running
3 the plant through all of the tests program that has
4 been devised by Union Electric, bringing it up to 100%
5 power, and in essence, using the NSS warranty, contract
6 warranty run as a means of determining whether the
7 plant has demonstrated its commercial capability.

8 So the start-up program through the power ascension
9 phase will continue until we reach the 100% plateau,
10 and then there is a requirement by the Public Service
11 Commission that we satisfactorily run the unit at 100
12 hours continuously between 95% and 100% power.

13 And, of course, our other conditions in the
14 commercial operation criteria which relate to our
15 ability to operate the plant, to judge by our ability
16 to stay within the Commission's regulations.

17 So they're looking at that kind of thing also. My
18 assistant is meeting every two weeks with the Public
19 Service Commission to brief them on our operations and
20 the progress of our start-up program.

21 Now, with respect to rushing through this in
22 order to meet a Commission criterion or determining the
23 plant commercial, In the state of Missouri, we have an
24 11-month period for review by the Public Service
25 Commission which would have ended on January 15th of

1 1985. At that time, we would have expected to get the
2 plant into commercial operation and to have satisfied
3 these criteria.

4 In the last several weeks, it's been recognized
5 that the volume, the sheer volume of testimony that the
6 Commission staff and its consultants have put on the
7 record is going to take additional time for rebuttal.

8 So the entire schedule of the hearings has been
9 moved back three to four weeks, which, of course, makes
10 the January 15th date probably insofar as the Public
11 Service Commission, ^{decision} probably not attainable.

12 We recognize that this is going to be a very
13 complicated hearing process. In any event, the
14 Commission some months ago issued an order that the
15 results of this hearing process and this entire
16 investigation of prudence of Union Electric and
17 bringing the plant to completion will be extended until
18 March 31st, 1985, without the need to have to go
19 through the whole proceeding again.

20 So while we are obviously anxious to bring the unit
21 into operation in an orderly manner as soon as
22 possible, we are not compelled to have satisfied the
23 commercial operating conditions by the 15th of January.

24 So that is a little bit different from the
25 situation that existed when you visited.

1 COMMISSIONER BERNTHAL: But is it true that, as I
2 recall when I visited, you indicated that part of your
3 problem is that the procedures that your PUC has are
4 largely designed not for nuclear power plants but for
5 coal-burning plants and that therefore you're laboring
6 under procedures that everyone recognizes probably are
7 going to have to be changed at some point?

8 MR. SCHNELL: I think that's at least partially
9 true. Certainly this is a new situation for the
10 Missouri Commission and that has complicated the
11 situation, yes.

12 CHAIRMAN PALLADINO: Okay?

13 COMMISSIONER ASSELSTINE: Thank you, Don.

14 CHAIRMAN PALLADINO: Yes.

15 COMMISSIONER ASSELSTINE: I would just add that I'm
16 beginning to see with some increasing frequency these
17 kinds of PUC orders that say either plant is in
18 commercial operation by a certain time or there are
19 financial consequences.

20 Just as a general proposition, it's beginning to
21 bother me because I think the way they're structured,
22 they can either put great pressure on the utility to
23 rush things and have a negative effect on safety.

24 I'm going to be speaking before the National
25 Association of Regulatory Utility Commissioners next

1 month, and I think that's one of the points that I'm
2 going to emphasize, that PUCs have to be very careful
3 in the way they ^{craft} ~~draft~~ those orders, because otherwise
4 they can have a negative impact on safety that I don't
5 think any of us want.

6 MR. DENTON: That's true.

7 COMMISSIONER ROBERTS: Just for my information,
8 how's your PSC selected? Is it elected or appointed?

9 MR. SCHNELL: They're appointed.

10 COMMISSIONER ROBERTS: By whom, the governor?

11 MR. SCHNELL: The governor, yes, sir.

12 COMMISSIONER BERNTHAL: I just want to pick up on
13 the theme. I was considering making a similar comment,
14 Jim, and decided to hold my fire.

15 But since you've made the comment, it just seems to
16 me that not only from the standpoint of financial
17 matters that affect the utility, which indirectly, I
18 suppose, affect us, but from the standpoint of our
19 responsibilities here for public health and safety, we
20 seem increasingly to be getting tangled up in local and
21 state utility commission issues.

22 I have a feeling that may be an issue we do need to
23 address, and I would hope that Jim would address that
24 when he gives his speech.

25 CHAIRMAN PALLADINO: Yes. I think we're getting a

1 little far afield. I'm not sure that we've gotten into
2 many situations with these PUCs.

3 However, we are interested in the impact of their
4 pressure on safety, and I think that's ...

5 COMMISSIONER BERNTHAL: That's precisely the point,
6 the impact of the ^{applied}~~implied~~ pressure, whether real or
7 not, both on the Commission and the NRC and on the
8 utilities themselves.

9 That is an issue that I think is one that's going
10 to come before us eventually.

11 MR. SCHNELL: Let me just say, if I could, Mr.
12 Chairman, that our president has personally directed me
13 not to let the pressures of the schedule from the
14 Public Service Commission standpoint affect our
15 performance in the field.

16 We are not going to rush because of that situation.
17 And I can only end, if I've answered your questions ...

18 COMMISSIONER ASSELSTINE: Yes.

19 MR. SCHNELL: ...by just reiterating our commitment
20 that we want to make this a quality operation. I want
21 this, we all want this plant and our organization to be
22 among the industry leaders, and we're dedicated to
23 that.

24 CHAIRMAN PALLADINO: All right. Thank you very
25 much, Mr. Schnell. Now let me ask the Commission if

1 they're ready to vote on whether or not to authorize
2 the staff to issue a full power amendment for the
3 Callaway plant.

4 COMMISSIONER ASSELSTINE: Yes.

5 COMMISSIONER ROBERTS: Yes.

6 CHAIRMAN PALLADINO: Then let me pose the question.
7 Do you vote to authorize the staff to issue a full
8 power amendment for the Callaway plant after they have
9 completed their activities?

10 All those in favor, say, "Aye."

11 COMMISSIONER ASSELSTINE: Aye.

12 COMMISSIONER ZECH: Aye.

13 COMMISSIONER BERNTHAL: Aye.

14 COMMISSIONER ROBERTS: Aye.

15 CHAIRMAN PALLADINO: Aye. Opposed?

16 COMMISSIONER ASSELSTINE: I have just one comment
17 to add to my vote, Joe. Before this meeting, I had a
18 briefing by the staff on the LER situation both from
19 Darrell and from Jim and his staff.

20 Before the staff issues the full power license, I'd
21 like a similar briefing, and it can be set up the same
22 way, just over the phone is fine with me, both on the
23 results of the operation, the readiness program through
24 the low power testing program, and the results of the
25 screening of allegations.

1 So I'd just like that for myself, just a simple
2 briefing on where you stand in terms of both of those
3 items because I know you said you're going to do both
4 of those items before full power license decision.

5 CHAIRMAN PALLADINO: Yes, I think the Commission
6 would appreciate being kept informed on that.

7 COMMISSIONER ASSELSTINE: The only other item I
8 would mention is that I would have given a brief
9 opportunity, just as we did to the licensee, to the
10 intervenors ^{and to} ~~in~~ GAP to just make a very short
11 presentation to the Commission.

12 The majority of the Commission wasn't in favor of
13 doing that. I think sometimes it's as important how
14 you make a decision as to what decision you make, and I
15 would have given just a few minutes to those groups as
16 well.

17 COMMISSIONER BERNTHAL: I ...

18 CHAIRMAN PALLADINO: I still would comment that
19 they have the privilege of writing in. As a matter of
20 fact, I think they have a responsibility to do it, and
21 I think the comment that Commissioner Bernthal made
22 earlier about waiting 'til the last minute is an
23 appropriate one.

24 COMMISSIONER ZECH: May I make one comment in that
25 regard, too? I appreciate the staff approach to these

1 late allegations from GAP, and I appreciate the
2 utility's approach also.

3 I think that's very responsible. We should look
4 into those allegations. On the other hand, it seems to
5 me that the letter stated that the allegations had been
6 gathered over a six-month period, and I can't help but
7 think that it would have been much more helpful to have
8 those allegations presented earlier than just a day or
9 two before this meeting.

10 When they're presented in that manner, it is not
11 helpful, in my judgment, and I would submit that all of
12 us are serious about the public health and safety.

13 And to those who are truly serious about public
14 health and safety, if they have allegations, I would
15 respectfully submit they submit them in a timely manner
16 so that they can be carefully and diligently looked
17 into so that we can operate these plants in due light
18 of the seriousness we have, all of us, I believe, for
19 the public health and safety.

20 It seems to me that those allegations should be
21 given us earlier than just a couple of days before a
22 meeting of this kind.

23 AUDIENCE MEMBER: I would like to address that.

24 CHAIRMAN PALLADINO: Excuse me. Commissioner
25 Bernthal has the floor.

1 COMMISSIONER BERNTHAL: I just wanted to comment.
2 I agree with what you've said, Commissioner Zech, and I
3 expressed my own feelings on that earlier.

4 Despite that, I too would have permitted GAP to
5 make a short presentation. As all of my fellow
6 commissioners know, that's been a longstanding policy
7 of mine when such matters don't become unduly
8 burdensome to the Commission.

9 I would normally prefer to allow individuals, even
10 if they don't have formal standing, to be heard. But
11 my comments on the timeliness of the allegations, I
12 should emphasize still stand.

13 CHAIRMAN PALLADINO: Well, the Commission has voted
14 not to entertain presentations by those groups, so we
15 won't.

16 And I think we're ready to adjourn.

17 COMMISSIONER ROBERTS: Ready to adjourn.

18 CHAIRMAN PALLADINO: Thank you.

19 (Whereupon, the meeting adjourned at 11:51 a.m.)
20
21
22
23
24
25

COMMISSION BRIEFING

CALLAWAY PLANT, UNIT 1

OCTOBER 4, 1984

FULL POWER AMENDMENT

CONTACT:
J. HOLONICH
X27793

SLIDE 1

BRIEFING OUTLINE

- LICENSEE/PLANT BACKGROUND
- SNUPPS CONCEPT
- STATUS AND SCHEDULE
- OVERVIEW
- CONCLUSION

BACKGROUND

1. CALLAWAY INSPECTION HISTORY
2. CONSTRUCTION ASSESSMENT TEAM
3. INTEGRATED DESIGN INSPECTION
4. CALLAWAY SALP RATINGS
5. OPERATING PERSONNEL/EXPERIENCE

LICENSEE/PLANT BACKGROUND

- LICENSEE
 - UNION ELECTRIC COMPANY
 - ST. LOUIS, MISSOURI

- PLANT
 - WESTINGHOUSE 4-LOOP
 - 3411 MWT (1186 MWE)
 - ARCHITECT/ENGINEER - BECHTEL
 - GENERAL CONTRACTOR - DANIEL INTERNATIONAL CORPORATION

- SITE
 - LOCATED ON MISSOURI RIVER IN CENTRAL MISSOURI
 - NEAREST TOWN - FULTON, MO
 - DISTANCE 10 MILES
 - POPULATION 11,046
 - POPULATION CENTER - JEFFERSON CITY, MO
 - DISTANCE 25 MILES
 - POPULATION 33,594

- OFFSITE EMERGENCY PLANNING -
 - EMERGENCY EXERCISE ON MARCH 21, 1984
 - FEMA EVALUATION OF JUNE 26, 1984 CONCLUDES THAT OFFSITE PLAN IS ADEQUATE

STANDARDIZED NUCLEAR UNIT POWER PLANT SYSTEM (SNUPPS)

- ORIGINAL MEMBERSHIP (EARLY 1973)
- PLANT/APPLICANT
 - TYRONE 1 & 2/NORTHERN STATES POWER (CANCELLED MARCH 1979)
 - STERLING/ROCHESTER GAS & ELECTRIC (CANCELLED FEBRUARY 1980)
 - WOLF CREEK/KANSAS CITY POWER & LIGHT/KANSAS GAS AND ELECTRIC
 - CALLAWAY PLANT UNITS 1 AND 2/UNION ELECTRIC
(UNIT 2 CANCELLED OCTOBER 1981)
- STANDARDIZED PORTION OF PLANT (POWER BLOCK)
 - CONTAINMENT BUILDING
 - FUEL BUILDING
 - DIESEL BUILDING
 - CONTROL BUILDING
 - AUXILIARY BUILDING
 - TURBINE BUILDING
 - RADWASTE BUILDING
- POWER BLOCK WAS DESIGNED TO ENVELOPE THE MOST SEVERE SITE CHARACTERISTICS IMPOSED BY ANY OF THE FOUR SITES
- NO UNIQUE DESIGN FEATURES
- LICENSING REVIEW
 - COMMON FSAR FOR POWER BLOCK -- SINGLE STAFF REVIEW
 - OTHER FEATURES, INCLUDING SITE-PLANT SPECIFIC REVIEW

STATUS AND SCHEDULE

- ° LOW POWER LICENSE ISSUED JUNE 11, 1984
- ° FUEL LOADING JUNE 13-20, 1984
- ° INITIAL CRITICALITY OCTOBER 2, 1984
- ° LOW POWER TESTING
 - START OCTOBER 2, 1984
 - COMPLETE OCTOBER 12, 1984 E
- ° READY TO EXCEED 5% POWER OCTOBER 12, 1984 E

OVERVIEW

- FSAR DOCKETED OCTOBER 1979
- DETAILED STAFF DESIGN REVIEW
 - FOR POWER BLOCK & PLANT SPECIFIC REVIEWS (28 STAFF YEARS)
 - CONSTRUCTION ADEQUACY VERIFIED
 - STAFF INSPECTION 19,200 HOURS
 - CONSTRUCTION ASSESSMENT TEAM (416 HOURS)
 - INTEGRATED DESIGN INSPECTION (1600 HOURS)
- ALL LICENSING/INSPECTION ISSUES RESOLVED
- SALP SATISFACTORY
- OPERATING PERSONNEL/EXPERIENCE
 - MANAGEMENT
 - PLANT STAFF
 - USE OF ADVISORS ON SHIFT
- TECHNICAL SPECIFICATION CERTIFICATION COMPLETED
- LOW POWER TESTING PERFORMANCE
 - LER EVALUATION

CONCLUSIONS

STAFF CONCLUDES THE LICENSEE SATISFIES ALL THE REQUIREMENTS
FOR ISSUANCE OF A FULL POWER LICENSE

SLIDE 7

BACKGROUND

SLIDE 8

CALLAWAY INSPECTION HISTORY

<u>YEAR</u>	<u>INSPECTOR-HOURS</u>
1976	191
1977	1136
1978	1552
1979	731
1980	1856
1981	1018
1982	3458
1983	4171
1984 (AS OF JULY 9)	<u>5060</u>
TOTAL	19,173

CONSTRUCTION ASSESSMENT TEAM

6-MAN REGION III TEAM

416 MAN-HOURS

EVALUATE WHETHER SUBSTANTIAL CONSTRUCTION PROBLEMS EXISTED

MONITOR KEY CONSTRUCTION AREAS AND CONTROL SYSTEMS

ONE ITEM OF NONCOMPLIANCE WITH FOUR EXAMPLES

QA PROGRAM AT CALLWAY WAS ADEQUATE. NO HARDWARE PROBLEMS
WERE IDENTIFIED.

INTEGRATED DESIGN INSPECTION

10-MAN IE TEAM

1600 MAN-HOURS

DESIGN CONTROL OF THE AUXILIARY FEEDWATER SYSTEM

NO PERVASIVE BREAKDOWN IN THE DESIGN PROCESS WAS IDENTIFIED

CALLAWAY SALP RATINGS

<u>FUNCTIONAL AREA</u>	<u>SALP PERIOD</u>		
	<u>II</u>	<u>III</u>	<u>IV</u>
SOILS AND FOUNDATIONS	2	NR*	NR
CONTAINMENT AND OTHER SAFETY-RELATED STRUCTURES	2	2	1
PIPING SYSTEMS AND SUPPORTS	2	2	2
SAFETY-RELATED COMPONENTS	2	1	1
SUPPORT SYSTEMS	NR	NR	1
ELECTRICAL POWER SUPPLY AND DISTRIBUTION	3	2	2
INSTRUMENTATION AND CONTROL SYSTEMS	NR	2	1
LICENSING ACTIVITIES	1	1	1
QUALITY ASSURANCE	NR	1	2
PREOPERATIONAL TESTING	NR	1	2
ENVIRONMENTAL CONTROLS	NR	1	2
RADIOLOGICAL CONTROLS	NR	2	1
FIRE PROTECTION AND SAFE SHUTDOWN ANALYSIS	NR	NR	2
SECURITY AND SAFEGUARDS	NR	NR	2

*ALL NR'S ON THIS CHART MEAN - NOT RATED BASED ON INSUFFICIENT LICENSEE OR NRC ACTIVITY IN A PARTICULAR FUNCTIONAL AREA

OPERATING PERSONNEL/EXPERIENCE

MANAGEMENT BACKGROUND

- KEY MANAGERS HAVE BEEN WITH THE CALLAWAY PROJECT FOR 8-13 YEARS

PLANT STAFFING EXPERIENCE (YEARS)

- | | |
|----------------------|------|
| - TOTAL NUCLEAR | 3644 |
| - COMMERCIAL NUCLEAR | 275 |
| - NAVY NUCLEAR | 1470 |

SHIFT OPERATION

- FOUR 12 HOUR SHIFTS UNTIL TESTING PROGRAM COMPLETE
- SIX SHIFT OPERATION AFTER TESTING COMPLETE
- TOTAL LICENSED OPERATORS SHIFT MAKEUP
 - 20 SROs 2 SROs
 - 13 ROs 2 ROs
- QUALIFIED INDIVIDUAL OR ADVISOR REQUIRED ON EACH SHIFT

ADVISOR TRAINING PROGRAM

- SIX WEEK PROGRAM
- WRITTEN AND SIMULATOR EXAMS
- WITNESSED AND INDEPENDENTLY GRADED BY REGION III PERSONNEL
- ALL ADVISORS PASSED EXAMINATIONS



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

OCT 02 1984

Docket No.: STN 50-483

MEMORANDUM FOR: Chairman Palladino
Commissioner Roberts
Commissioner Asselstine
Commissioner Bernthal
Commissioner Zech

FROM: William J. Dircks, Executive Director
for Operations

SUBJECT: REVISIONS TO CALLAWAY PLANT, UNIT 1 BRIEFING PACKAGE

By memorandum dated August 24, 1984, I forwarded the Callaway briefing book as background for the Commission meeting on the full power license presently scheduled for October 4, 1984. In that memorandum and in Board Notification 84-145 which was also forwarded to the Commission on August 24, 1984, the results of a fire-protection inspection at the Wolf Creek Generating Station, the sister plant to Callaway, were identified as a potential concern.

As a result of several meetings with the utilities and a review of the revised safe-shutdown analysis submitted on August 23, 1984, the staff has completed its evaluation of this concern and finds the proposed modifications acceptable. These findings will be documented in SSER 4 for the Callaway Plant and will result in an additional condition in the full-power license.

The purpose of this memorandum is to forward to the Commission a revised copy of the full-power amendment (Enclosure 1), and the revisions to SSER #4 (Enclosure 2). All changes are indicated by a vertical bar in the right-hand margin. These revised pages replace those presently in the briefing package.

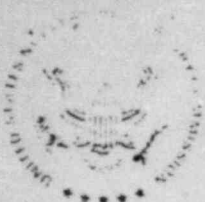
(Signed) William J. Dircks

William J. Dircks, Executive Director
for Operations

Contact: J. Holonich, NRR
x27793

Enclosures:
1. Revised Callaway Full-Power Amendment
2. Revised SSER 4 Pages

cc: SECY
OPE
OGC



ENCLOSURE 1

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

UNION ELECTRIC COMPANY

DOCKET NO. STN 50-483

CALLAWAY PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

License No. NPF-25
Amendment No. 1

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for a license by the Union Electric Company (licensee), 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, Facility Operating License No. NPF-25, paragraph 2.C.(1) is hereby amended as follows:

(1) Maximum Power Level

UE is authorized to operate the facility at reactor core power levels not in excess of 3411 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.

Paragraph 2.C.(7) is amended as follows:

(7) Fire Protection (Section 9.5.1.7, SER, Section 9.5.1.8, SSER #3, and Section 9.5.1.5, SSER #4)

(c) Deleted

(d) The licensee shall maintain in effect all provisions of the approved fire protection program as described in the SNUPPS Final Safety Analysis Report for the facility through Revisions 15, the Callaway site addendum through revision 8, and as approved in the SER through Supplement 4, subject to provisions e & f below.

(e) The licensee may make no change to the approved fire protection program which would decrease the level of fire protection in the plant without prior approval of the Commission. To make such a change the licensee must submit an application for license amendment pursuant to 10 CFR 50.90.

(f) The licensee may make changes to features of the approved fire protection program which do not decrease the level of fire protection without prior Commission approval after such features have been installed as approved, provided such changes do not otherwise involve a change in a license condition or technical specification or result in an unreviewed safety question (see 10 CFR 50.59). However, the licensee shall maintain, in an auditable form, a current record of all such changes including an analysis of the effects of the change on the fire protection program and shall make such records available to NRC inspectors upon request. All changes to the approved program made without prior Commission approval shall be reported to the Director of the Office of Nuclear Reactor Regulation, together with supporting analyses, within 60 days of the change.

- (g) Prior to restart following the first extended outage of known duration greater than two weeks occurring after February 15, 1985 or prior to restart following the first refueling outage which ever occurs first, UE shall have completed the installation of the five new isolation switches and modification to the four existing modification switches identified in the August 23, 1984 SNUPPS letter.

Paragraph 2.C.(9)(a) is amended to add the following:

- (a) Detailed Control Room Design Review (I.D.1, SSER #4)

Prior to May 1, 1985, UE shall submit for review and approval by the NRC staff, the results of the function and task analysis. For those Human Engineering Discrepancies (HEDs) identified by this analysis that require correction, the submittal shall include the proposed correction and an implementation schedule; and for those HEDs for which no planned correction is proposed, a basis for that determination shall be documented.

Paragraph 2.D is amended to read as follows: (SSER #4)

- D. The granting of this exemption is not required.

Paragraph 2.F is amended to read as follows:

- F. With the exception of 2.C(2), UE shall report any violations of the requirements contained in Section 2.C of this license within 24 hours. Initial notification shall be made in accordance with the provisions of 10 CFR 50.72 with written followup in accordance with the procedures described in 10 CFR 50.73(b),(c),(d) and (e).

- 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:

ENCLOSURE 2
REVISED SSER4 PAGES

ABSTRACT

This report supplements the Safety Evaluation Report (SER) for the application filed by the Union Electric Company, as applicant and agent for itself, for a license to operate the Callaway Plant, Unit 1 (Docket No. STN 50-483). This report has been prepared by the Office of Nuclear Reactor Regulation of the U.S. Nuclear Regulatory Commission. The facility is located in Callaway County, Missouri. This supplement provides recent information regarding resolution of the license conditions identified in the SER. Because of the favorable resolution of the items discussed in this report and a vote by the Commission to authorize full-power operation, the staff concludes that the facility can be operated by the licensee at power levels greater than 5% without endangering the health and safety of the public.

DRAFT

TABLE OF CONTENTS (Continued)

	<u>Page</u>
6.6 Inservice Inspection of Class 2 and 3 Components.....	6-1
6.6.1 Evaluation of Compliance for Callaway Unit No. 1 With 10 CFR 50.55a(g).....	6-2
7 INSTRUMENTATION AND CONTROLS.....	7-1
7.2 Reactor Trip System.....	7-1
7.2.2 Resolution of Issues.....	7-1
9 AUXILIARY SYSTEMS.....	9-1
9.5 Other Auxiliary Systems.....	9-1
9.5.1 Fire Protection.....	9-1
13 CONDUCT OF OPERATIONS.....	13-1
13.1 Organizational Structure and Qualifications	13-1
13.1.2 Operating Organization	13-1
14 INITIAL TEST PROGRAM.....	14-1
15 ACCIDENT ANALYSIS.....	15-1
15.4 Radiological Consequences of Design-Basis Accidents.....	15-1
15.4.4 Steam Generator Tube Rupture.....	15-1
22 TMI-2 REQUIREMENTS.....	22-1
22.2 Discussion and Conclusions.....	22-1
I.D.1 Control Room Design Review.....	22-1
II.B.3 Post-Accident Sampling System.....	22-7
II.F.2 Instrumentation for Detection of Inadequate Core Cooling.....	22-8
APPENDIX A CONTINUATION OF CHRONOLOGY OF NRC STAFF RADIOLOGICAL REVIEW OF CALLAWAY PLANT	
APPENDIX B REFERENCES	
APPENDIX D NRC STAFF CONTRIBUTORS	
APPENDIX I PRESERVICE INSPECTION REQUEST-RELIEF EVALUATION	

DRAFT

- (4) Sensor time response testing (removed in SSER 3)
- (5) Test of engineered safeguards P-4 interlocks (removed in SSER 2)
- (6) Automatic indication of block signals initiating auxiliary feedwater following trip of the main feedwater pumps (removed in SSER 2)
- (7) Steam generator level control and protection (removed in SSER 2)
- (8) Indicator, alarms, and test features provided for instrumentation used for safety functions (removed in SSER 2)
- (9) Reactor coolant temperature indicators on the auxiliary shutdown panel (removed in SSER 2)
- (10) Actuation of valve component level windows on the bypassed and inoperable status panel (removed in SSER 2)
- (11) Postaccident monitoring (revised in SSER 3; at the first refueling outage)
- (12) Interlocks for reactor coolant system (RCS) pressure control during low temperature operation (removed in SSER 2)
- (13) Volume control tank level control and protection interaction (removed in SSER 2)
- (14) Boron dilution control (removed in SSER 2)
- (15) Bypass of protective trips on diesel generator (removed in SSER 2)
- (16) Installation of battery discharge alarm (removed in SSER 2)
- (17) Testing of substantiate separation between redundant safety-related cables inside control panels (removed in SSER 1)
- (18) Compliance with Appendix R of 10 CFR 50 on fire protection (SER Section 9.5.1.7 and SSER 3 Section 9.5.1.8--permanent; SSER 4 Section 9.5.1.5--at the first refueling outage)
- (19) Qualifications of operations personnel (SER Section 13.1.2 and SSER 1 Section 18)
- (20) TMI Action Plan (SER and SSER 3 Section 22)
 - I.D.1 Control room design review (SSER 4)
 - II.B.3 Postaccident sampling capability (satisfied)
 - II.F.2 Inadequate core cooling instrumentation (satisfied)
- (21) Operations restriction above 90% of full power (removed in SSER 3)
- (22) Environmental qualification (LC 2.C.(3)(a) is satisfied; LC 2.C.(3)(b)--March 1985; LC 2.C.(3)(c)--at the first refueling outage)
- (23) Seismic and dynamic qualification (satisfied)

DRAFT

9 AUXILIARY SYSTEMS

DRAFT

9.5 Other Auxiliary Systems

9.5.1 Fire Protection

9.5.1.5 Alternate Shutdown

In Section 9.5.1.5 of Supplemental Safety Evaluation Report (SSER) 3 the staff concluded that the alternative shutdown capability for the control room at the Callaway plant met the requirement of Branch Technical Position CMEB 9.5-1. This conclusion was based on staff review of (1) the final safety analysis report (FSAR) for standardized nuclear unit power plant systems (SNUPPS) and (2) the control room fire hazard analysis dated November 15, 1982, as well as the staff's understanding that all systems necessary to achieve and maintain hot shutdown could be isolated (which the staff assumed included operability) from the control room following fire damage to any circuits in the control room by placing the isolation switches (outside the control room) to the isolated position.

A recent inspection at Wolf Creek nuclear power plant revealed that in order to isolate some systems necessary for hot shutdown (other than those on alternate shutdown panel B) from control room fire damage and to maintain operability without replacing fuses, isolation must take place before fire damage occurs. Because Callaway and Wolf Creek are duplicate plants, this concern is also directly applicable to Callaway. Although the present isolation switches at SNUPPS plants do isolate the required equipment or components from the control room, it may be necessary to replace fuses as a result of control room fire damage, in order to place the equipment/component in the desired mode of operation or position. The alternate shutdown procedures used at Callaway are based on the assumption that the transfer switches will be placed in the isolated position before fire damage occurs in the control room that could result in fuse failure in the control power circuit. For such a case the isolation switches would isolate the desired component/equipment from the control room and operability would not be affected, since the fuses would now be isolated from the control room circuitry. At this point any further fire damage (hot short, open, or short to ground) would not affect the component(s) in question.

However, staff conclusions reached in SER Supplement 3 were based on the understanding that it would not be necessary to replace fuses after the transfer switches were placed in the isolated position, regardless of the time frame assumed for fire damage to the control room circuits. Following the inspection, the staff recognized that the present SNUPPS design in combination with the alternate shutdown procedures did not meet staff requirements for alternative shutdown capability in the event of a control room fire.

As a result of meetings with the SNUPPS utilities on August 10, 14, 15, and 22, 1984, the staff determined that new procedures could take care of many of the concerns identified by the inspection, since breakers or valves could still be operated locally. In other cases it was determined that the replacement of

fuses was acceptable, since the components in question did not have an immediate effect on hot shutdown and ample time was available to replace fuses. However, there were four instances in which the licensee identified isolation switches that required modifications and five instances in which new isolation switches would have to be added. The new and modified isolation switches will have redundant fuses so that when placed in the isolation position new fuses would be switched into circuitry and the equipment would be isolated and immediately available.

By submittal dated August 23, 1984, the licensee provided a detailed outline of new alternate shutdown procedures and identified where the new and modified switches were required. The proposed new procedures consist of five phases, A through F, which will be performed by four operators. The new procedures assume that the control room is evacuated when the fire starts and operations outside the control room systematically bring all hot shutdown systems on the line and compensate for or prevent spurious operations that could affect achieving or maintaining hot shutdown.

Before the operator leaves the control room, he trips the reactor and closes the main steam isolation valves (MSIVs), if the fire permits him to do so. During phase A, which is completed within 5 minutes of evacuation, one operator establishes control at the alternate shutdown panel (ASP) using motor-driven pump B (after the diesel is running) and the atmospheric dump valves for steam generators B and D. The ASP operator also isolates the normal letdown path via an isolation switch on the ASP and closes the atmospheric dump valves for steam generators A and C. Meanwhile other operators simulate a loss of offsite power (if not lost), strip the loads from the 4160-B bus which is isolated from the effects of a control room fire, and start the diesel generator and essential service water (ESW) flow to the diesel generator. Also during phase A an operator trips the reactor coolant pumps if they are running, and isolates the power-operated relief valves (PORVs) via a knife switch. To ensure that spurious operation of atmospheric dump valves for steam generators A and C does not affect hot shutdown, an operator (during phase D) manually closes an isolation valve for each dump valve. New isolation switches will be added, to ensure that ESW valves HV-26 and HV-38 are properly positioned. HV-26 isolates the ESW system from the service water system and HV-38 is the ESW return to the ultimate heat sink (UHS). Until these switches are installed, an operator will trip the valve breakers (motor-operated valves) and will manually operate the valves if they need to be repositioned. Phase A will be completed within 5 minutes and at its completion (1) hot shutdown is being maintained at the ASP, (2) diesel generator B is running with cooling water being supplied by ESW train B, (3) the reactor coolant pumps (RCPs) are secured to protect the seals, and (4) some of the primary and secondary systems have been isolated (letdown, PORVs, and atmospheric dump valves). Although the turbine-driven AFW pump is isolated, it will not be used until an operator has assured that a suction flow path is available in phase D.

During phase B, which is completed within 10 minutes after the control room has been evacuated, operators maintain control at the alternate shutdown panel, verify turbine trip, initiate room cooling for the ESW pump room and the diesel generator room, and start the air conditioning systems for the control building and auxiliary building to ensure that vital electrical areas will be cooled. Also during phase B, the isolation valves between the refueling water storage tank (RWST) and the residual heat removal (RHR) pump suction are closed to

Prevent the RWST from inadvertently draining to the containment recirculation pump. New/modified isolation switches will be provided for the ESW and diesel generator inlet dampers and supply fans to ensure timely initiation of room cooling for these areas. In the interim, the inlet dampers may have to be opened manually and the supply fans may have to be replaced because of damage from the fire in the control room. A new isolation switch will also be installed to operate the HV-8812B, RWST to RHR pump suction valve; meanwhile that suction valve must be operated manually. Containment spray pump train A is also tripped to prevent or stop its spurious operation. The train B spray pump was isolated during phase A when the 4160-B bus was stripped.

During phase C, which is completed within 20 minutes after the control room has been evacuated, operators trip the valve breakers and verify the position of and manually operate, if necessary, valves in the component cooling water (CCW) system to assure proper CCW system lineup, then start CCW pumps B and D. A new isolation switch will be installed to ensure that valve HV-70B closes; HV-70B is an air-operated solenoid-controlled CCW isolation valve for the radwaste building. In the interim, by pulling a fuse to kill dc power to the solenoid valve, the isolation valve will close.

During phase D, which is completed within 30 minutes after the control room has been evacuated, operators use charging pump B to line up the charging system and initiate RCP seal injection flow by using the RWST as a source. If the MSIVs were not closed before the control room was evacuated, they will now be closed using a portable 125-volt dc power source and wires will be cut to ensure the MSIVs remain closed. Also during phase D, operators ensure that the condensate storage tank (CST) is lined up to the turbine-driven AFW pump. At this time the operator at the ASP may use the turbine-driven pump in lieu of or in addition to the motor-driven B pump.

During phase E, which is completed 60 minutes after the control room has been evacuated, the operators will ensure the availability/operability of systems and components required for long-term hot standby. These include containment air cooling, fuel oil transfer system, and the isolation of minor potential blowdown paths such as the reactor head vents, steam generator blowdown system, excess letdown line, and the MSIV bypass valves. During phase E the charging system is lined up to charge through the boron injection tank (BIT) to allow boration and at Callaway the ESW system flow return is lined up to the cooling tower.

During phase E, operators pull identified fuses to prevent reactor head vent valves, excess letdown isolation valves, and the MSIV bypass valves from opening spuriously. This is acceptable since the valves are all normally closed, fail-closed valves and, except for the bypass valves, require multiple hot shorts to result in a blowdown path since there are two isolation valves in series. These are small blowdown paths (1-inch) and would result in a limited rate of release. Regarding the MSIV bypass valves, additional downstream valves would have to spuriously open in order to result in steam releases. Also, if instrumentation on the ASP indicates that these spurious operations had occurred, these steps could be taken any time before reaching phase E. Likewise, the steps to isolate the PORVs, atmospheric dump valves on steam generators A and C, or the steam generator blowdown system could be taken at any time if the instrumentation at the ASP indicated that isolation was necessary. These steps

do not require pulling or replacing any fuses. Although it would take multiple hot shorts to cause spurious opening of the series RHR suction isolation valves, the breakers to one valve in each path will be tripped during normal operation to preclude a fire-induced loss-of-coolant accident (LOCA).

The final and long-term phase, phase F, includes (1) operations to assure the operability of the ESW system's self-cleaning strainers, (2) power and ventilation are established to the electrical equipment room for the cooling tower, and (3) the cooling tower fans are started. If necessary, the ESW system is lined up to the AFW system if the condensate storage tank is depleted.

Many of the manual operations performed during phases A through F are precautionary to prevent spurious operations of valves and/or pumps. It is not expected that all spurious operations will occur and, in all likelihood, many of the manual valve lineups described in the procedures for the cooling water systems would only be valve lineup checks. Actual manipulation of a valve may be required only if the valve spuriously moved to an undesired position before isolating control power from the control room, or if the valve's normal position was not that desired for the post-fire lineup.

On the basis of the staff review of the phased procedural approach outlined with the August 23, 1984 submittal, and the interim procedures identified for use until the installation of the five new isolation switches and the modifications to four of the existing switches, the staff concludes that the SNUPPS alternative shutdown capability is acceptable pending the following conditions:

- (1) Because of the time needed to design, procure, install and test the isolation switches, the staff has decided that the Callaway licensee does not have to install the isolation switches before a full-power license is issued. The basis for this deferral is staff judgment that the interim procedures provide a level of safety comparable to the design with the modified and new isolation switches for the time period of the first operating cycle.
- (2) Before exceeding 5% of rated power, the licensee will revise his procedures for responding to a fire in the control room in accordance with the licensee's submittal of August 23, 1984 and will train operators to the revised procedures, including the interim procedures.
- (3) In addition, the staff will condition the license to require the licensee to install the five new isolation switches and modify the four existing isolation switches that were identified in the August 23, 1984 submittal:
 - (a) Before startup following the first extended outage of known duration (greater than two weeks) occurring after February 15, 1985, or
 - (b) Before startup following the first refueling outage.

If the full-power license is not issued before March 1, 1985, the staff will require that the new isolation switches be installed and existing isolation switches be modified before exceeding 5% of rated power.

DRAFT