

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Title: **DISCUSSION OF FULL POWER OPERATING**
LICENSE FOR WATTS BARR - PUBLIC MEETING

Location: **Rockville, Maryland**

Date: **Wednesday, January 31, 1996**

Pages: **1 - 92**

ANN RILEY & ASSOCIATES, LTD.
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Washington, D.C. 20005
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1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION

3 *****

4 DISCUSSION OF FULL POWER OPERATING
5 LICENSE FOR WATTS BARR

6 *****

7 PUBLIC MEETING

8 *****

9
10 U.S. Nuclear Regulatory Commission
11 One White Flint North
12 Rockville, Maryland
13

14 Wednesday, January 31, 1996
15

16 The Commission met in open session, pursuant to
17 notice, at 2:00 p.m., Shirley A. Jackson, Chairman,
18 presiding.
19

20 COMMISSIONERS PRESENT:

21 SHIRLEY A. JACKSON, Chairman of the Commission
22 KENNETH C. ROGERS, Member of the Commission
23
24
25

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1 STAFF SEATED AT THE COMMISSION TABLE:

2 KAREN D. CYR, General Counsel

3 JOHN C. HOYLE, Secretary

4

5 PARTICIPANTS ON BEHALF OF WATTS BARR UNIT 1:

6 OLIVER KINGSLEY, JR., President, TVA Nuclear

7 O.J. ZERINGUE, Senior Vice President, Nuclear

8 Operations

9 JOHN SCALICE, Site Vice President, Watts Bar

10 RICHARD PURCELL, Plant Manager, Watts Bar

11 MARK MEDFORD, Vice President, Engineering &

12 Technical Services

13 ROBERT BRYAN, Manager, Nuclear Engineering

14

15 NRC STAFF:

16 JAMES TAYLOR, EDO

17 WILLIAM T. RUSSELL, Director, NRR

18 STEWART D. EBNETER, Region II, Administrator

19 JOHNS P. JAUDON, Deputy Director, Division of

20 Reactor Safety, Region II

21 FREDERICK J. HEBDON, Director, Project

22 Directorate, II-3, NRR

23

24

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P R O C E E D I N G S

[2:00 p.m.]

CHAIRMAN JACKSON: Good afternoon, ladies and gentlemen.

The purpose of today's meeting is for the Commission to be briefed on the readiness of Watts Barr Unit 1 for the issuance of a full power license. I should say that the Commission, however, will not be voting today on whether a full power license should be issued.

The Commission was last briefed on the Watts Barr on September 11th, 1995, which covered the results of the second hot functional testing that was completed in August 1995 and the NRC's independent operational readiness assessment team inspection. Since the last briefing the staff authorized fuel load and operation up to 5 percent power in order to perform low power testing. Watts Barr has now completed fuel loading and low power testing.

The Commission will first hear from the Tennessee Valley Authority, Applicant for Watts Barr Unit 1, followed by the Staff presentation.

I would like to welcome the representatives of TVA, but I am not done yet.

The burden is on the Tennessee Valley Authority to show that Watts Barr Unit 1 meets NRC licensing standards and that there will be adequate protection of public health

1 and safety for the operation up to full power. This
2 briefing should cover the licensee's self-assessment of fuel
3 load and low power operations, the status of the remaining
4 actions to be completed prior to Commission consideration of
5 the full power operating license, and the results of the NRC
6 public meeting, in terms of any issues to be followed up
7 from the meeting January 25th of this year.

8 The Commission is specifically interested in the
9 radiation monitors, the fire protection program and in the
10 current status of any pending allegations, particularly as
11 they might affect full power operation. In addition, the
12 Commission is interested in whether TVA has reexamined its
13 decommissioning funding assurance since the last briefing.

14 Following the licensee's briefing, the NRC Staff
15 will provide its independent assessment of fuel loading and
16 low power operation and the status of the remaining actions
17 to be completed. The regulatory requirements, especially in
18 key areas, should be clearly delineated. Any exemptions
19 from NRC's regulatory requirements or deviations from
20 regulatory guidance should be so noted, together with
21 justification. The overall documentary record should be
22 clear and complete.

23 Although the burden is on the licensee, it is the
24 NRC's legal responsibility to determine, prior to issuing a
25 full power license, that all NRC's licensing requirements

1 have been met and that there will be adequate protection of
2 public health and safety, once the plant is operating.
3 Therefore, the Commission decision to authorize the Staff to
4 issue a full power operating license is not bound by the
5 licensee's schedule. This plant has been under construction
6 for a long time and we are not looking to unduly delay a
7 process, but the NRC will not reach a decision on issuing a
8 full power license until we are fully satisfied that there
9 will be adequate protection of public health and safety.

10 I understand that copies of the presentation
11 slides are available at the entrance to the room.

12 So, Commissioner Rogers, unless you have any
13 opening comments?

14 COMMISSIONER ROGERS: Nothing more to add, thank
15 you.

16 CHAIRMAN JACKSON: You may begin, Mr. Kingsley.

17 MR. KINGSLEY: Good afternoon, Chairman Jackson,
18 Commissioner Rogers. I am Oliver Kingsley, President of TVA
19 Nuclear.

20 I would like to introduce those at the table who
21 will be making the presentation and all the members here.
22 We have Rick Purcell, he is our plant manager; John Scalice,
23 Site Vice President. Ike Zeringue, seated to my immediate
24 right, is our Senior Vice President of Nuclear Operations,
25 he has had oversight and brought this plan in. Mark

1 Medford, our Vice President of Engineering and Technical
2 Services, he will be answering some of the questions that
3 you posed to us earlier; and Bob Bryan, a Senior Engineer in
4 our Nuclear Engineering Department is also here.

5 We also have a number of our staff here, who can
6 go into detail on any question. They are available to come
7 to the podium and address those questions as needed.

8 I am happy to report that we have completed our
9 preparation for escalation of power at the Watts Barr
10 Nuclear Plant Unit 1. We have successfully completed the
11 low power test program. We are pleased to be here today and
12 request that the Nuclear Regulatory Commission issue a full
13 power license for Watts Barr Unit 1.

14 As you will recall, when we were here last for our
15 Browns Ferry briefing on November the 9th, there were
16 several specific issues that we talked about, key things we
17 are all concerned about, both the NRC and Tennessee Valley
18 Authority, items which we were and still are committed to
19 pay close attention to. I want to followup on these items
20 before we go into the details of Watts Bar.

21 May I have the first slide, please.

22 [Slide.]

23 MR. KINGSLEY: Chairman Jackson, you asked in
24 November if starting up both Browns Ferry 3 and Watts Barr 1
25 would strain our ability to manage these activities. I am

1 proud to be able to confirm my previous answer, that we can
2 and have done it right. Browns Ferry 3 startup has been
3 successful and uneventful. We began startup, took the plant
4 critical on November the 19th. The testing has been
5 completed and fully satisfactory. The unit is now operating
6 at full power and performing well. In fact, it was released
7 for full dispatch to our electric system operations in late
8 December.

9 We are here today to discuss taking that next
10 step. That is, bringing Watts Barr Unit 1 to full power.
11 You asked before about the stability of our management team.
12 In fact, I think you said, no nomadic management. I again
13 confirm my response, we have a strong, experienced,
14 permanent management team in place and functioning well at
15 Watts Bar. The organization has matured through several
16 plant evolutions. I have total confidence in their ability
17 and we plan to keep that team intact.

18 We are continuing significant senior management
19 involvement in oversight at Watts Bar. Ike Zeringue and
20 others detailed to the site will remain on either a full-
21 time or a more limited basis. In other words, as long as
22 necessary to ensure successful operation and this plan is
23 brought in correctly and everything is done right.

24 You told us to be thorough and careful in our
25 preparations. We have. You told us to continue rigorous,

1 aggressive self-assessment. We have. You will hear more
2 about this as we get into our detailed presentation.

3 I would now like have the next slide and review
4 the agenda.

5 [Slide.]

6 MR. KINGSLEY: John Scalice will discuss Watts
7 Bar's conservative approach since fuel load. He will
8 address continuing self-assessments underway at the site.
9 John will also discuss the transition to an organization
10 structure and culture.

11 Rick Purcell will discuss plant performance,
12 specifically, people, procedures, processes and plant
13 equipment. He will discuss how we are keeping backlogs low.
14 Rick will cover planned power ascension testing activities.

15 Bob Bryan will discuss our radiation monitoring
16 system. Its design, testing and operations.

17 Ike Zeringue will conclude our presentation by
18 giving you his insights about readiness and monitoring
19 oversight, readiness to proceed to full power.

20 If there are no questions, I will ask John to
21 begin our presentation.

22 MR. SCALICE: Chairman Jackson, Commissioner
23 Rogers, good afternoon. I know that you are updated fairly
24 well with the activities leading up to fuel load. So I
25 think I can go through those fairly quickly. In fact, the

1 first slide is self-explanatory.

2 [Slide.]

3 MR. SCALICE: We previously discussed with you our
4 plan to drive our work backlogs down very low and this was
5 done for the close of construction and to maintain the
6 working backlogs very low. We have been successful in this
7 area. Accordingly, our engineering design is current. Our
8 drawings and our procedures are up-to-date and our
9 maintenance backlogs are low and being maintained at a very
10 low level.

11 We have corrected equipment problems as they have
12 arisen. Mr. Purcell will discuss some of those equipment
13 problems. None of these equipment problems, however, have
14 put into question any of our construction completion efforts
15 and we are correcting the issues as they arise. We are
16 completing all of the work. We are not putting anything
17 over the fence. We are starting off right, so we do not
18 have to look back, but look ahead and continue our
19 improvement.

20 Since receipt of the fuel loading and low power
21 license on the ninth of November we are continuing to strive
22 to conduct our activities in a cautious and deliberate
23 manner.

24 [Slide.]

25 MR. SCALICE: Fuel loading commenced on November

1 10th and was completed on November 13th. We then proceeded
2 to tension the reactor head and enter Mode 5. That was
3 accomplished on November 17th. We took some time at that
4 point to conduct some engineered safety features testing, in
5 fact, two weeks. The opportunity existed and we chose to
6 take it to redo some very important surveillance procedures.

7 They tested the diesel generators and all the
8 subordinate equipment under conditions of loss of offsite
9 power and loss of coolant and postulated events. Two weeks
10 we utilized for this testing and the tests were very
11 successful. They gave an opportunity to our operators, one
12 more time, to check out that equipment. It also allowed us
13 to make current these surveillance procedures, as we enter
14 into an operating phase.

15 We then increased temperature above 200 degrees
16 and entered Mode 4 on December 15th. As we increased
17 temperature to approach Mode 3, we had to spend some time
18 and return back to mode five, because we experience some
19 difficulties with the number four reactor coolant pump oil
20 lift system. At that time we made that repair and, of
21 course, did, through our concern for extent of condition,
22 look at the remaining pumps. Mr. Purcell will talk about
23 this.

24 We also extended this outage to take an
25 opportunity to repair a packing leak on our residual heat

1 removal suction valve. It was the appropriate time to do
2 it. The reactor had not experienced any decay heat. Again,
3 we chose to complete the work at the proper time.

4 We increased temperature above 350 degrees and
5 entered Mode 3 on December 28th. We reached initial
6 criticality, Mode 2, on January 18th. Our low power testing
7 was subsequently completed on January 22nd. This included
8 the evaluation of the results of the low power physics
9 testing and the remaining sections of that power plateau.
10 The results were evaluated and the testing was completed and
11 the results were satisfactory. We are now ready to go to
12 full power operation.

13 May I have the next slide please?

14 [Slide.]

15 MR. SCALICE: While we were performing all of
16 those activities, we have continued to be self-critical in
17 our approach for getting ready for operations. The
18 processes that we used during the hot functional testing
19 were carried forward into our operating phase. We utilized
20 our training manager, as we did during the hot functional
21 test, to lead a group of people to perform self-assessments,
22 consisting of managers from each of the departments,
23 managers from our corporate organization and some from our
24 quality assurance organization.

25 Self-assessments is going to be a way of life at

1 Watts Bar. We are continuing to look at this and we are
2 instituting a process that will maintain a continuing self-
3 assessment program throughout the first cycle and into the
4 remaining operation of the plant. The managers on the
5 assessment team reported strengths and weaknesses.

6 I am happy to say that the performance has been
7 good, but improvement is needed in some of these areas. We
8 are not just striving for acceptable performance, but we are
9 striving for excellence. Our standards are high.

10 CHAIRMAN JACKSON: Where did you decide
11 improvements were needed?

12 MR. SCALICE: We believe we needed some
13 improvement in the area of operator awareness and our status
14 control issues, in our log keeping and we have instituted
15 corrective action in these areas. We have seen an improving
16 trend in each of these areas since fuel loading.

17 We have extensively exercised our equipment and
18 processes that support the site and things are working as
19 they should be. Rick will discuss in more detail how the
20 plant's status is proceeding.

21 Nuclear Assurance performed the reviews and they
22 have ongoing reviews in accordance with their audit
23 programs. They witnessed the entire fuel load activity and
24 they are conducting round-the-clock assessments during our
25 power ascension test program. The site appreciates the

1 quality assurance insights. They realize more fully their
2 value and they utilize their services.

3 Next slide, please.

4 [Slide.]

5 MR. SCALICE: In keeping with the ongoing process
6 that we established several years ago for communicating with
7 our employees, we held an "all hands" meeting. I conducted
8 several meetings with all participants on the site,
9 including contractors and TVA employees. We took another
10 opportunity to express what the management expectations were
11 for entering an operational environment. We reenforced
12 sensitivity to employee concerns. We talked about a
13 successful transition to the operating organizational
14 structure.

15 Since that time, as construction has completed,
16 over 1,800 employees exited the site. During that time
17 concern resolution staff met with the employees in an exit
18 process. As part of that exit, we conducted a survey and
19 asked them if they would feel free to express any of the
20 concerns that they may have to their supervisors. We had
21 very good response and the exiting employees indicated a
22 willingness to talk to their supervisors about any of their
23 concerns.

24 A number of issues continues to trend downward.
25 We did have some concerns during that exit process. None of

1 them were safety significant and we continue to anticipate
2 improvement in this area.

3 MR. KINGSLEY: Chairman Jackson, I want to
4 interject here, not only about Watts Barr but our other
5 facilities, we have had, as you are aware, a long-standing
6 problem with employee concerns. We had it at Browns Ferry,
7 we had it at Sequoyah. We have seen dramatic improvement,
8 not only at Watts Barr but at other facilities. We have
9 closed the employee concerns special program. We are not
10 going to ever take this for granted, but we are extremely
11 pleased with the distance we have come and improvement we
12 have been able to make in this whole area.

13 CHAIRMAN JACKSON: Since you raised it, let me ask
14 you more broadly about any outstanding safety concerns,
15 whether brought forward by TVA employees, former employees
16 or members of the public, particularly as it may relate to
17 any decision with respect to Watts Bar.

18 MR. KINGSLEY: We have reviewed this in detail.
19 We know of no outstanding safety concerns, whether brought
20 by the general public, whether brought by people outside of
21 Tennessee Valley Authority or employees, that would preclude
22 licensing of Watts Barr for full power operation.

23 MR. SCALICE: If there aren't any more questions,
24 at this time I will turn it over to Rick Purcell, the plant
25 manager.

1 MR. PURCELL: Thank you John.

2 [Slide.]

3 MR. PURCELL: Chairman Jackson, Commissioner
4 Rogers, as Mr. Kingsley indicated, I will be discussing the
5 performance of our personnel, the performance of our
6 procedures and our processes and the performance of the
7 plant equipment through the testing we have completed to
8 date.

9 As Mr. Scalice indicated, we have continued our
10 self-assessment efforts, similar to the program we used
11 during our preoperational test phase. Since November of
12 last year we have completed over 500 documented assessment
13 observations. These observations support the conclusions of
14 our performance that I will be presenting.

15 The performance of our personnel continues to
16 improve. Based on our observations and the observations of
17 our management in the field, we are confident that our
18 personnel are ready to operate Watts Barr in a safe and
19 conservative manner. We are not measuring our performance
20 against the standards of a near-term operating license
21 plant; we are measuring our performance against the
22 standards of a mature operating plant.

23 We are continuing to strive for excellence. We
24 are continuing our self-critical focus. We are continuing
25 to evaluate our performance and feedback what we observe to

1 the line organization so they can improve. We are ensuring
2 that our threshold to problem identification is low. We are
3 continuing to work as a team and we are ensuring our
4 management is actively involved in the field and in the
5 activities of our people.

6 We are paying particular attention to the
7 performance of our operators. We have observed that our
8 fuel loading and our initial testing is being conducted in a
9 cautious and deliberate manner. Our operations personnel
10 are demonstrating a conservative decisionmaking approach.
11 For example, our operators, early in the testing, were able
12 to identify a rod position deviation during the initial
13 testing of the control rod system prior to bringing in a
14 deviation alarm. We revised our cold rod drop --

15 CHAIRMAN JACKSON: Let me stop you there. You
16 also had a subsequent control rod deviation during your
17 physics testing?

18 MR. PURCELL: Yes.

19 CHAIRMAN JACKSON: Was that an event related to
20 the initial control rod position indicator problem or was a
21 separate reason, and what does that suggest to you in terms
22 of the effectiveness of corrective action?

23 MR. PURCELL: Overall through the testing of our
24 control rod drive system and our analog rod position
25 indication system, we identified five instances that

1 required investigation. Three of them involved personnel
2 error and two of them involved problems with the equipment.
3 Let me just quickly run through them.

4 The first one I mentioned, when we were first
5 testing the rods and stroking the bank out, we noticed one
6 rod in the bank was not moving and we noticed a rod in an
7 adjacent bank was moving. The operator stopped it as soon
8 as he saw the first sign of indication on the analog rod
9 position indication system.

10 Our investigation determined that the cannon plugs
11 on the reactor head had been rolled. Our SOS, our senior
12 reactor operator on shift, stopped the testing when they
13 observed this and required that an independent test be
14 performed to individually check out and verify the proper
15 connection of all rods. We determined this problem to be
16 personnel error. When the work was done it wasn't done
17 correctly. We have evaluated the procedure used and made
18 changes, so that on subsequent refuelings we won't have this
19 problem.

20 Subsequently, in testing we did identify that we
21 had a slipped rod during our bank swapping testing. We
22 identified this immediately during the bank movement when we
23 had a slipped rod. We received the rod deviation alarm and
24 the operators identified the rod through the analog rod
25 position indication system. We stopped the testing and we

1 confirmed that, in fact, the rod had slipped 14 steps. We
2 went through our procedure that we use for realigning a
3 misaligned rod. This is not necessarily a common
4 occurrence, but it does happen with this system. We
5 realigned the rod, we went back and installed test equipment
6 and monitored the performance of this bank and this rod
7 specifically through the remaining rod swaps and identified
8 no other occurrences on this rod or any other rod.

9 One other problem that our operators identified
10 was a potential containment penetration problem by close
11 monitoring of our control room instrumentation. Once they
12 observed this, they entered the applicable technical
13 specification limiting condition for operation statement,
14 without hesitation, which shows that they are doing exactly
15 what we trained them to do.

16 While we have seen good performance, we have not
17 always performed up to our standards. Our standards are high
18 and we do have room for improvement. I would like to
19 briefly discuss three examples.

20 Back in November, our operator awareness of the
21 boards didn't meet our standards. It pointed out five
22 instances where operators were not aware of some anomalies
23 with the indication, nor were they aware of enunciators that
24 were in on our enunciator boards. This was indicative of
25 accepting the conditions of a preoperational phase and not

1 meeting our standards of an operating phase.

2 We addressed the specific examples with all of our
3 operating crews. We reenforced our expectations and we took
4 actions to correct the performance. Since December we have
5 seen good performance and the performance continues to
6 improve.

7 Another example --

8 CHAIRMAN JACKSON: You specifically monitor
9 performance relative to this particular issue?

10 MR. PURCELL: Absolutely. We do this and, in
11 fact, one of the actions we took after this was to require
12 our senior reactor operator on shift, every shift, to walk
13 down the board with the reactor operator to ensure that they
14 are being cognizant of the boards. Myself and my direct
15 reports do go into the control room and we will do impromptu
16 walkthroughs with the reactor operators to ensure that they
17 are maintaining the awareness that we expect. We have also
18 restructured our shift turnover meeting to be more attentive
19 to plant status, so that the whole focus of our operating
20 staff is on plant status and awareness of the plant
21 conditions.

22 Okay, we identified two examples where
23 surveillance logs didn't identify out-of-spec readings.
24 While the technical evaluation determined that there was no
25 safety concern, this performance is unacceptable. Our

1 extent of condition review of this incident involved .
2 reviewing surveillance logs back to the beginning of the
3 fuel loading operations, which involved approximately 4,400
4 readings that we reviewed. We found no other occurrences of
5 this performance.

6 Again, we discussed this with the crews. We
7 reemphasized our performance and to date we are satisfied
8 with the performance of our surveillance logging activities.

9 As a third example, we identified several problems
10 with configuration control. Again, while none were safety
11 significant, these examples are unacceptable. We recognize
12 the importance of our configuration control system and we
13 are treating each occurrence, a total of ten, very
14 seriously. We have evaluated each for the root cause to
15 identify actions needed to prevent recurrence. We are
16 trending our configuration controls issues separately and
17 have seen a recent improvement in the trend. However, we
18 are going to continue to monitor this carefully.

19 Now, these examples are meant to point out the
20 perspective of the type of problems we found and the in-
21 depth actions we take to address the problems and to fully
22 review the extent of condition, to make sure that we
23 understand exactly how far the problem goes and assure that
24 our actions are going to correct the problem.

25 Going beyond operations, in the area of operation

1 support, we have observed that our maintenance department is
2 responsive to operations priorities. The quality of the
3 work in the field continues to be good. We have recently
4 established fix-it-now crews, or FIN teams, that rotate with
5 the operating crews. We find that this provides a better
6 response of our maintenance crews to our operator needs,
7 attending to their priorities.

8 Overall, since receipt of our low power license,
9 our people have demonstrated that they understand our
10 expectations for high standards and conservative
11 decisionmaking and are prepared to operate this plant
12 safely.

13 The next slide, please.

14 [Slide.]

15 CHAIRMAN JACKSON: Have there been any items in
16 your backlog that the Staff has identified that requires any
17 working before you would get a full power license and you
18 have met all of your backlog goals?

19 MR. PURCELL: We have met our backlog goals. We
20 have looked at each of the items in our backlog to assure
21 ourselves, and the staff has also looked at that to verify
22 that we have completed all of the actions we need to take
23 prior to continuing the power ascension test program.

24 One of the actions that I did with my staff was to
25 specifically look at all of the outstanding work orders,

1 from the perspective of a plant leaving an outage, looking
2 at those items that were not completed and satisfying
3 ourselves that there was nothing outstanding that would
4 impact the material condition of the plant. So we did an
5 extensive review, item-by-item.

6 I would like to now turn to procedures. Overall,
7 our procedures and our processes are proving to be
8 effective. Our power ascension test program procedures and
9 our operations system operating instructions have
10 demonstrated the effectiveness of our procedure review and
11 validation process. Our surveillance procedures are also
12 proven to be effective. We recognize the importance of our
13 surveillance instructions to satisfy the technical
14 specification surveillance requirements. So we are watching
15 their performance very closely.

16 We did identify two instances, through our
17 reviews, where 12-hour, the required 12-hour, channel checks
18 were not performed within their required interval. We
19 investigated these two instances and determined the cause to
20 be a procedure error and the error was due to an improperly
21 stated conditional applicability statement as to when the
22 surveillance instruction was required to be performed.

23 As part of our extent of condition review, we
24 rechecked all of the surveillances with conditional
25 applicability statements back to the beginning of fuel load,

1 at the time of the receipt of the low power license, and
2 this involved approximately 2,700 readings to verify that we
3 had no other problems in this area. There were no other
4 problems identified. We corrected the procedures. We
5 trained the crews on these instances and we are satisfied
6 this should not recur.

7 In the last six to nine months, we have performed
8 our 18-month surveillances, we have performed several cycles
9 of our quarterly surveillances and we have performed our
10 conditional surveillances up to Mode 2. We are satisfied
11 with the performance. They are showing good results. We
12 believe our procedures to be of good quality and we
13 recognize that as we continue to use the procedures we will
14 continue to have opportunities to improve them and we will
15 be looking to do that.

16 Next slide, please.

17 [Slide.]

18 MR. PURCELL: Our testing program to date has
19 shown that the plant equipment is performing as designed.
20 In our last presentation we briefed you on the status of our
21 hot functional test tube. The fuel equipment problems that
22 we had noted during the performance of hot functional test
23 tube during the recent heat up have shown that the
24 corrective actions we have taken were all effective and the
25 equipment performed well.

1 As Mr. Scalice indicated, we did have a problem
2 while entering Mode 4 with our number four reactor coolant
3 pump, specifically the lift oil system on the motor. We
4 inspected the motor to identify what the cause was and we
5 identified the cause to be a clogged suction strainer on the
6 lift pump. We identified the debris, the type of debris, in
7 the strainer was most probably due to a modification that
8 was performed on the motor back in the 1992 time period.
9 Since then we have implemented our operational foreign
10 material exclusion program. So we are confident that this
11 was an old problem.

12 To ensure --

13 CHAIRMAN JACKSON: Are you confident that you have
14 unearthed all such problems?

15 MR. PURCELL: Yes. Yes, as part of our extent of
16 condition we did go into the other three reactor coolant
17 pumps, which had not displayed a problem with the lift oil
18 system. We did find some debris in the suction strainer,
19 but not to the extent that we found in the number four
20 reactor coolant pump. So we believe that we have corrected
21 this problem.

22 In our reviews, as part of the extent of
23 condition, we don't just focus on the reactor coolant pumps,
24 we look at all the types of work for all similarities. We
25 investigate other corrective action documents and other

1 recurrent maintenance problems to assure ourselves we do not
2 have a generic problem here.

3 I briefly discussed our performance on the analog
4 rod position indication system. What I didn't discuss was
5 the problems we had on calibrating the analog rod position
6 indicators. We did have some difficulty on the initial
7 calibrations. Working with Westinghouse, we identified this
8 to be due to the larger jack shafts we have in our
9 assemblies. We modified the calibration procedure, as far
10 as what rod configuration to perform the calibration in. We
11 did perform that calibration and, subsequent to that, we
12 performed two approaches to criticality and the analog rod
13 position indicators worked without problem.

14 We are continuing to be aggressive on our backlog
15 goals without backing off the emphasis of identifying
16 problems. If you look at the table in the slide, you will
17 see that the table identified is the backlog goals that we
18 had established during our last briefing before the
19 Commission. Then we show in the table the current backlogs.

20 CHAIRMAN JACKSON: The only one where you don't
21 meet your goals is NRC requirements and open items. Would
22 you address that?

23 MR. PURCELL: That is one that I will specifically
24 address. The NRC open items, we established a target, an
25 expectation, of 30. Based on the open commitments we have

1 on NRC open items, we expect that we will meet that goal at
2 the completion of our power ascension test program. Many of
3 those commitments are contingent upon completion of the
4 testing. Once we complete the testing and are fully in our
5 operational mode, we will be below that goal.

6 MR. SCALICE: I would note that at the last time
7 we spoke to you this number was 261. We have been driving
8 it down. It is now 42 and we are continuing to drive it
9 down to this projected target.

10 CHAIRMAN JACKSON: It is not 30 yet?

11 MR. SCALICE: It is not 30 yet.

12 MR. KINGSLEY: The 30 was picked out, kind of out
13 of the air.

14 CHAIRMAN JACKSON: It is okay, so were they all.

15 MR. KINGSLEY: We are fully up to date on every
16 one of these.

17 MR. PURCELL: If I can briefly just overview the
18 data on the table. Our current backlog, the total, is below
19 our backlog goal, which means that we are performing better
20 than the goal we established for ourselves. The first two
21 entries, corrective maintenance and other work orders, both,
22 are below their goal. I will point out that the corrective
23 action program documents, you will note that under the
24 backlog goal we have N/A, the current backlog is 79.

25 We had originally established a quantity for the

1 backlog goal, but we saw this as potentially creating an
2 environment where we were going to encourage people not to
3 identify problems. We are placing our emphasis on people
4 identifying problems. So we do not want to establish a
5 backlog quota.

6 What we are doing instead is we are choosing to
7 monitor the timeliness and the cycle time of when a problem
8 is identified, how quickly the corrective action is
9 implemented and the action item is closed out. Now, against
10 those goals of cycle time for each corrective action, our
11 performance has been very good.

12 So, in summary, we have established aggressive
13 backlog goals for ourselves. We have made significant
14 progress in reducing these goals to a very workable number,
15 and the backlog that we are dealing with is very manageable.

16 CHAIRMAN JACKSON: How many control room
17 deficiencies and operator workarounds do you have?

18 MR. PURCELL: Let me address control room
19 deficiencies first. In our plan of the day, which is
20 published every day, we list separately control room
21 enunciators out of service and our control room indicators
22 out of service. We have established goals for ourselves
23 which we believe are very aggressive comparing to other
24 plants.

25 For example, in today's plan of the day, our goal

1 for enunciators out of service is to be less than five, and
2 today we are at four. It has been difficult working toward
3 these goals, driving these numbers down. Our fix-it-now
4 teams have helped us quite a bit in this area. Our main
5 control room instruments out of service, our goal is also
6 five. We are currently at eight. About two weeks ago we
7 were up around just under 20 on these numbers and we have
8 been continuing to drive these down.

9 We go over every one of these items every day to
10 make sure that they are getting the priority they need to
11 support operations. We have also reviewed each one of these
12 to ensure that none of these adversely impact the operator's
13 ability to operate the plant.

14 CHAIRMAN JACKSON: I was going to ask you more
15 about this later, but is radiation monitor unavailability an
16 operator workaround?

17 MR. PURCELL: No, I don't believe it is. Let me
18 explain that.

19 CHAIRMAN JACKSON: Please do.

20 MR. PURCELL: Mr. Bryan will be discussing that in
21 detail, but additionally in the plan of the day we have a
22 separate entry in here for radiation monitors work orders,
23 not radiation monitors out of service, any work order on the
24 radiation monitoring system, to make sure it has the proper
25 visibility and is gaining the proper attention. Now, if we

1 do have a radiation monitor out of service, depending upon
2 the applicable tech spec or ODCM requirement, we will take
3 the action statement required, which often involves sampling
4 or temporary monitors. We are not intending to rely on
5 those. We are driving these work orders to be complete. We
6 are driving these monitors to be put back in service because
7 we do not want to rely on compensatory actions. Our status
8 today shows we have no work orders open on our radiation
9 monitoring system.

10 CHAIRMAN JACKSON: So having to have grab samples
11 taken has no impact on the operators, you are saying, under
12 any circumstance?

13 MR. PURCELL: Has no impact on the operators, no.
14 No, ma'am, it doesn't. As the aggregate effect, if you had
15 a large number of radiation monitors out of service, well
16 then you have to look at the aggregate effect and that can
17 only be negative. We are driving that down to zero.

18 COMMISSIONER ROGERS: Why was your enunciator goal
19 four instead of zero?

20 MR. PURCELL: With the number of enunciators that
21 we have in the control room, that are several in number, we
22 can never expect that if we do have a work order come up on
23 them that the number could be zero. What we are trying to
24 do is, we are trying to drive it down to a number that
25 indicates that as soon as the problem is identified we will

1 quickly address it and turn it around and put it back in
2 service.

3 So should it be zero? Yes, it should be zero. Do
4 I think it can be zero consistently? No. We are
5 establishing what we believe to be, from our experience and
6 involvement with other plants, to be a very aggressive goal
7 and we are doing pretty good against it.

8 MR. SCALICE: We have benchmarked this against
9 other facilities and this is well within the industry
10 numbers for enunciators out of service, based on the
11 timeframe it takes to identify and then repair the
12 enunciator.

13 COMMISSIONER ROGERS: Well, are these what I would
14 see on your lights up on your board when you are running?

15 MR. SCALICE: Yes.

16 COMMISSIONER ROGERS: Well, I have seen a number
17 of plants that are blackboarded.

18 MR. SCALICE: No, our goal for lit enunciators is
19 zero. These are enunciators that are being repaired because
20 for some reason, either an instrument in the field is under
21 repair or the enunciator itself for that particular device
22 may have failed. A relay may have worn out and we are going
23 after the repair. Our goal for lit enunciators is zero, as
24 it is in the rest of the TVA facilities.

25 COMMISSIONER ROGERS: Okay, thank you.

1 CHAIRMAN JACKSON: How do you measure the
2 effectiveness of your corrective actions, pick an area?

3 MR. PURCELL: Let's look at our configuration
4 control. Since October of last year we have identified ten
5 issues on configuration control. One of the actions our
6 operations manager has taken is, he has issued a trend purge
7 to require further evaluation of that. To monitor the
8 effectiveness of those corrective actions, we monitor the
9 trend in the performance or the recurrence of configuration
10 control problems. So, in that example, we measured the
11 performance in the field or of the occurrence of the
12 problems and we look to see that we are turning around the
13 trend, the adverse trend of occurrence.

14 MR. SCALICE: There is a cumulative effect of
15 corrective actions that we do look at. We have performance
16 indicators for many items in the plant. That, coupled with
17 the trend that we do, the trending program in maintenance,
18 if there is any repeat maintenance, in addition our system
19 health reports that our system engineers prepare on a
20 quarterly basis, indicates the health of each of the systems
21 in the plant that is looked at.

22 Of course, the plan of the day and the existing
23 work requests are out there, that is kind of a human trend
24 process where the managers, together, look at the
25 difficulties that are out there and how quick we are

1 repairing them. We get feedback from the operations people,
2 because we have management that goes out in the field and
3 talks to the people, and I think this in combination and the
4 way the plant performs gives us an indication that we are
5 able to monitor how well we are doing.

6 MR. ZERINGUE: It is fairly well controlled from
7 the perspective that our process requires, when an event
8 occurs, we look back to determine if there are any similar
9 events. If there were similar events, then we do an
10 evaluation to understand why the initial recurrence control
11 did not work properly.

12 MR. PURCELL: In the area of housekeeping, we are
13 continuing to maintain our standards high. We have put a
14 lot of effort into cleaning up the plant and to improving
15 the material condition of the plant. The plant looks good.
16 It looks real good and we are maintaining it at that level.
17 We see that a clean plant and a good looking plant affects
18 the way the people work in the plant.

19 It is a motivator in that it affects the way they
20 will approach a job, it affects the way they will work a job
21 and it affects the way they leave the job, as far as the
22 material condition and the cleanliness of the equipment. So
23 we see this as an important motivator and we are continuing
24 in this area.

25 The next slide, please.

1 [Slide.]

2 MR. PURCELL: The precritical testing and the low
3 power testing has been successfully completed. We have
4 successfully verified the core design. The test results
5 have been evaluated and they meet the acceptance criteria.
6 The test packages have been approved and have been processed
7 to our records.

8 Since completing the low power testing on January
9 22, we have used the time to turn our focus to the balance
10 of plant systems, our turbine generator support systems, our
11 heater drain systems, to prepare the balance of plant
12 secondary equipment for the power ascension and putting the
13 generator online.

14 The slide shows the remaining major test plateaus
15 and some of the key testing upcoming, some of the testing we
16 will be doing in the remainder of the test program.

17 In summary, I would like to close by saying that
18 we have demonstrated that our people can operate the plant
19 safely and conservatively, that our procedures are of good
20 quality, the plant equipment is performing well and the
21 plant is in good material condition. Our backlogs are low
22 and we are ready to continue with the power ascension
23 testing program.

24 CHAIRMAN JACKSON: Okay.

25 MR. PURCELL: Okay.

1 I'll turn it over to Bob Bryan.

2 MR. BRYAN: Thank you, Rick.

3 Chairman Jackson, Commissioner Rogers, I would
4 like to make four main points about the radiation monitoring
5 system at Watts Bar.

6 The system conforms to the requirements and
7 criteria that TVA established. The system meets the
8 applicable regulatory requirements and the commitments that
9 we made to the Commission. The system is operational and,
10 since receipt of our low power license, has exhibited a high
11 availability. The system is ready to support power
12 operation and it will perform its required functions.

13 May I have the next slide, please

14 [Slide.]

15 MR. BRYAN: The majority of the system was
16 installed in 1979. Subsequently, we both identified and
17 corrected design and construction problems. Specifically,
18 we had problems and inconsistencies in our design
19 documentation and we had damage to monitors and missing
20 parts, due to the long construction period.

21 In correcting these, we performed a monitor-by-
22 monitor evaluation of the system, not just our technical
23 specification monitors but every monitor in the plant. We
24 revised our documentation and modified our hardware as
25 required.

1 Over the last two years we have refurbished and
2 upgraded much of the system. In doing this, we replaced
3 detectors in electronics, we replaced the main control room
4 meters and we added digital flow control systems to our
5 building of fluent gas paths. We have subsequently verified
6 the operation of the system through our preoperational and
7 start up test program.

8 May I have the next slide.

9 [Slide.]

10 MR. BRYAN: Since receipt of the low power
11 license, the overall system availability has been greater
12 than 95 percent. This does not mean that we have periods of
13 time when the system is unavailable. This availability is
14 based on an average of the availability of each individual
15 monitor. For our tech spec monitors, the availability is
16 almost 97 percent. For our ODCM monitors, we are running
17 somewhat lower, principally because of circuit noise on two
18 monitors that we identified after we had both the radiation
19 monitoring system and balance of plant systems in operation
20 together for the first time. We have corrected these
21 problems and we now expect that the performance of our ODCM
22 monitors will match the performance of the system at large.

23 We have spare parts available for the system. We
24 have adjusted our inventories to stock more of the parts
25 that are in highest demand. We made these decisions based

1 on both our start up experience and also industry
2 experience. To date we have not had any availability loss
3 due to a lack of parts.

4 As Rick mentioned, the radiation monitoring system
5 is being tracked at a very high level at our plant. It is
6 discussed each day in the daily meeting. The system
7 engineers provide a weekly trend report of the availability
8 of the system.

9 May I have the next slide.

10 [Slide.]

11 MR. BRYAN: Chairman Jackson, Commissioner Rogers,
12 we have corrected the problems with the radiation monitoring
13 system. The system has been refurbished, upgraded and
14 tested. The system is operating well and I am pleased to
15 report that currently all monitors are in service. The
16 system is ready to support and is fully capable of
17 supporting full power operation at Watts Bar.

18 CHAIRMAN JACKSON: You have had some violations
19 associated with sample probe location, sample line
20 construction and environmental qualifications?

21 MR. BRYAN: That's correct.

22 CHAIRMAN JACKSON: Tell me about what you believe
23 were some of the causes of the problem and what have you
24 learned about it that has been propagated into the rosy
25 picture you just presented?

1 MR. BRYAN: I think there were several things that
2 were included in that. One, I think our criteria initially
3 were somewhat confusing on the issue. In correcting the
4 problems what we did was, we went through and we walked down
5 every sample line, developed detailed walk down isometrics
6 of the lines, including all of the beams and fittings.

7 We went in and we corrected deficiencies that we
8 found in that and, as I mentioned before, as part of this on
9 assuring that we had good sampling of our gaseous flow
10 paths, we put in basically state-of-the-art digital flow
11 control systems. So we recognized the problems and we took,
12 I think, very effective action at resolving them.

13 In one particular case, that was the violation in
14 1994, we moved the monitor to a new location and provided a
15 completely new sample line and new isokinetic probe for that
16 monitor alone.

17 CHAIRMAN JACKSON: I understand some of these
18 monitors are 15 years old or more. Have you identified any
19 needs on the line for some more enhancement of the system?

20 MR. BRYAN: I think right now, what our basic
21 approach is, the monitor seems to be performing well. We
22 have experience with these monitors at our other facilities.
23 If we get to the point that the monitors are not performing
24 well, if we get to the point where spare parts become a
25 problem, I think we will make a decision at that point in

1 time to upgrade the system. As long as we can provide a
2 high availability with the system, we feel like the system
3 will work well for us.

4 MR. SCALICE: As part of the trending program we
5 do look at this specific system along with the other systems
6 on a quarterly basis. All of these ingredients are reviewed
7 by the system engineer and presented in his report. This
8 report is evaluated by the management team and we look at
9 the availability of the equipment.

10 As Mr. Bryan said, many of the components have
11 been changed. The isokinetic system, probe system, has been
12 modified and the rate meters in the control room have been
13 changed. In the areas where we had some age-related
14 concerns, such as electroload capacitors, we have modified
15 that, as well as looking at the electroload capacitors in
16 our storeroom for shelf-life concerns. So we monitor this
17 coupled with the availability and performance of the system.

18 Of course, like any other piece of equipment, the
19 trend will dictate the actions that we take.

20 MR. ZERINGUE: Chairman Jackson, what John was
21 referring to is our system health report. We put that out
22 on a quarterly basis and evaluate the performance of a
23 system and we refer to it as our system health report. For
24 this particular system, we are trending availability on a
25 weekly basis. We are doing that to ensure ourselves we can

1 maintain long-term reliability with this particular system.
2 We are trending it on a monitor-by-monitor basis.

3 CHAIRMAN JACKSON: Are there any commitments that
4 you have made with respect to the radiation monitors, that
5 you subsequently sought deviations or have deviations from?

6 MR. BRYAN: No.

7 CHAIRMAN JACKSON: None?

8 MR. BRYAN: No commitments that we changed what we
9 requested. Under Regulatory Guide 197 we requested and the
10 Staff approved five deviations. Three of those were for
11 accuracy. We requested rather than a generic range, some
12 plant-specific ranges. We had one deviation on allowing us
13 to use the accuracy requirements under Provision 3 Reg Guide
14 197 instead of Reg 2.

15 Our last deviation was to allow the use of
16 portable high-range monitors for post-accident emissions, as
17 opposed to using a fixed in-plant system and that followed,
18 basically, a staff recommendation, subsequent to the issue
19 of Reg Guide 197.

20 CHAIRMAN JACKSON: Mr. Rogers?

21 COMMISSIONER ROGERS: No, I don't have any
22 additional questions on the monitors.

23 MR. BRYAN: Thank you.

24 At this time I would like to turn the presentation
25 over to Mr. Zeringue.

1 CHAIRMAN JACKSON: Let me ask that same question,
2 in terms of deviations or significant deviations or
3 exemptions with respect to fire protection?

4 MR. ZERINGUE: Let me call on our site engineer
5 manager, Walt Elliot, sitting behind me.

6 Walt, if you would come over and give an overview
7 and talk about fire protection, please?

8 MR. ELLIOT: My name is Walt Elliot. I am the
9 site engineering manager at Watts Bar.

10 Our commitments for the fire protection program
11 are basically that we comply with the general design
12 criteria three, of Appendix A of 10 CFR 50. We comply with
13 the 10 CFR 50.48. We comply with Sections G, J, L and O of
14 Appendix R. Those are specified in our fire protection
15 report. In that fire protection report there are seven
16 specific deviations for alternate ways of complying with
17 specific provisions.

18 A couple of examples, one of which is, we use
19 portable, hand-held lanterns and lieu of eight-hour
20 emergency light packs in some specific areas in the plant.

21 CHAIRMAN JACKSON: Portable hand-held lanterns?

22 MR. ELLIOT: Batteried large flashlights.

23 CHAIRMAN JACKSON: Not candles?

24 MR. ELLIOT: That's right. No, not candles.

25 Under the provisions of 3(a), their requirements

1 for instrumentation, we, for example, have provided
2 alternate instrumentation that is available to the operator
3 in lieu of what is specified there. Those deviations are
4 all specified in our fire protection report submittals and
5 have been approved by SER.

6 A couple of specific areas that I should mention
7 in regard to fire protection at Watts Bar. One is
8 integration seals and, more specifically, that for cable
9 penetrations we have qualified our cable penetration seals
10 as far as fire rated barriers. We have used the guidelines
11 of IEEE 634 in developing those qualifications. As a part
12 of that, we have walked down all the penetrations in the
13 field, established the configuration. We have upgraded
14 those field configurations where they were found deficient
15 and we have made sure that those configurations were bounded
16 by test.

17 The IEEE 634 test is a very rigorous test. It
18 subjects a full scale penetration assembly to a standard
19 time temperature profile. That time temperature profile
20 goes to 1000 degrees Fahrenheit in the first five minutes of
21 the test. It remains above 1500 degrees for about two-and-
22 a-half hours for a three-hour barrier and it goes up to
23 about 1900 degrees at its peak temperature, a very rigorous
24 test. We met the acceptance criteria, which is no flame
25 through, it must pass the hose screen test on the subsequent

1 exposure to the fire and the cold side temperature must
2 remain below 700 degrees Fahrenheit, which we passed on the
3 most recent test that we conducted at Omega Point Labs by
4 about 100 degrees margin. The outer material in these fire
5 penetration assemblies uses ceramic fiberboard and that is a
6 noncombustible material. At the Watts Barr facility we have
7 a damming board on each side of that penetration seal which
8 is installed.

9 For the area of thermalag, our thermalag program
10 has been subjected also to rigorous test standards, which
11 TVA has conducted. We have conducted that test, the test
12 for fire test, at Omega Point Laboratories. We have
13 conducted ampacity test at both Omega Point Laboratories
14 and at our TVA laboratories. We have done seismic tests for
15 the thermalag material. We have also done material testing
16 to make sure that from lot to lot the material is the same.
17 We have conducted that test on every lot that has gone into
18 the plant. We have made sure, in comparing the criteria,
19 that what we are putting in the plant is bounded by what was
20 tested.

21 In both the areas of penetration seals and
22 thermalag, our field installation and our documentation
23 programs are complete.

24 MR. ZERINGUE: Chairman Jackson?

25 May I have the last slide please?

1 [Slide.]

2 MR. ZERINGUE: I have been at Watts Barr now 11
3 months observing overall performance. I have seen the
4 organization grow and mature. In particular, I have seen
5 the significant increase in ownership. Now, I judge that
6 from several perspectives, one being the material condition
7 of the plant. That facility is in very good condition. It
8 is being taken care of. Another aspect I look at is problem
9 identification, problem identification by the line
10 organizations. In May of last year our line organizations
11 were identifying about 60 percent of the problems at Watts
12 Bar. Today, we are at about 90 percent. So we have seen
13 significant improvement in that regard and those are one of
14 the other things that we trend.

15 COMMISSIONER ROGERS: How did the other 40 percent
16 get identified of the 60 percent?

17 MR. ZERINGUE: Our oversight organizations.

18 We have also seen the interdepartmental interfaces
19 solidify and teamwork growth. Our operations organization
20 has taken a very strong commanding approach to operation of
21 the facility and that is important and it is necessary. But
22 along with that, we are seeing the acceptance of that role
23 by the other organizations and, in fact, encouragement of
24 it.

25 I think part of that has to with the fact that

1 operations, while taking a strong commanding role, is
2 providing the necessary support to the other organizations
3 at the facility, supporting maintenance with tag outs,
4 chemistry with chemical conditions in the plant. So we are
5 seeing the teamwork grow.

6 I will note one significant item by which we judge
7 this. There was a significant improvement between the first
8 and the second time we entered Mode 4. I use that as a
9 comparison base, because that is a point in time through a
10 startup when a significant amount of the plant equipment is
11 put in service and it requires significant coordination and
12 communication between the two organizations, between the
13 organizations on the site. It happened and it happened
14 well.

15 So, from an organizational perspective, we are
16 continuing to improve. The teamwork is growing, the
17 ownership is growing.

18 As for the physical plant itself, all the work is
19 done. We don't have any large backlogs. We have defined,
20 established, working backlogs to maintain efficiency in our
21 work processes. Now the adequacy of the plant, we tested
22 that through our preoperational test program, through our
23 hot functional test program and, most recently, through the
24 low power test program. As far as the core design, we
25 verified that through our low power physics testing and it

1 showed excellent agreement between predicted results and
2 measured results.

3 Now, throughout all these evolutions we have
4 continued to evaluate the performance of our people, our
5 processes. We have identified some areas to improve. Rick
6 mentioned some, John mentioned some.

7 CHAIRMAN JACKSON: Are you going to mention some?

8 MR. ZERINGUE: I hadn't planned to, but I can do
9 that.

10 Overall, however, we have been --

11 CHAIRMAN JACKSON: I want you to mention some.

12 MR. ZERINGUE: Okay. One of the areas I think is
13 significantly improving is the interdepartmental
14 coordination, the coordination in our scheduling efforts.
15 Part of the reason for the significant improvement we saw
16 between the mode transition was improvement in that
17 coordination. Really, what I am saying by that is, looking
18 ahead, that is an area we continue to watch and will have to
19 keep watching, particularly throughout the remainder of the
20 power ascension program. That is an area I am watching
21 closely, planning ahead and thinking ahead.

22 CHAIRMAN JACKSON: Okay.

23 COMMISSIONER ROGERS: Well, I would like to just
24 ask you a question, since you talked about interdepartmental
25 cooperation. What is the mechanism, what mechanisms are in

1 place to connect your training programs with your
2 operational programs on an ongoing basis? You are talking
3 about getting ready to go to full power operation, that
4 means you are going to be in continued operation beyond
5 that. That is a time when it is very important that the
6 training programs be maintained. What mechanisms do you
7 have in place and when will they be fully operational, if
8 they are not right now, for close ties between your
9 operational staff and your training staff?

10 CHAIRMAN JACKSON: Let me tag onto that, because
11 it came to my mind when you talked about awareness of the
12 board and kind of operator awareness of plant configuration
13 and it struck me that, presumably the operators have been
14 through robust training. So I think that is an interesting
15 sort of piece to tag on to Commissioner Rogers' question.

16 MR. ZERINGUE: We had talked earlier about the
17 assessments we do. We are doing assessments now through the
18 low power test program and our training manager is leading
19 that assessment. John can provide some very specific
20 information in that regard. So we are coupled in that
21 regard.

22 CHAIRMAN JACKSON: Let me ask the question in
23 another way. The weaknesses that you identified with
24 respect to operator awareness in terms of plant
25 configuration because that is an operational issue --

1 MR. ZERINGUE: Yes.

2 CHAIRMAN JACKSON: -- that is something that you
3 felt needed to be addressed?

4 MR. ZERINGUE: Yes , not only is the assessment
5 program been overseen by the training manager, of course, I
6 do want to address the fact that all of our training
7 programs are fully accredited and we have --

8 CHAIRMAN JACKSON: I know, accreditation is -- but
9 the issue is, I think the question was, tying them together
10 and seeing the result of that and how people actually do
11 their jobs.

12 MR. ZERINGUE: In the process of the exercising of
13 the core direction program, for instance, one of the main
14 ingredients is to evaluate what the barriers are for
15 preventing failure and also what the shortfalls may have
16 been that were experienced during those occurrences. An
17 ingredient that we have placed at Watts Bar, that we have
18 put into effect, is that any time we do incident
19 investigations associated with any occurrences, a member of
20 the training staff is included on the incident and event
21 team.

22 We also require that the design changes, the
23 events that occur in the plant, are reviewed by the training
24 organization and they are reviewed to be placed back into
25 the training program. We conduct training on-shift as it is

1 necessary to make sure that we inform the entire crew of
2 occurrences that take place in the plant.

3 In the case of the overall assessment, these over
4 500 observations, both Rick Purcell and myself get the
5 feedback from the training organization, track all of these
6 issues to closure. There are assigned individuals with
7 action items required to address these issues. It is all
8 tied back into things like procedure changes, if necessary,
9 and then brought back into requalification program for the
10 operations staff, both licensed and non-licensed stock
11 voters, for the chemistry staff and for the maintenance
12 organization.

13 So anything that occurs in a plant is incorporated
14 into our training and retraining programs. The people are
15 assessed of these conditions and then get examined on it
16 during their requalification process.

17 COMMISSIONER ROGERS: What mechanisms do you have
18 in place to check how well shift-to-shift communication is
19 taking place? I am sure you have systems in place to do
20 that, but what do you have in place to check how well those
21 systems are working?

22 MR. ZERINGUE: I think that I would like at this
23 time to bring this to our operations manager, Mr. Mende, and
24 let him discuss this issue.

25 MR. MENDE: We have discussed the operator

1 awareness issue in quite a bit of depth here, I think. The
2 awareness items we saw in our functional testing and during
3 the original safeguards testing were things like enunciator
4 awareness and those items. We seem to have done a pretty
5 good job on that. As a matter of fact, they have been
6 identified as a recent strength and my personal observations
7 on shift while probing the operators and, as Rick mentioned,
8 the impromptu interviews to identify whether the operators
9 were aware of the reason for enunciators being in, have
10 shown a significant improvement in that area.

11 To address your specific question, recently I was
12 interviewing operators on their knowledge of a recent 50.72
13 report that we had made to the Commission and I got an
14 inadequate answer from the reactor operator there. So we
15 identified that we do have some weaknesses in shift-to-
16 shift. We do have processes for doing that, through shift
17 turnover and shift briefings and we document many of those
18 things, but we have not achieved, fully, the shift-to-shift
19 communications that we are expecting and we are going to
20 continue to focus in that area.

21 As Rick mentioned, one of the actions we have
22 taken is to facilitate the shift briefing by the utilization
23 of the shift support supervisor. This has shown marked
24 improvement in the plant awareness status and what-have-
25 you. It still has some work to go in the shift-to-shift

1 conveyance of events and those type of things and we are
2 focusing in that area.

3 COMMISSIONER ROGERS: Very important area.

4 MR. ZERINGUE: Yes, sir.

5 CHAIRMAN JACKSON: Okay.

6 MR. ZERINGUE: As I mentioned earlier, Chairman
7 Jackson, we have had some problems, but we have recognized
8 them. Ownership is better. We need to improve in some
9 areas, but overall the operation of the facility has been
10 very effective. We have been safe, cautious and controlled.
11 At this point in time we are prepared to receive the full
12 power license, to move through the remainder of the test
13 program and safely and cautiously bring this unit into
14 commercial operation.

15 MR. KINGSLEY: I would like to have Mark Medford
16 address the adequacy of how we will handle our
17 decommissioning process, Chairman Jackson.

18 MR. MEDFORD: Chairman Jackson, Commissioner
19 Rogers, TVA has had decommissioning in rates since 1977. We
20 have had a dedicated decommissioning fund since 1982. We
21 were among the first in the industry in both of these areas.

22 We currently have in excess of quarter billion
23 dollars in our decommissioning fund. Periodically, we
24 review our estimates for decommissioning costs. We most
25 recently did that in the fall of '95. We based this review

1 on the experience gained to date in decommissioning within
2 the industry, review of publications, such as NRC NUREGs on
3 the subject. Then we compare the estimates that we have
4 against those in the remainder of industry to ensure they
5 are adequate.

6 Comparing our current estimates for need and the
7 amount of money in the decommissioning fund, we are on track
8 for decommissioning at the present time.

9 MR. KINGSLEY: We are now happy to address any
10 other questions that either you, Chairman Jackson, or
11 Commissioner Rogers might have.

12 CHAIRMAN JACKSON: Let me ask you a couple of
13 questions. Let me go back to a suction strainer issue. You
14 know that there was another plant in which there was an
15 incident involving suction strainers in the ECCS system.
16 So, again, I am asking you, you have looked at this area in
17 terms of debris clogging throughout the plant, but
18 particularly as relates to ECCS and there are no issues
19 there?

20 MR. SCALICE: Yes, that's correct. We have
21 established a thorough foreign material exclusion program.
22 At the time that this event occurred, and that was an oil
23 suction strainer on the motor, we had been doing a
24 modification, basically a plumbing modification, to the oil
25 lift system and some damming material was utilized to work

1 on the oil system. Apparently, that got left in the
2 strainer. Now, that was still a problem at that time from
3 foreign material exclusion, but our program is fully in
4 effect now and all of the maintenance utilizes foreign
5 material exclusion programs. It is looked on, it is an
6 ingredient, a checksheet from both the maintenance
7 organization and from the quality organization during the
8 witnessing of the maintenance in the plant.

9 MR. ZERINGUE: In addition to that, Chairman
10 Jackson, we have a detailed containment close-out
11 inspection. So we go through the containment at all levels
12 and verify that there is no debris, there is nothing in
13 there that shouldn't be in the containment, nothing that
14 could potentially clog a flow path.

15 CHAIRMAN JACKSON: How close are you to
16 implementing the vehicle bomb mode?

17 MR. SCALICE: I will address that. The
18 requirement, as you are aware, is the 27th of February.

19 CHAIRMAN JACKSON: That's for operating the site?

20 MR. SCALICE: That's for 1996. We requested an
21 exemption at that time that the rule came into place to be
22 treated like the operating facilities, because of the timing
23 associated with the design and the procurement of the
24 materials. We are on schedule to finish that prior to that
25 date. Our current date for the completion of all the work

1 and the closure on the design and the a vaulting of the
2 materials is scheduled for the 22nd of February.

3 CHAIRMAN JACKSON: And that can't be accelerated?

4 MR. SCALICE: We looked at the acceleration of
5 that and, with additional work and recesses, we think we can
6 take about five days off of that program.

7 CHAIRMAN JACKSON: Are you ready to implement the
8 maintenance rule?

9 MR. SCALICE: Yes, we are. I would like to, if
10 you will, get into some detail on that. Again, Walt Elliot,
11 our engineering manager, will discuss the maintenance rule.

12 MR. ELLIOT: Walt Elliot, the engineering manager
13 of Watts Bar.

14 As John has said, we are on schedule to implement
15 the maintenance rule. Our schedule for implementation is
16 July 10th of 1996. As far as the activities that we have
17 completed to date, we have issued a maintenance rule
18 compliance program for all the TVA plants. We have modified
19 the system health reports that have been discussed earlier
20 to include monitoring that's required out of that
21 maintenance rule. The report for the first quarter starts
22 that reporting.

23 We have prepared the draft instructions for
24 implementation on site for the maintenance rule. We have
25 developed training modules for engineering support

1 personnel, and we have begun to train our system engineers
2 and our maintenance component engineers to the maintenance
3 rule requirements, and we are trying to present that as a
4 benefit, as a positive, to Watts Barr and to the system
5 engineers and the maintenance component engineers.

6 We have a planned assessment in March of this year
7 that we will be conducting to make sure that our program is
8 on track for implementation.

9 CHAIRMAN JACKSON: Okay. Thank you.

10 Commissioner Rogers?

11 COMMISSIONER ROGERS: Without giving us a specific
12 starting date for our timetable, what is your timetable for
13 power ascension and power range testing?

14 MR. SCALICE: At the present time, we are prepared
15 to increase power above 5 percent.

16 CHAIRMAN JACKSON: I think he wants you to --

17 MR. SCALICE: Post the obtaining of the full power
18 license, the power ascension program, as indicated on the
19 slide that Mr. Purcell had, and maybe we could put that back
20 on there, indicates that we should be able to complete that
21 program in the spring of this year. There are various
22 plateaus that take place. We expect that within the next
23 several days, given the full power license, we will be able
24 to put the turbine on the line, sink the generator, and then
25 proceed up to 30 percent power.

1 MR. ZERINGUE: The program duration is
2 approximately two-and-a-half months.

3 COMMISSIONER ROGERS: I guess it was the timing on
4 this that I was curious about. These are just the steps,
5 but not how much time you would spend between them.

6 MR. SCALICE: As Mr. Zeringue indicated, it is
7 approximately two-and-a-half months from the start.

8 COMMISSIONER ROGERS: Thank you.

9 CHAIRMAN JACKSON: Do you have any questions?

10 COMMISSIONER ROGERS: No, I don't have any other
11 questions.

12 CHAIRMAN JACKSON: Thank you, Mr. Kingsley.

13 MR. KINGSLEY: Thank you very much.

14 CHAIRMAN JACKSON: We will hear from the NRC
15 Staff.

16 MR. TAYLOR: Good afternoon. With me at the table
17 are Bill Russell, Stew Ebnetter, Johns Jaudon and Fred
18 Hebdon. Also here are senior residents from Watts Barr and
19 other specialists who may be called upon as appropriate.

20 The Staff will brief the Commission on TVA's
21 performance and its issuance of the low power license, and
22 their readiness to operate the plant up to full power.

23 Johns Jaudon will start the presentation by
24 discussing the Staff's inspection effort. John has been an
25 SES dedicated to this site for an extensive period of time.

1 He will be followed by Fred Hebdon who will discuss the
2 licensing activities associated with Watts Bar. Finally,
3 Stew Ebnetter and Bill Russell will provide their
4 perspectives on TVA's overall performance at Watts Barr and
5 the readiness for full power.

6 John.

7 MR. JAUDON: Chairman Jackson, Commissioner
8 Rogers, good afternoon.

9 May I have Slide 2, please.

10 [Slide.]

11 MR. JAUDON: Since the low power license was
12 issued, we have monitored Watts Bar's operational
13 performance closely. The operations senior resident has
14 been onsite since August of 1993, thus the overlap between
15 the construction and operations inspection programs has been
16 assured.

17 The nominal operations staffing for a single unit
18 site is a senior resident inspector assisted by a resident,
19 or N plus 1 manning. This has been supplemented at Watts
20 Barr with two additional operations inspectors on special
21 assignment. The site manning has been at the N plus 3 level
22 at Watts Barr through the licensed activities to date.

23 This has allowed around the clock inspection of
24 all significant licensee activities. We project this
25 enhanced manning through power ascension testing if a full

1 power operating license is granted.

2 The construction senior resident inspector
3 remained onsite through 1995 assisting as needed. He has
4 been especially helpful in looking at allegations related to
5 construction issues because of his detailed knowledge of a
6 site.

7 May I have Slide 3, please.

8 [Slide.]

9 MR. JAUDON: The observed conduct of operations
10 can be characterized as careful and cautious. This
11 deliberation is obviously being fostered by TVA management.
12 There were no regulatory problems with fuel load, and it
13 proceeded well. Maintenance made an error in connecting
14 plug-in connectors during the final control rod drive
15 mechanism installation. This was detected during
16 preliminary rod testing and quickly rectified.

17 The operations staff exhibited some initial
18 growing pains. For example, two daily surveillances were
19 missed soon after fuel load. These errors were also
20 detected quickly and the corrective action effected.

21 Control room demeanor and communications have been
22 acceptable and are improving. TVA management has been
23 responsive to feedback from their own self-assessments and
24 also from observations from the NRC. The affect of earlier
25 errors mentioned above was not significant in a technical

1 sense. As a result, we found operations performance to be
2 acceptable and to have an improving trend.

3 Systems and components have performed well to
4 date. There was a problem with the valve strainer on the
5 suction side of the oil lift pump which was discussed in
6 some detail. The troubleshooting and repair caused about a
7 one-week schedule slip for TVA.

8 Some procedural problems were identified as
9 surveillance procedures were used for the first time. These
10 were identified and procedure changes were made as
11 appropriate. There was no safety impact from these
12 procedure problems, and the problems may have served to
13 assure that the operators remained very attentive as they
14 performed evolutions under procedures for the first time.

15 The plant did experience a problem with the
16 individual rod position indication system. It was aligned
17 for each control rod. It worked when the control rods were
18 moved in banks. However, on the bank withdrawal in
19 preparation for initial criticality, it was found that when
20 additional banks were withdrawn to a fully out position, the
21 individual rod positions indicated an outward drift. While
22 it is reasonably obvious that control rods cannot drift
23 beyond the fully withdrawn position, the technical
24 specifications required that the indicated rod position from
25 the individual rod position indication always be within plus

1 or minus 12 steps of the demand or step counter position.

2 TVA working with Westinghouse found that this
3 drift was caused by their unique combination of heavy jack
4 screws, light boron carbide control rods and the original
5 rod position indications system. With multiple groups
6 withdrawn, an apparent inductive coupling caused the
7 indication to drift. TVA recalibrated the rod position
8 indication so that the rods would remain within the plus or
9 minus 12-step technical specification requirement. The
10 approach to startup was TVA's first opportunity to detect
11 this phenomena and they took appropriate corrective actions.

12 Initial criticality occurred January 18th. The
13 actual rod positions and boron concentration were in close
14 agreement with those predicted before startup. Physics
15 testing was monitored closely by a regional inspector and an
16 NRR specialist. The residents went to around the clock
17 coverage to follow performance during the initial critical
18 operations. We found that TVA continued to operate in a
19 controlled and cautious manner.

20 Can I have Slide 4, please.

21 [Slide.]

22 MR. JAUDON: There have been few allegations
23 received since the last time the Commission was briefed.
24 Current they are for Watts Barr 28 allegations open in
25 Region II and one open in NRR. However, 22 of these open

1 allegations, stretching back to 1989, are in the Department
2 of Labor process. Technical aspects of these, and not all
3 of them have technical aspects, have been resolved. One
4 allegation is in the final closure process, that is all
5 inspection activity and documentation thereof is complete,
6 and the final letter to the alleged is being written.

7 Five technical allegations are open. All have
8 been inspected or assessed for impact if fully substantiated
9 on the licensing decision and found not to have an impact,
10 but the documentation and inspection are not fully complete.
11 All the recent allegations, except one, are of narrow scope.
12 One allegation is of broad scope and has required extensive
13 inspection followup. Mr. Hebdon will discuss some of the
14 issues related to this concern.

15 May I have Slide 5, please.

16 CHAIRMAN JACKSON: You said 22 at Department of
17 Labor and five, that's 27.

18 MR. JAUDON: And one in the final closure process,
19 five plus one. One is back with the enforcement and
20 investigation coordination staff and they are drafting the
21 final letter to the alleged.

22 CHAIRMAN JACKSON: That's 28. Isn't there one
23 other?

24 MR. JAUDON: And one in NRR.

25 May I have Slide 5, please?

1 [Slide.]

2 MR. JAUDON: In summary, Watts Barr operations
3 since the issuance of a low power license have been
4 conservative and acceptable. Their performance is typical,
5 in my experience, of a newly licensed plant. We shall
6 continue to inspect them closely. In addition to the
7 coverage provided by the residents and normal regional
8 support, we plan to do a team assessment during the power
9 ascension, if a full power license is granted.

10 Are there any questions about the inspection
11 activity?

12 COMMISSIONER ROGERS: I have one question about
13 the control rod position indicators. Are there any other
14 reactors that use this particular system?

15 MR. JAUDON: It is my understanding that other
16 reactors that have the heavy jack shafts and the boron
17 carbide have gone to a digital rod position indication as
18 part of the changeout. Watts Barr elected to keep the
19 original rod position indication, and that made them unique.

20 COMMISSIONER ROGERS: I see.

21 CHAIRMAN JACKSON: Have you reviewed the
22 maintenance backlog, and are there any items in that backlog
23 that, in your opinion, need to be worked before the granting
24 of the full power license?

25 MR. JAUDON: I am going to ask our senior resident

1 for operations to answer that, if I can.

2 Mr. Van Dorn.

3 MR. VAN DORN: Yes. Kim Van Dorn, senior resident
4 inspector.

5 We selectively look at those backlogs and
6 certainly look at all the things that are carried on the POD
7 on a regular basis, on a daily basis. More indirectly, what
8 we do is evaluate as well their process of evaluating and
9 see what effect they have on systems and how they prioritize
10 them, and that is really more effective for us, I think,
11 rather than look at very backlogged item. We approach it
12 with sampling and to assure ourselves that they are
13 effectively evaluating and putting the right priority on
14 those issues. We have attended meetings, and they take a
15 very conservative approach.

16 CHAIRMAN JACKSON: How do you do your sampling?

17 MR. VAN DORN: Well, obviously we have system
18 knowledge, and we can pretty much tell them from the types
19 of issues that are being discussed in the plan of the day,
20 and we also, obviously, regularly tour the plant and we look
21 for equipment problems that we see out there. If we see
22 anything that is an anomaly, of course, we validate that
23 they are tracking it, and we look into specific aspects of
24 that.

25 So it is just from our normal knowledge of what is

1 going on in the plant, and what we see them addressing in
2 the morning meetings, and how management is reviewing that,
3 and what those issues are.

4 CHAIRMAN JACKSON: Have you reviewed any operator
5 workarounds, or control room deficiencies, and are there any
6 that should or could be corrected before exceeding 5 percent
7 power?

8 MR. VAN DORN: The definition of operator
9 workarounds is a difficult one. I think TVA is still working
10 on what that exact definition is. Certainly, there are --

11 CHAIRMAN JACKSON: Do you have a definition?

12 MR. VAN DORN: My definition would be, if it
13 drives them out of being able to comply with the procedure,
14 if it make something inoperable and they have to take
15 something like compensatory actions to meet a tech spec,
16 such as that, other than provided for compensatory actions,
17 like there are in rad monitors, if there is something
18 special that has to be done and they have to put -- for
19 instance, assisting, an operator have a valve to make sure
20 that it would close in an event, or something like that.
21 Those types of things I would consider operator workarounds,
22 and we know of none.

23 However, there are, obviously, some control room
24 enunciation things which TVA talked about. Those aren't
25 good but, in a practical sense, there are going to be some

1 of those, and we look at those daily. We walk the boards,
2 and see what tape records are out of service, and so forth.

3 CHAIRMAN JACKSON: Do we have any standards
4 relative to control room enunciators? This goes back to
5 Commissioner Rogers question he posed to TVA, or is it that
6 we just monitor and look at what is?

7 MR. VAN DORN: I don't think we have prescriptive
8 regulatory standards.

9 MR. RUSSELL: The requirements that are imposed
10 are imposed on individual systems as it relates to
11 operability of those systems, particularly those that are
12 called out with procedures that relate to, for example,
13 technical specifications.

14 CHAIRMAN JACKSON: When you are looking at things
15 like enunciators, you are looking at it relative to that?

16 MR. RUSSELL: Relative to regulatory requirements
17 because there are enunciators in the control room that are
18 not related directed to regulatory requirements. So, if
19 there is an enunciator out, it makes it difficult for them
20 to follow an alarm response procedure, and that alarm
21 response procedure is required, where they, instead of using
22 that enunciator, have to use the plant process computer,
23 that would be a workaround.

24 We have recently put out some guidance, and a
25 workaround to the Staff is a degraded or nonconforming

1 condition for which you are still operable, but you
2 substitute some type of human performance for that degraded
3 or nonconforming condition where you are not within the
4 specific actions where there are previously approved
5 compensatory actions.

6 CHAIRMAN JACKSON: And so, following on his
7 comment, you have identified none?

8 MR. RUSSELL: I have not personally reviewed. I
9 am responding generically. Based upon what he described,
10 based upon that, there would be no workarounds at this point
11 in time.

12 MR. EBNETER: I should probably tell you, we
13 discussed this at the public meeting last week, and whatever
14 definition you use, I am quite sure you will find there are
15 some workarounds at Watts Bar, and there are a number of
16 workaround definitions. Every station I go to has a
17 different definition. We are working on one internally, and
18 I believe INPO is working on one, but I don't know of any
19 standard definition. But I think the general definition, if
20 I had to describe it real quick, I would say it is anything
21 that puts an additional burden on the operators that
22 shouldn't be there because you are noncomplying or in a
23 degraded condition.

24 But I think the simple answer is, there are
25 probably some workarounds at TVA Watts Barr no matter how

1 you define it. I think there are some at every plant.

2 CHAIRMAN JACKSON: But you are satisfied yourself
3 that there are none that we should particularly --

4 MR. EBNETER: I don't know of any. I have relied
5 primarily on the resident staff for that. That is one of
6 the things that I have listed here as an area that needs
7 improvement when I get to my section. One of them was
8 listed as, there is a need to clarify the concept of
9 workarounds and compensatory measures in the total scope of
10 maintenance and corrective action program.

11 CHAIRMAN JACKSON: Okay. I don't want to preempt
12 your program.

13 MR. EBNETER: I won't go over that one.

14 CHAIRMAN JACKSON: Yes, you will.

15 [Laughter.]

16 CHAIRMAN JACKSON: Thank you.

17 MR. JAUDON: Are there any more questions?

18 [No response.]

19 MR. JAUDON: Apparently there are no more.

20 Fred Hebdon will brief the status of licensing
21 issues.

22 MR. HEBDON: Since the issuance of the low power
23 operating license, there have been relatively few licensing
24 issues associated with Watts Bar. However, ANR has been
25 reviewing two concerns from members of the public which I

1 would like to discuss.

2 Slide 6, please.

3 [Slide.]

4 MR. HEBDON: The first issue pertains to a letter
5 from a concerned citizen regarding the Watts Barr fire
6 penetration seals. The Staff has reviewed the information
7 in the letter, and has reviewed the fire protection program
8 at Watts Barr in detail. The Staff concludes that Watts
9 Barr meets the applicable regulatory requirements. The
10 results of that evaluation are documented in the safety
11 evaluation report, and also in numerous inspection reports.

12 The draft license contains a condition to require
13 implementation of the fire protection program, and so it
14 becomes essentially part of the license, and that requires
15 implementation and maintenance of the program.

16 CHAIRMAN JACKSON: You have "meets," are those the
17 regulatory requirements?

18 MR. HEBDON: Those are the regulatory
19 requirements.

20 CHAIRMAN JACKSON: Do you have any questions?

21 COMMISSIONER ROGERS: No.

22 MR. HEBDON: Slide 7, please.

23 [Slide.]

24 MR. HEBDON: The second issue includes an
25 extensive concern, which includes a number of parts. One

1 part is associated with the licensing basis of the radiation
2 monitoring system at Watts Bar.

3 For background, the requirements that must be met
4 before a plant can be licensed are defined in the
5 regulations, including the general design criteria. Over
6 the years, the staff has prepared a number of guidance
7 documents, such as regulatory guides and NUREG reports that
8 define methods that are acceptable to the Staff for meeting
9 the requirements in the regulations. However, in general,
10 these documents are not regulatory requirements.

11 In addition, the industry has developed numerous
12 documents, such as ANSI standards, some of which describe
13 methods for meeting regulatory requirements. To varying
14 degrees, the Staff has endorsed these documents as an
15 acceptable method for meeting the regulations.

16 An applicant may choose to commit to one or more
17 of these NRC or industry-referenced documents. If an
18 applicant commits to a document, then they must meet all of
19 the guidelines contained in the document, or they must
20 request authorization from the Staff for a deviation. The
21 Staff must specifically approve each request.

22 An applicant may choose not to commit to a
23 specific document but may, instead, choose an alternative
24 approach to meeting the regulatory requirement. When an
25 applicant chooses to do this, the NRC must evaluate the

1 alternative approach to determine if it meets the
2 regulations.

3 As the Staff reviews an application, the reviewer
4 will often use the guidelines contained in a regulatory
5 guide or ANSI standard as a measure of whether the
6 application meets the regulations. This does not mean that
7 the regulatory guide or ANSI standard becomes a requirement
8 or even a commitment. It does not mean that the application
9 must meet every guideline in the standard to be found
10 acceptable.

11 In the specific case of the radiation monitoring
12 system at Watts Bar, the system must meet 10 CFR 20.1302 and
13 General Design Criteria 60, 63 and 64. In addition, TVA has
14 committed to regulatory guides 1.21, 1.45, 1.68 Revision 2,
15 and 1.97 Revision 2, which addressed, at least in part, the
16 radiation monitoring system.

17 The concern that we are reviewing attempts to draw
18 the connection that the statement in the safety evaluation
19 report commit TVA to Reg Guide 4.15, and this assumed
20 commitment requires that TVA meet all the guidelines
21 contained in ANSI standard 13.10 because it is a reference
22 in Reg Guide 4.15.

23 TVA has stated in a documented letter that they
24 are not committed to Reg Guide 4.15. The Staff agrees that
25 TVA is not committed to Reg Guide 4.15 and has considered

1 this in its assessment of the Watts Barr application. Thus,
2 the assumption that TVA has committed to Reg Guide 4.15 and
3 ANSI standard 13.10 is not correct.

4 Thus, the Staff concludes that Watts Barr meets
5 the applicable regulatory requirements and regulatory guides
6 to which TVA has committed, except for specific deviations
7 which have been reviewed and approved by the Staff.

8 To date, the Staff has received a number of
9 specific technical concerns about the radiation monitors at
10 Watts Bar. The Staff has reviewed and inspected each of
11 these concerns, and has concluded that although the system
12 at Watts Barr does not necessarily meet a specific
13 guideline, such as ANSI standard 13.10, the Watts Barr
14 design will perform its intended function, meets the
15 applicable regulatory requirements, and is, therefore,
16 acceptable.

17 A concern has also been raised about the
18 reliability of the radiation monitors at Watts Bar. The
19 Staff has inspected this aspect and concluded that the
20 problems TVA has encountered have been due primarily to
21 system startup. The Staff believes that the system meets
22 regulatory requirements and commitments and the performance
23 to date has been adequate.

24 Those were the comments that I had on the
25 radiation monitors.

1 CHAIRMAN JACKSON: Let me ask you, would you put
2 that slide back.

3 MR. HEBDON: Certainly, Slide 7.

4 CHAIRMAN JACKSON: For the two bullets, where you
5 have the Watts Barr licensing basis and then what TVA has
6 committed to --

7 MR. HEBDON: That's correct.

8 CHAIRMAN JACKSON: -- have there been any
9 exemptions with respect to the actual regulatory
10 requirements?

11 MR. HEBDON: There have been no exemptions in the
12 area of the radiation monitors. There have been some
13 deviations to Reg Guide 1.97. I believe there are five
14 deviations to Reg Guide 1.97.

15 CHAIRMAN JACKSON: And they have all been
16 documented?

17 MR. HEBDON: They are documented in the SER. They
18 are reviewed by the Staff, and five have been approved.

19 CHAIRMAN JACKSON: Do you have any questions?

20 MR. RUSSELL: If I could just provide one process
21 piece of information, the Commission, by rule, requires that
22 an applicant identify differences between their application
23 and criteria and standards that are described in the
24 standard review plan that is in effect for licensing of that
25 plant. This is an aid to Staff to focus on those areas of

1 the application where they are taking positions that are
2 different than generically approved positions.

3 That does not imply that because they are
4 different they are less safe or they are not acceptable.
5 The generic approval is one way of meeting the regulations.
6 Where they deviate from that, there may be a case specific
7 reason that the licensee has. But we review that to make a
8 determination as to whether it provides the necessary
9 commitments to meet the regulations.

10 Each of those deviations is typically documented
11 in our safety evaluation in the application first and then
12 in the safety evaluation.

13 CHAIRMAN JACKSON: I want to thank you for that
14 lesson, Mr. Russell.

15 The point is simply that the regulatory basis is
16 clear; what the licensee has committed to is clear; that if
17 there are exemptions from the regulatory requirements, they
18 have been so documented and granted; that if there are
19 deviations, that they have been evaluated and so noted in
20 the SERs or supplemental SERs. And you are telling me that
21 all of that is true?

22 MR. RUSSELL: That's correct.

23 CHAIRMAN JACKSON: Okay. I understand that there
24 was an independent inspection of the radiation monitoring
25 system conducted by Region IV. Now, what about the results

1 of that inspection, is there someone here who was involved?

2 MR. EBNETER: Mr. Jaudon has attended the exit
3 interview. If you would like to hear directly, that
4 inspector is here, and we can have him.

5 Dr. Nicholas, would you take the mike, sir.

6 This gentleman is from Region IV, has nothing to
7 do with Region II, and he will write a completely
8 independent report signed through his management.

9 MR. NICHOLAS: My name is Bill Nicholas. I am the
10 senior radiation specialist from Region IV, and myself and
11 Larry Dickinson performed an independent inspection of the
12 radiation monitoring system of Watts Barr and we found it
13 acceptable and met the regulations. The official report
14 will be issued next week, and it should be issued on
15 Wednesday, February 7th.

16 CHAIRMAN JACKSON: Okay.

17 Do you have any questions, Commissioner Rogers?

18 COMMISSIONER ROGERS: Just one, nothing on the
19 radiation monitors. I did have another question on
20 exemptions.

21 MR. HEBDON: I did have one other comment. The
22 draft full power license is identical to the low power
23 license except for the authorized power level and a
24 statement that the full power license supersedes the low
25 power license.

1 The license would contain five exemptions which I
2 am prepared to discuss, and could I have Slide Number 8, it
3 lists those exemptions.

4 [Slide.]

5 MR. HEBDON: The first one is a requirement to
6 return picture badges by people who are not TVA employees.
7 That allows TVA to implement the hand geometry security
8 system.

9 There is an exemption to the requirement for a
10 criticality alarm system provisions in 70.24. That was
11 originally granted in a special nuclear material license
12 that TVA had prior to issuance of the low power license. It
13 is a Part 70 license that they had initially.

14 There is a schedular exemption from an Appendix J
15 requirement associated with air lock tests. That allows
16 them to have that exemption until the end of the first
17 refueling outage, and that is associated with the new Option
18 B of the Appendix J.

19 There is a schedular exemption that I believe you
20 discussed with TVA in some detail associated with the
21 implementation of the vehicle bomb rule.

22 The last one is an exemption to not include the
23 ingestion pathway portion of a full participation exercise
24 that TVA was required to conduct in November of '95.

25 COMMISSIONER ROGERS: Just say a little bit about

1 that. The slide says the State of Tennessee participation.

2 MR. HEBDON: Right. There is a requirement in the
3 regulation that TVA conduct a full participation exercise,
4 any licensee applicant conduct a full participation exercise
5 within two years of issuance of the full power license. The
6 last full participation exercise by TVA was in November of
7 1993, so the two years had essentially expired. As a
8 result, they had to conduct another full participation
9 exercise, and the State of Tennessee, through TVA, had
10 requested that they not do the ingestion pathway portion of
11 that exercise because they had done it in the earlier
12 exercises and they had also exercised those capabilities
13 because the Sequoyah plant is also located in Tennessee, and
14 so they had requested that and the Staff had approved that.

15 COMMISSIONER ROGERS: I see. All right. Thank
16 you.

17 CHAIRMAN JACKSON: Are there any emergency
18 preparedness issues or concerns from FEMA or any other state
19 or local agency with respect to Watts Bar?

20 MR. EBNETER: Not to my knowledge.

21 MR. HEBDON: No. We have received from FEMA the
22 finding that they are required to make on the offsite
23 emergency planning, the reasonable assurance finding, and
24 that has been completed after the exercise in November.

25 CHAIRMAN JACKSON: Okay.

1 MR. HEBDON: If there are no additional questions,
2 then Stew Ebnetter will discuss his perception of the plant
3 condition.

4 CHAIRMAN JACKSON: Let me ask you one last thing
5 with respect to radiation monitoring. I know there were
6 some preoperational tests done, and they were at an approved
7 vendor facility; is that correct?

8 MR. HEBDON: There was some calibration of some of
9 the individual detectors that were done. Some of those are
10 done on site and some of those are done at vendor facilities
11 using the geometries that different detectors are calibrated
12 in different ways.

13 CHAIRMAN JACKSON: Do you require any power
14 ascension testing in the sense that you have these in a
15 vendor facility, obviously you are not in a radiation
16 environment.

17 MR. JAUDON: Let me answer that. What Reg Guide
18 1.21 states and what TVA plans to do, as they have told us,
19 and are writing procedures to do is to take grab samples
20 once they get a source term, and compare those to the
21 monitor readings, and that is a program that goes on
22 throughout the life of the plant, really, to validate that.

23 MR. EBNETER: We have the inspector here, George
24 Kudat, who will be monitoring this throughout, if you would
25 like to hear from him?

1 CHAIRMAN JACKSON: Sure.

2 MR. KUDAT: I am George Kudat, senior radiation
3 specialist from Region II.

4 And if you will just ask your questions, I will be
5 happy to answer them. Do you want me just to summarize my
6 findings?

7 Regarding the calibrations, one of the first
8 things that I looked at, at Watts Bar, because of some of
9 the earlier problems did involve calibrations and the loss
10 of some records mainly, I reviewed the vendor documents to
11 make sure that the calibrations were done properly at the
12 vendor facilities, or they had done some calibrations onsite
13 for some of the iodine monitors.

14 Another area that was of importance to review is
15 specifically for some of the sample lines was the
16 construction and the installation of the equipment. On all
17 those, initially, approximately one year ago, we had some
18 findings. You referenced some of the violations that was in
19 that inspection report. Management paid a lot of increased
20 attention to that overall system, System 90. They have an
21 independent review that was done, led by TVA but many
22 outside contractors from Bechtel, Stone and Webster, went
23 through, reevaluated all the monitors, walked down the
24 lines, reviewed the calculations, reviewed all the
25 procedures that go with the calculations, and I subsequently

1 came in and reviewed that review to verify that they did
2 cover all the monitors. That appeared to be a very
3 thorough, very professional job.

4 Then I was present for much of the preoperational
5 testing. Your question regarding the preoperational
6 testing, the monitors have been set up right now as they
7 will work during operations. There will be some changes to
8 the setpoints because of changing background levels for some
9 of the monitors during power ascension, possibly, and
10 further into after they receive an operating license. There
11 will be some changes to some of the monitors, but many of
12 them already have fixed setpoints. So that has been
13 established, and we will be monitoring that, modifying the
14 systems, where applicable, during the power ascension, I am
15 sure.

16 I have verified the training for personnel that
17 deal with the system. That involved a complex group of
18 people from operations to chemistry to the health physics
19 personnel. They have all been well-trained. Where they
20 have found problems, they have addressed it. They have
21 addressed all those through increased coordination. There
22 were some problems originally on some of the set up of the
23 monitors for some of the filter paper, that problem was due
24 to some misunderstanding between groups of who was
25 responsible. That has been addressed properly now.

1 Management has increased the attention to, I think, the
2 daily review of the system through the plan of the day,
3 discussions have proven very fruitful to addressing a lot of
4 the problems that we saw actually one year ago.

5 CHAIRMAN JACKSON: Okay.

6 MR. EBNETER: Slide 9, please.

7 [Slide.]

8 MR. EBNETER: The transition to the operating
9 regime has gone very well, and Mr. Jaudon and Mr. Hebdon
10 discussed some of the features.

11 CHAIRMAN JACKSON: Before you go on, let me ask
12 one other inspection question. We have inspected thermalag
13 and seal penetrations, were there any --

14 MR. JAUDON: Yes, we have, extensively. I don't
15 have Mr. Miller here who was the inspector in that area, and
16 I don't think Mr. Madden is here either who was the NRR
17 representative who assisted him, but we looked at their
18 configurations, we looked at what they installed. Mr.
19 Madden, I think, went down and witnessed the testing, some
20 of the testing in the laboratory when they were qualifying
21 the configurations of thermalag.

22 MR. EBNETER: I can tell you personally I know
23 that I sent the Staff my own note on the thermalag
24 installations, on the materials and the qualifications of
25 that material. When I toured the plant, I talked with the

1 installers, and they commented to me that the NRC inspector
2 is around regularly to see them on the installation. The
3 NRR Staff actually did the qualification of the
4 configuration, and Mr. Madden did those inspections.

5 CHAIRMAN JACKSON: Okay.

6 MR. RUSSELL: The testing that was witnessed
7 involved both thermalag testing and the fire penetration
8 seal testing that was done recently, and that is documented
9 in the Staff's safety evaluation report.

10 CHAIRMAN JACKSON: I think there is someone who
11 wants to speak.

12 MR. WEST: I am Steven West, the chief of the fire
13 protection section in NRR. Mr. Madden is in my section and
14 I can just add a little bit more.

15 They did a total of 14 fire protection inspections
16 at Watts Bar, and with respect to the thermalag
17 installations and the penetration seals, they did detailed
18 inspections beginning kind of cradle to grave review of the
19 test plans before tests were conducted at the test
20 laboratories, witnessed the qualification tests and made
21 several inspections to witness installations and followup
22 inspections.

23 CHAIRMAN JACKSON: Since I have you here, and Mr.
24 Hebdon, will you just reiterate for the Commission the
25 regulatory basis for the Watts Barr fire protection program?

1 MR. HEBDON: I believe that was on Slide 5, if we
2 could have that back, please.

3 [Slide.]

4 MR. HEBDON: Would you like to discuss some of
5 those?

6 I am sorry, that was Slide 6.

7 MR. WEST: Yes. Just quickly, if you look at the
8 bullet that says "Meets," and then there are four sub-
9 bullets under that, the actual regulatory requirements would
10 be General Design Criterion 3, and 10 CFR Sections 50.48,
11 and it would be Paragraphs A and E. And then the two
12 following dashed bullets, the Appendix A to the Branch
13 Technical Position and the sections that are listed of
14 Appendix R would be the licensee commitments they made to
15 meet the regulatory requirement.

16 CHAIRMAN JACKSON: Okay. Thank you.

17 MR. EBNETER: Continuing, overall the integrated
18 plant performance has been very good. The material
19 condition of this plant is excellent. The equipment has
20 been reliable. The backlogs are low, which indicate they
21 are taking good care of maintenance in a prompt, timely
22 manner.

23 The people performance of the TVA staff has been
24 good. They have performed well. We have not seen any
25 identified trends of inadequate human performance. There

1 are examples of human performance in procedures and
2 equipment areas, but nothing really egregious.

3 Procedures have been effective and, again, once
4 again, there have been some problems with procedures,
5 clarity and omissions of certain parts of the procedures,
6 but they have not been really significant.

7 By the way, the procedure issue is what
8 contributes to the human performance error. When the
9 procedures are bad, the staff has a problem following and
10 doing the work correctly. So those two are interrelated.

11 The management overall has been very good at Watts
12 Bar. There is stable senior management there, and they have
13 retained their managers there that were placed there about a
14 year ago, as Mr. Zeringue commented, he has been there about
15 11 months now, and I think that has worked very effectively.

16 They have added consultants to add support to the
17 licensee management, for example, Westinghouse and Duke
18 Power Company has supplied some consultants. The management
19 has effectively used their quality assurance organization.
20 There is an extensive trending and assessments are in place,
21 and they appear to be working well. The management actions
22 have been cautious and conservative.

23 Two major issues I wanted to comment on that have
24 been fixed, and I think TVA mentioned both of them. One of
25 those is, they have made a significant improvement in their

1 root cause analysis, and the extent of condition reviews,
2 they now identify the scope and breadth of problems very
3 well that they commented on the reactor coolant pump, the
4 one pump had an issue, they looked at all four, and there
5 were several other conditions they mentioned, but we think
6 that is a significant improvement.

7 The second one I wanted to mention was
8 management's involvement has built a much better management-
9 worker relationship at Watts Bar. This was the source of
10 many of the difficulties over the years, and we saw it
11 reflected in statistics of employee concerns and DOL
12 complaints.

13 This is best illustrated, I think, by the fact
14 that the 1,800 exit interviews they conducted, there was
15 less than .4 percent that raised issues, and over 95 percent
16 of the people they interviewed reflected confidence in TVA
17 management by willingness to go through TVA line managers,
18 and that is a significant change.

19 That confirms really what we have found also in
20 the past. We conducted an extensive inspection in August
21 and September of what they call their employee concerns
22 resolution program and we found the same sort of indicators.

23 Our focus has been on operations and the
24 inspections. We have provided around the clock shift
25 coverage on the major evolutions, and we have done extensive

1 back-shift inspections. This enabled us to see a full
2 spectrum of the TVA activity on different shifts, and these
3 results have been very positive. We continue and will
4 continue in the future to have these open meetings that we
5 have at TVA Watts Bar, and with both the public and the
6 media invited, and we think they are important to keep the
7 public and the media informed.

8 Having said all of that, there is still a need to
9 have close inspection coverage in the future if and when a
10 full power license is granted, and even during low power
11 operations, if they continue. The reasoning behind this,
12 TVA staff is still learning. You heard part of that today
13 and, in addition, there are still some areas that need some
14 work, and TVA identified some of those.

15 The ones I have identified pretty much correlate
16 with what TVA did. Improvements can be made, for example,
17 in work control and scheduling, which I think Mr. Zeringue
18 commented on. We don't have any regulatory issue with
19 those, but it is clear that there could be improvements made
20 and some of the interfacial could be improved.

21 The one I commented on before, and I will just
22 reread it, there is a need to clarify the concept of
23 workarounds and compensatory measures in the total scope of
24 the maintenance and corrective action program.

25 We discussed this extensively at our last meeting,

1 and it was clear to me they do not have a precise definition
2 or expectation that can be conveyed to the staff, to their
3 staff. As a consequence, it makes it difficult to say that
4 they don't have any workarounds, and I do think that needs
5 attention. They indicated in that meeting that they were in
6 the process of defining workarounds for Watts Bar, and I
7 believe Mr. Mende told me that he had a questionnaire or
8 some system in process to get the operator feedback to them
9 on what should be included in that definition, but that has
10 not been completed.

11 As a result of that, we will continue our resident
12 inspection coverage at N plus 3, and we will supplement that
13 with region-based inspectors and conduct an additional team
14 inspection. If and when power ascension occurs, we will do
15 a mid-power ascension team inspection to bring some of these
16 areas back together.

17 Region II and I don't have any problem at this
18 point with recommending the issuance of the full power
19 license. If you need anything answered, I will be glad to
20 try to answer it or we do have many of our staff member here
21 who participated in the inspection to clarify anything.

22 CHAIRMAN JACKSON: You would live next-door to the
23 plant?

24 MR. EBNETER: Yes, ma'am.

25 CHAIRMAN JACKSON: I just have one comment, and

1 then I will let Commissioner Rogers ask his questions. You
2 know, you talk about taking grab samples in lieu of the
3 working radiation monitor. In general, that is an
4 operational methodology and this is probably more to TVA
5 than it is to you. It doesn't seem like a good thing.

6 MR. EBNETER: And I would agree with you, and
7 particularly if you don't watch it. You may be able to live
8 with one grab sample, but you certainly don't want to have
9 two or three stations that you need to take grab samples,
10 particularly during an emergency, the staff won't be able to
11 respond.

12 CHAIRMAN JACKSON: Right. So I would not like to
13 see us in a position where, because there is some wiggle
14 room, that there is some cumulative effect of having a
15 number of radiation monitors not working.

16 You were about to say something, Mr. Taylor?

17 MR. TAYLOR: No. I agree with all that has been
18 said. When it comes to operator workarounds, you almost
19 have to look at the whole plant where they operations are
20 going on and where we have seen problems is where there is
21 an accumulation where equipment is operable but in some type
22 of condition which requires specific operator actions to
23 keep the equipment running.

24 A lot of the equipment has automatic features.
25 That is the best way to run the plant, to be basically an

1 automatic. In many cases, due to problems, you will see
2 people lose the automatic feature, but still able to operate
3 the plant manually. This is particularly true in balance of
4 clamps, heaters, heater drains.

5 The reason we have talked a lot about operator
6 workarounds is because we have seen stations where events
7 are complicated because when the plant trips and there are
8 transients, there are just too many places where the
9 operators have been forced to be, say, on manual which do
10 cause problems. So I think it is one of those terms that is
11 getting more and more used, and I think the industry is
12 become more and more conscious -- I am not speaking
13 specifically to TVA, but across the board -- at what it
14 means to operators when equipment isn't in automatic as it
15 should be, and then the responsibilities of operators,
16 particularly in transients, accumulate and sometimes they
17 are not fast enough to keep up with everything.

18 Do you agree with that?

19 MR. RUSSELL: Yes. In fact, let me illustrate
20 with one example that is probably fairly significant. The
21 steam tunnel area of a boiling water reactor has a
22 ventilation system to keep the temperature down, and
23 temperature monitors in that room are one of the systems
24 that are used to initiate protection for a potential
25 steamline break.

1 Some facilities on loss of that ventilation have
2 as short a time as 15 minutes for operators to take action
3 to verify that there is not a steamline break and to bypass
4 that automatic system or you can get the mainsteam isolation
5 valves automatically closing as a result of a ventilation
6 problem. It is particularly acute in the summertime when
7 temperatures are higher and you need ventilation.

8 Those types of things, which are, in some cases,
9 related to balance of plant equipment or nonsafety
10 equipment, when the failure of that equipment impacts other
11 equipment where rapid operator action has to be taken, those
12 kinds of things are the kinds of things we are looking for
13 to identify and correct.

14 MR. EBNETER: Your concern is justified, I think,
15 if you look back at plants that we have had trouble with
16 over the past from our meeting this morning. The ones who
17 get on the plant list typically have a large number of so-
18 called "workarounds."

19 CHAIRMAN JACKSON: Right, and if there is an
20 incident and you were worried about the radiation increasing
21 in an area, one wouldn't have to be sending somebody to that
22 area to grab a sample, right?

23 MR. EBNETER: Certainly.

24 COMMISSIONER ROGERS: I think both presentations
25 have been quite complete. I think we have had a good

1 opportunity to ask questions, but I would like to just raise
2 the question with you once again, and that is, how confident
3 are you that the resolution of the allegations received to
4 date has gotten to the point here you can rule out safety
5 issues as delaying a full power license?

6 MR. EBNETER: I am pretty confident of it, but I
7 will let Mr. Jaudon elaborate some on it since he monitors
8 the plant close.

9 MR. JAUDON: I have looked at these, I have had
10 inspectors go out and look at them. I look at them in two
11 levels. First is, without looking at the issue or any
12 specifics, if the issue is true, what kind of a problem does
13 that cause. And then, second, after we have inspectors look
14 at them and what do we find, and do we think it is correct
15 or is it fully substantiated, partially substantiated or not
16 substantiated. So we look at them in two different ways.

17 I am confident that even if they were all full
18 substantiated, there wouldn't be a safety issue, and most of
19 them are not substantiated or not fully substantiated, only
20 at best partially.

21 COMMISSIONER ROGERS: And one can say that about
22 all 29 allegations?

23 MR. RUSSELL: The point that I have been
24 emphasizing in the various meetings is to make sure that we
25 follow the agency procedures for handling any late filed

1 allegations. That is not to say that while the Commission
2 is deliberating on what action the Commission should take
3 that we won't receive additional allegations. If we do, we
4 will promptly inform the Commission while this is pending
5 with the Commission and we will follow the agency
6 procedures.

7 We do have one issue that is currently pending
8 before the Commission that the Commission could decide to
9 pass back to the Staff to handle in accordance with 10 CFR
10 2.206 relating to information that is currently before the
11 Commission. We are working with the general counsel's
12 office and, as you have heard, we have inspections that are
13 underway that are addressing some of these issues

14 I have not yet seen, for the one that is in NRR,
15 the package, should we handle this as a 2.206, which would
16 address the notification that would be published in the
17 Federal Register, along with the determination as to why
18 immediate action is not taken. Well, that is essentially
19 the same as completing the late filed allegation process.
20 That is, if true, would there be an impact, et cetera. That
21 aspect needs to be completed.

22 As you have heard, the inspection is nearing
23 completion, work is going on within the Staff, but that is
24 not yet completed. So, were the Commission to vote to
25 authorize the Staff to proceed with licensing, I would want

1 to at least make sure that that aspect is completed before
2 authorizing a license, that is, at least the notification as
3 it relates to the petition.

4 This is not a requirement. This is more as it
5 relates to the late filed allegation process to look at
6 those, to make judgments as to whether there is anything
7 which would be significant or be a bar to licensing. That
8 is because the petition requests action be taken against the
9 low power license which would, in fact, be superseded if a
10 full power license were to be issued.

11 COMMISSIONER ROGERS: Did you have anything more
12 you wanted to add?

13 MR. EBNETER: No, sir.

14 COMMISSIONER ROGERS: No, I have no additional
15 questions.

16 CHAIRMAN JACKSON: Well, let me thank all of
17 today's participants for the briefing this afternoon, both
18 Tennessee Valley Authority and the NRC Staff.

19 The Commission must now reach a decision on
20 whether to authorize a full power operating license for
21 Watts Barr 1. As I said in my opening remarks, the
22 Commission will not vote today. Commissioner Rogers and I
23 will be concurring -- conferring, rather, and concurring on
24 whatever we decide, taking into account what we have heard
25 today, as well as looking at any late filed allegations.

1 Unless you have any further comments, Commissioner
2 Rogers?

3 COMMISSIONER ROGERS: No.

4 CHAIRMAN JACKSON: We are adjourned.

5 [Whereupon, at 4:08 p.m., the briefing was
6 adjourned.]

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CERTIFICATE

This is to certify that the attached description of a meeting of the U.S. Nuclear Regulatory Commission entitled:

TITLE OF MEETING: DISCUSSION OF FULL POWER OPERATING
LICENSE FOR WATTS BARR - PUBLIC
MEETING

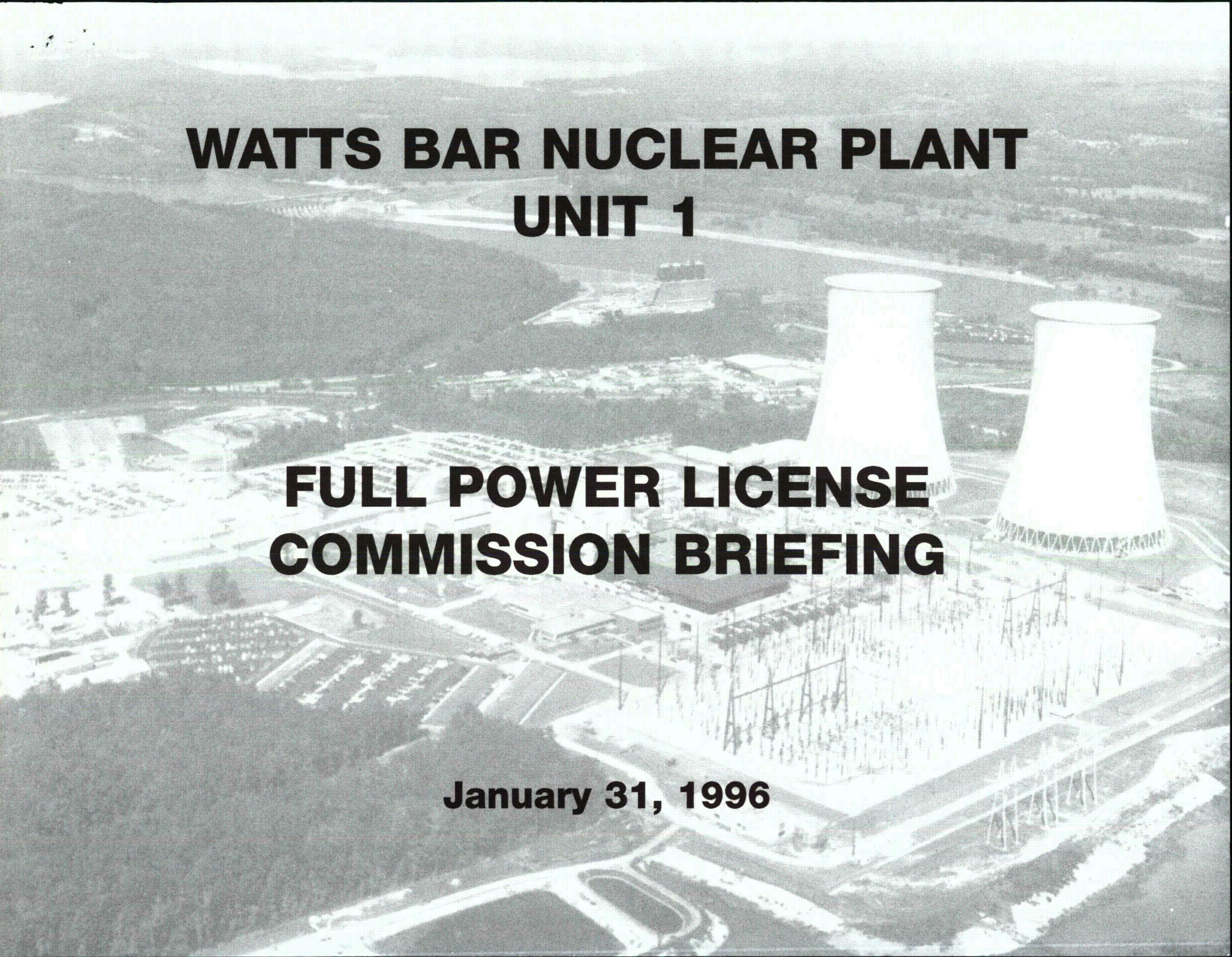
PLACE OF MEETING: Rockville, Maryland

DATE OF MEETING: Wednesday, January 31, 1996

was held as herein appears, is a true and accurate record of the meeting, and that this is the original transcript thereof taken stenographically by me, thereafter reduced to typewriting by me or under the direction of the court reporting company

Transcriber: Tessa Minson

Reporter: Tessa Minson

An aerial photograph of the Watts Bar Nuclear Plant. Two large, white, hourglass-shaped cooling towers are prominent on the right side of the image. To their left is a large, rectangular containment dome. The plant's complex of various buildings and piping is visible in the center. In the foreground, there is a large area with many vertical structures, likely part of the electrical transmission system. The plant is situated in a valley with hills in the background.

WATTS BAR NUCLEAR PLANT UNIT 1

FULL POWER LICENSE COMMISSION BRIEFING

January 31, 1996

WATTS BAR UNIT 1

FULL POWER LICENSE COMMISSION BRIEFING

January 31, 1996

WE ARE CONFIDENT IN . . .

- **ABILITY TO MANAGE TWO START-UPS**
- **STABILITY OF MANAGEMENT TEAM**
- **THOROUGHNESS OF PREPARATION**
- **CONTINUING SELF-ASSESSMENT**

AGENDA

INTRODUCTION..... OLIVER KINGSLEY

WATTS BAR SITE OVERVIEWJOHN SCALICE

ASSESSMENT OF PLANT PERFORMANCE.....RICK PURCELL

RADIATION MONITORING SYSTEM.....ROBERT BRYAN

CLOSING REMARKS IKE ZERINGUE

WATTS BAR CONSTRUCTION COMPLETED

- **CONSTRUCTION COMPLETED NOVEMBER 3, 1995**
 - **SYSTEMS AND AREAS REQUIRED FOR FUEL LOAD COMPLETED**
 - **CORRECTIVE ACTION PROGRAMS/SPECIAL PROGRAMS COMPLETED**
 - **FUEL LOAD-RELATED NRC OPEN ITEMS COMPLETED**
- **MANAGEMENT AND QUALITY REVIEWS COMPLETED**
- **CONCLUSION . . . WATTS BAR COMPLETED REQUIREMENTS FOR FUEL LOAD**
- **LOW POWER LICENSE ISSUED NOVEMBER 9, 1995**

POST-LICENSE OPERATIONS CONDUCTED IN CAUTIOUS/DELIBERATE MANNER

- **FUEL LOADING COMPLETED..... NOVEMBER 13, 1995**
- **REACTOR HEAD TENSIONED (MODE 5)..... NOVEMBER 17, 1995**
- **INCREASED TEMPERATURE ABOVE
200 DEGREES (MODE 4) DECEMBER 15, 1995**
- **INCREASED TEMPERATURE
ABOVE 350 DEGREES (MODE 3) DECEMBER 28, 1995**
- **INITIAL CRITICALITY (MODE 2)..... JANUARY 18, 1996**
- **LOW POWER TESTING COMPLETED JANUARY 22, 1996**

CONTINUING SELF-CRITICAL APPROACH

- **PROCESSES CARRIED FORWARD FROM OPERATIONAL READINESS PHASE**
- **LINE DEPARTMENT SELF-ASSESSMENTS CONTINUE**
 - **SIMILAR TO HOT FUNCTIONAL TESTING PROCESS**
 - **MANAGERS REPORT STRENGTHS AND WEAKNESSES**
 - **PERFORMANCE ACCEPTABLE, BUT IMPROVEMENT NEEDED IN SOME AREAS TO FULLY MEET MANAGEMENT EXPECTATIONS**
- **NUCLEAR ASSURANCE REVIEWS ONGOING**
 - **FORMAL AUDIT PROGRAM (e.g., FUEL LOAD AUDIT)**
 - **ASSESSMENTS (e.g., ROUND-THE-CLOCK COVERAGE OF POWER ASCENSION TESTING)**

EMPLOYEES WILLING TO BRING SAFETY CONCERNS TO MANAGEMENT

- **“ALL HANDS” MEETING CONDUCTED**
- **SUCCESSFUL TRANSITION TO AN OPERATING ORGANIZATIONAL STRUCTURE**
 - **WORK FORCE REDUCTIONS RESULTED IN OVER 1800 EXITING EMPLOYEES SINCE SEPTEMBER**
 - **EXITING EMPLOYEES INDICATE WILLINGNESS TO BRING SAFETY CONCERNS TO MANAGEMENT**
 - **THE NUMBER OF ISSUES CONTINUES TO TREND DOWNWARD**

PERSONNEL PERFORMANCE CONTINUES TO IMPROVE

- **OVERALL ASSESSMENT OF PERSONNEL PERFORMANCE**
- **STRIVING FOR EXCELLENCE**
- **FUEL LOAD AND INITIAL TESTING CONDUCTED IN CAUTIOUS AND DELIBERATE MANNER**
- **OPERATIONS DEMONSTRATING CONSERVATIVE DECISION-MAKING**
- **AREAS FOR IMPROVEMENT**
 - **OPERATOR AWARENESS**
 - **CONFIGURATION STATUS CONTROL**
- **OPERATIONS SUPPORT**

PROCESSES / PROCEDURES ARE EFFECTIVE

- **OVERALL, OUR PROCEDURES AND PROCESSES ARE EFFECTIVE**
- **POWER ASCENSION TEST PROCEDURES AND OPERATING INSTRUCTIONS SUCCESSFULLY COMPLETED**
- **SURVEILLANCE PROCEDURES AND PROGRAM EFFECTIVE**

PLANT EQUIPMENT IS PERFORMING WELL

- **TESTING TO DATE HAS SHOWN PLANT EQUIPMENT PERFORMING AS DESIGNED**
- **BACKLOGS ARE LOW**

DOCUMENT TYPE	BACKLOG GOAL	CURRENT BACKLOG
WORK ORDERS/WORK REQUESTS		
CORRECTIVE MAINTENANCE.....	200.....	184
OTHER WO/WRs.....	500.....	411
CORRECTIVE ACTION PROGRAM		
DOCUMENTS.....	N/A.....	79
SUPPORT S-DCNs.....	50.....	49
NUCLEAR EXPERIENCE REPORTS.....	40.....	40
NRC OPEN ITEMS & COMMITMENTS.....	30.....	42
TOTAL.....	<900.....	805

- **CRAFT TAKING PRIDE IN MATERIAL CONDITION**

POWER ASCENSION TEST PROGRAM IS READY TO CONTINUE

- **PRE-CRITICAL TESTS WERE COMPLETED AS REQUIRED**
- **LOW POWER TESTS HAVE BEEN SUCCESSFULLY COMPLETED**
- **TESTING PLATEAUS AND KEY TESTS:**
 - 30% INITIAL GENERATOR SYNCHRONIZATION TO GRID**
 - 50% 10% LOAD SWING, LOSS OF OFFSITE POWER**
 - 75% INCORE-EXCORE CROSS-CALIBRATION**
 - 100% 10% LOAD SWING**
50% LOAD REJECTION
100% PLANT TRIP
SHUTDOWN FROM OUTSIDE CONTROL ROOM
WARRANTY RUN
STEAM GENERATOR MOISTURE CARRYOVER
DETERMINATION

RADIATION MONITORING SYSTEM SUPPORTS POWER OPERATION

- **SYSTEM MEETS TVA DESIGN CRITERIA**
- **SYSTEM MEETS REGULATORY REQUIREMENTS AND COMMITMENTS**
- **SYSTEM IS OPERATIONAL—HAS HIGH AVAILABILITY**
- **SYSTEM IS READY TO SUPPORT POWER OPERATIONS**

CORRECTIVE ACTIONS EFFECTIVE IN RESOLVING PROBLEMS

- **IDENTIFIED PROBLEMS WITH DESIGN AND CONSTRUCTION**
- **PERFORMED A MONITOR-BY-MONITOR EVALUATION**
- **REVISED DOCUMENTATION AND MODIFIED HARDWARE AS REQUIRED**
- **REFURBISHED AND UPGRADED MUCH OF THE SYSTEM**
- **VERIFIED OPERATION DURING TEST PROGRAM**

AVAILABILITY OF THE SYSTEM'S MONITORS IS HIGH

- **OVERALL SYSTEM AVAILABILITY IS 95.4%**
- **TECH SPEC MONITORS—96.9%**
- **ODCM MONITORS—93.4%**
- **NOISE PROBLEMS ON 2 ODCM MONITORS IMPACTED AVAILABILITY**
- **SPARE PARTS HAVE NOT AFFECTED AVAILABILITY**
- **DISCUSSED AS A LINE ITEM IN DAILY MANAGEMENT MEETING**
- **TREND REPORTS UPDATED WEEKLY**

TVA HAS CONCLUDED SYSTEM IS READY TO SUPPORT POWER OPERATION

- **WATTS BAR NUCLEAR HAS CORRECTED PROBLEMS**
- **SYSTEM HAS BEEN REFURBISHED, UPGRADED, AND TESTED**
- **SYSTEM WILL PERFORM ITS FUNCTIONS**
- **SYSTEM OPERATING WELL**
- **SYSTEM SUPPORTS POWER OPERATION**

READY FOR FULL POWER OPERATION

- **TEAMWORK IN PLACE**
- **PERSONNEL, PROCEDURES, AND PROCESSES HAVE BEEN PROVEN**
- **PLANT SYSTEMS HAVE BEEN TESTED**
- **TVA IS READY FOR NRC TO ISSUE THE FULL POWER LICENSE**



WATTS BAR NUCLEAR PLANT UNIT 1 FULL-POWER OPERATING LICENSE

January 31, 1996

**William T. Russell
Stewart D. Ebnetter
Frederick J. Hebdon
Johns P. Jaudon**

NRC INSPECTION

- **Overlap Between Construction and Operations Residents**
- **Operations Staffing - N + 3**
- **All Significant Activities Covered**

POST LOW-POWER NRC INSPECTION FINDINGS

- **Fuel Load**
- **Cold Operations**
- **Hot Operations**
- **Initial Criticality**

ALLEGATION STATUS

- **Number Open**
- **Status of Associated Technical Issues**

INSPECTION CONCLUSIONS

- **Watts Bar Low Power Operations Have Been Careful, Conservative, and Cautious.**
- **Performance Is Typical of a Newly Licensed Plant.**

FIRE PROTECTION PROGRAM

- **Reviewed to Same Criteria as Other Plants Licensed to Operate after January 1, 1979**
- **Meets**
 - **General Design Criterion 3, “Fire Protection”**
 - **10 CFR Sections 50.48, “Fire protection”**
 - **Appendix A to Branch Technical Position APCSB 9.5-1**
 - **Sections III.G, III.J, III.L, and III.O of Appendix R**
- **Safety Evaluation Documented in Supplements 18 and 19 to NUREG-0847**
- **Will be Included in Fire Protection License Condition**

LICENSING BASIS RADIATION MONITORS

- **Watts Bar Licensing Basis**
 - **10 CFR 20.1302**
 - **General Design Criteria 60, 63, and 64**
- **TVA is Committed to Regulatory Guide 1.21; RG 1.45; RG 1.68, Revision 2; and RG 1.97, Revision 2**
- **TVA meets the regulatory requirements for the radiation monitoring system for Watts Bar**
- **Specific technical issues have been reviewed, and the staff continues to find the radiation monitoring system to be acceptable**

EXEMPTIONS

- **Requirement to Return Picture Badges**
- **Criticality Alarm System Provisions of 10 CFR 70.24**
- **Schedular Exemption from Appendix J Air Lock Test Requirements**
 - **Expires After the First Refueling Outage**
- **Schedular Exemption to Implement the Vehicle Bomb Rule by February 27, 1996**
- **State of Tennessee Participation in the Full Participation Emergency Preparedness Exercise on November 15, 1995**

OVERVIEW

- **Plant Material Condition**
- **TVA Staff Performance**
- **Employee Concerns**
- **Management Involvement**



POLICY ISSUE

(Notation Vote)

January 30, 1996

SECY-96-019

FOR: The Commissioners

FROM: James M. Taylor
Executive Director for Operations

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 1 - READINESS TO RECEIVE A FULL-
POWER OPERATING LICENSE

PURPOSE:

To inform the Commission of the progress and status of activities at Watts Bar Nuclear Plant, Unit 1, since issuance of the low-power operating license (OL) on November 9, 1995, and to request Commission approval to issue a full-power operating license to the unit.

BACKGROUND:

On July 12, 1995, the staff briefed the Commission on the status of Watts Bar Unit 1. On September 11, 1995, representatives of the Tennessee Valley Authority (TVA) and the staff briefed the Commission on the readiness of Unit 1 to receive a low-power OL. On November 9, 1995, the Director, Nuclear Reactor Regulation (NRR) issued an OL authorizing the TVA to load fuel and operate the unit up to 5 percent of full power (3,411 megawatts thermal). TVA began to load fuel, and on November 13, 1995, had loaded all 191 fuel assemblies in the core. On November 17, 1995, the reactor vessel head was tensioned and the plant entered the cold shutdown mode (Mode 5).

In Mode 5, TVA conducted a variety of surveillance tests, including emergency response testing of the emergency diesel generators and testing of the control rods. TVA's performance during this period was acceptable. TVA management responded quickly to occurrences, such as hardware discrepancies and personnel errors, with both immediate and effective actions to determine the full extent of the condition and to prevent their recurrence.

Contact:
Peter S. Tam, NRR
415-1451

NOTE: TO BE MADE PUBLICLY AVAILABLE
AT THE JANUARY 31, 1996
COMMISSION MEETING

On January 18, 1996, Watts Bar Unit 1 reached initial criticality, which was followed by physics testing. All tests were satisfactorily completed on January 22, 1996.

The staff held a public meeting with TVA on January 25, 1996, to discuss NRC and TVA's assessment of recent performance, licensing readiness, employee concerns, and current cases being handled by the TVA Inspector General. TVA concluded in that meeting that fuel loading and low-power testing have progressed with few problems. In addition, TVA concluded that plant systems have been tested; personnel, procedures, and processes have been proven; and TVA is ready for NRC to issue the full-power operating license for Watts Bar Unit 1.

DISCUSSION:

Emergency Preparedness

The low-power OL was issued on the basis that the Watts Bar Nuclear Plant Radiological Emergency Plan provides an adequate planning basis for an acceptable state of onsite emergency preparedness in accordance with applicable regulations and guidance. Such findings on onsite emergency preparedness were made and documented as acceptable in Supplement 13 of the Watts Bar Safety Evaluation Report (NUREG-0847, Supp. 13). Before issuance of the full-power OL, NRC needs Federal Emergency Management Agency (FEMA) findings and determinations as to whether offsite (State and local) emergency plans are adequate and whether there is reasonable assurance that they can be implemented.

On November 15, 1995, TVA conducted a successful full-participation exercise, which tested the Watts Bar (onsite) emergency plan and the State and local (offsite) emergency plans. FEMA has completed its evaluation and found offsite issues, such as State and local emergency plans, the prompt alert and notification system, and evacuation time estimates, acceptable. FEMA stated that "there is reasonable assurance that the State of Tennessee and local radiological emergency response plans site-specific to the Watts Bar Nuclear Plant can be implemented and are adequate to provide reasonable assurance that appropriate measures can be taken offsite to protect the health and safety of the public in the event of a radiological emergency at the Watts Bar Nuclear Plant" (letter, from K. C. Goss, FEMA, to D. Crutchfield, NRC, dated December 15, 1995). The staff will publish FEMA's findings in Supplement 20 of the Watts Bar Safety Evaluation Report, which is scheduled to be published concurrently with the full-power OL.

Thus, all onsite and offsite emergency preparation issues have been acceptably resolved.

Allegations

On allegations, the staff is following the procedure prescribed by Management Directive 8.8, "Management of Allegations". At the present time, there are no known allegations that have safety implications which affect the full-power

OL. There are 29 allegations open. All of the open allegations have been reviewed as "late filed" to determine whether or not they could, if substantiated, have any impact on the full power licensing decision. It was found that none of the open allegations would so affect the decision.

Radiation Monitoring System

During the construction completion and preoperational testing of Watts Bar, TVA and the staff identified significant issues with the radiation monitoring system, and the ability of the Watts Bar staff to operate the system. These problems resulted in the radiation monitoring system being the last of the major systems to be completed and turned over to the operating staff. At the staff's request (S. Ebnetter letter of January 12, 1996), TVA submitted a letter on January 22, 1996, regarding the status of the system. TVA continues to focus attention on this system now that it is operational. Although some startup problems have been identified, TVA has concluded that the system is performing with adequate reliability. In addition, TVA believes that as the current problems are identified and corrected, the reliability of the system will increase.

The staff has also expended considerable effort inspecting the design and operation of the radiation monitors, and discussed this issue with TVA during the January 25, 1996, meeting. The staff concludes that the required monitors have been properly installed and tested, the TVA staff is trained, and the necessary procedures are in place. The system meets the regulatory requirements (e.g., 10 CFR 20.1302, and General Design Criteria 60, 63, and 64), and the reliability of the system is adequate to support issuance of a full-power license. TVA and the staff, separately, are prepared to discuss the performance of the radiation monitoring system during the Commission meeting on January 31, 1996.

The staff has received a letter from a member of the public dated January 25, 1996, which requests the Commission to conduct a full and impartial review of the entire Watts Bar Nuclear Plant licensing process and to revoke the low-power operating license, or that the letter be considered as a 10 CFR 2.206 petition. The concerns relate primarily to the design, testing and reliability of the Radiation Monitoring System. No new issues were raised by this letter. The letter has been addressed as a "late-filed" allegation, and will be addressed in accordance with the agency procedures for 2.206 petitions. In addition, based on the comments, there appears to be some misunderstanding about the licensing basis of the radiation monitoring system. The staff plans to supplement the SER to clarify any misunderstanding.

Issues Regarding Control Rods

During the January 25, 1996, meeting the staff discussed the rod control system performance with TVA. Since issuance of the low-power license, TVA has experienced five problems associated with rod control or rod position indication. TVA has evaluated the problems to determine if there is a common element that might be indicative of a more generic problem. TVA has concluded that the problems were isolated instances. The staff has independently reviewed the information and concluded that there is not a trend or pattern that is indicative of a more generic concern.

Employee Concerns and Investigations

In the closed portion of the January 25, 1996, meeting the staff met with the TVA Inspector General and the TVA Employee Concerns Program (ECP) manager. Since September 1995, approximately 1800 TVA employees and contractors have left the site due to the completion of construction. Each individual was interviewed by TVA's ECP program. According to TVA's data, 0.4% of the exiting employees identified concerns. TVA has evaluated these concerns and concluded that none are safety-significant, and none required hardware modifications. In addition, as a result of responses to a questionnaire provided during the exit interview, TVA has concluded that 96% of exiting employees feel free to express concerns with their supervisors. These findings are consistent with independent audits of the ECP program and interviews of TVA employees conducted by the NRC and constitute a significant improvement compared to past experience at Watts Bar.

NRC Coverage of Power Ascension

The NRC inspection program for this phase of plant startup is specified in NRC Inspection Procedure (IP) 2514. The staff is conducting inspections at Watts Bar that significantly exceed the minimum requirements of IP 2514. Before issuance of the low-power OL, the staff conducted an Operational Readiness Assessment Team (ORAT) inspection. The inspection results (Inspection Report 50-390/95-201) were generally favorable. The staff plans to perform a second ORAT team inspection during power ascension.

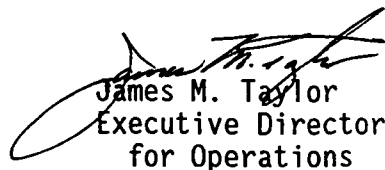
The staff has augmented the Watts Bar site staffing by the detail of two additional qualified operations resident inspectors. Thus the staffing is at the N+3 level. The staff has inspected TVA operational activities closely and has used regional inspectors and the former Construction Senior Resident Inspector as needed. Inspectors maintained around-the-clock coverage for selected tests and events (e.g., fuel load, initial criticality) and exceeded inspection program minimum requirements. There has been extensive NRC inspection presence onsite during important evolutions. The staff found TVA's performance to be careful, conservative, and cautious. The staff coverage will continue through power escalation until the plant reaches stable operation at 100% power.

LEGAL REVIEW:

This paper has been reviewed by the Office of the General Counsel and it has no legal objection to its contents.

REQUESTED COMMISSION ACTION:

At this time the staff recommends that the Commission authorize issuance of the full-power operating license to Watts Bar Unit 1. Conditions which could change this recommendation will be promptly reported to the Commission.


James M. Taylor
Executive Director
for Operations

DISTRIBUTION:
Commissioners
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SECY



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 6, 1996

MEMORANDUM FOR: Chairman Jackson
Commissioner Rogers

FROM: James M. Taylor *James M. Taylor*
Executive Director for Operations

SUBJECT: WATTS BAR FULL-POWER OPERATING LICENSE [REISSUED TO CORRECT
QUESTION 3 AND TO CLARIFY ATTACHMENT 3]

In response to Chairman Jackson's memorandum dated February 1, 1996, the staff has prepared the following responses to the specific questions. The staff also requested that TVA independently respond to the questions (except for Question 3). The staff's request (Attachment 1) and TVA's response (Attachment 2) are attached.

In addition, the staff has reviewed the transcript of the Watts Bar Commission meeting held on January 31, 1996. Attachment 3 provides the questions asked by the Commission, and the staff's response to each question. The staff has concluded that the answers provided are responsive and accurate, with one response benefiting from some clarification. Mr. Russell's comment (transcript Page 71, line 20) that the Commission requires that an applicant identify differences between their application and the Standard Review Plan (SRP) was intended as a comment about the licensing process in general. The specific requirement, contained in 10 CFR 50.34(g), requires that applications for operating licenses docketed after May 17, 1982, include an evaluation of the facility against the SRP. Thus, this requirement does not apply to Watts Bar because its operating license application was submitted on September 27, 1976. Deviations from Regulatory Guides to which TVA is committed are documented as described during the Commission meeting.

QUESTION 1: How does the reliability of the Watts Bar radiation monitors compare with the reliability experienced in the industry?

RESPONSE: Radiation monitor failures have occurred since system turnover. For monitors addressed in the Offsite Dose Calculation Manual (ODCM), the majority of out-of-service conditions resulted from maintenance activities to locate and correct excessive system electrical noise. TVA believes that they have corrected these problems. TVA and the staff expect the reliability of the radiation monitors to increase as problems are identified and resolved.

Contact: Frederick J. Hebdon, NRR
301/415-1468

The staff does not require licensees to trend the availability of radiation monitors nor is the staff aware of any industry-wide data base on the availability of radiation monitors. In addition, the staff does not trend the availability of radiation monitors.

However, in response to this question, the staff requested that the resident inspectors at four sites in Region II conduct an informal survey of radiation monitor availability. The four sites surveyed were McGuire, Crystal River, Harris, and Turkey Point. Three of the four sites use primarily Sorrento detectors, the same manufacturer as Watts Bar. Due to variation among licensees regarding the definition and tracking of unavailability, the staff found that the information gathered was not directly comparable to Watts Bar.

Nevertheless, in the judgment of the staff experienced in this area, the availability of the radiation monitors at Watts Bar has been consistent with the availability seen in the industry. TVA's response to this question is in Attachment 2.

QUESTION 2: What is the inventory of spare parts and how easy is maintaining this inventory (i.e, are the parts still available from the manufacturer)?

RESPONSE: The staff conducted inspections in October and November 1995, and during the week of January 22, 1996, that included the Watts Bar spare parts program. These inspections verified that the spare parts inventory was based originally on engineering reviews of Nuclear Plant Reliability Data System (NPRDS) and Reliability Centered Maintenance (RCM) data. The current program has established minimum and re-order part quantities based on vendor recommendations and industry experience. TVA indicated that based on actual operating experience at Watts Bar, the current spare parts inventory is expected to be modified further. From the review of equipment lists, operability data and discussions with Watts Bar staff, regarding out-of-service equipment, the inspector determined that spare parts have been available and have not affected system availability.

Numerous parts have been ordered and received from the vendor over the last year. TVA has additional parts on order.

TVA has provided more detailed information on the quantity of spare parts onsite and on order (Attachment 2).

QUESTION 3: Can the staff give assurance that the allegations in the 2.206 petition and referenced deviations do not contain any health and safety or regulatory concerns that would affect granting a full power operating license?

RESPONSE: The staff has reviewed all of the allegations that are still open on Watts Bar in accordance with NRC Management Directive 8.8, Management of Allegations; and concluded that, if true, the allegations are not material to the licensing decision and do not affect the staff's recommendation to issue the full-power license. In addition, the staff has inspected each allegation, and found no information that would affect the staff's recommendation to issue the full-power license.

The Commissioners

- 3 -

Because the 2.206 petition indicates an apparent misunderstanding about the conclusions reached in SSER 16 about the licensing basis of the radiation monitoring system, the staff plans to supplement that evaluation in SSER 20 to clarify any misunderstanding.

The staff is continuing to process the 2.206 petition. The staff has not identified any technical issues that would warrant immediate revocation or suspension of the Watts Bar Unit 1 low-power license; or would, if true, affect the staff's recommendation to issue a full-power license. The staff is preparing an initial response to the 2.206 petition.

In general, the review of requested deviations is conducted as part of the review of an overall program in a given area (e.g., fire protection). The staff considers the nature and scope of the approved deviations, both individually and collectively, as part of its assessment of the acceptability of the program. In addition, each request by TVA for a deviation or exception was reviewed by the staff and, where justified, approved. The basis for the justification for each deviation is documented in the SSERs.

Finally, the memo requested assurance that TVA has committed to accelerate the implementation of the vehicle bomb rule. Based on the information provided in Attachment 2, TVA has begun efforts to accelerate implementation of the vehicle bomb rule and expects to complete implementation by February 17, 1996.

Attachments: 1. Ltr fm NRC to TVA, 2/2/96
2. Ltr fm TVA to NRC, 2/3/96
3. Excerpts from Watts Bar Commission Meeting on 1/31/96

cc w/attachment: SECY OGC OCA OPA



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 2, 1996

Mr. Oliver D. Kingsley, Jr.
President, TVA Nuclear and
Chief Nuclear Officer
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - WATTS BAR NUCLEAR PLANT UNIT 1

Dear Mr. Kingsley:

During the Commission Meeting held on January 31, 1996, concerning the readiness of the Watts Bar Nuclear Plant Unit 1 for a full power operating license, Chairman Jackson raised questions related to the radiation monitoring system availability and spare parts inventory, and the status of implementation of the vehicle bomb rule. These questions are contained in the enclosed memorandum from Chairman Jackson to Mr. James M. Taylor, dated February 1, 1996. With regard to Question 1, you are requested to address the availability of the Watts Bar radiation monitors compared with the industry experience. Please respond to each of the questions, except for Question 3.

Sincerely,

A handwritten signature in black ink, reading "Roy P. Zimmerman".

Roy P. Zimmerman
Associate Director for Projects
Office of Nuclear Reactor Regulation

Docket No. 50-390

Enclosure: Memorandum

cc w/enclosure: See next page



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

February 1, 1996

MEMORANDUM TO: James M. Taylor

FROM: Shirley Ann Jackson *Shirley Ann Jackson*

SUBJECT: SECY-96-019, WATTS BAR NUCLEAR PLANT, UNIT 1 -
READINESS TO RECEIVE A FULL-POWER OPERATING
LICENSE

Before voting in this matter I request that the staff provide a written response to the questions that I posed in the January 31, 1996 Commission meeting. In addition I request written answers to three additional questions which follow. Please provide this information by Monday, February 5, 1996.

1. How does the reliability of the Watts Bar radiation monitors compare with the reliability experienced in the industry?
2. What is the inventory of spare parts for the radiation monitors and how easy is maintaining this inventory?
3. Can the staff give assurance that the allegations in the 2.206 petition and referenced deviations do not contain any health and safety or regulatory concerns that would affect granting a full power operating license?

Finally, I would like assurance that TVA has committed to accelerate the implementation of the vehicle bomb rule.

cc: Commissioner Rogers
SECY
OGC

Mr. Oliver D. Kingsley, Jr.
Tennessee Valley Authority

cc:

Mr. O. J. Zeringue, Sr. Vice President
Nuclear Operations
Tennessee Valley Authority
3B Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Dr. Mark O. Medford, Vice President
Engineering & Technical Services
Tennessee Valley Authority
3B Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Mr. D. E. Nunn, Vice President
New Plant Completion
Tennessee Valley Authority
3B Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Mr. J. A. Scalice, Site Vice President
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, TN 37381

General Counsel
Tennessee Valley Authority
ET 11H
400 West Summit Hill Drive
Knoxville, TN 37902

Mr. P. P. Carrier, Manager
Corporate Licensing
Tennessee Valley Authority
4G Blue Ridge
1101 Market Street
Chattanooga, TN 37402-2801

Mr. B. S. Schofield
Site Licensing Manager
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, TN 37381

TVA Representative
Tennessee Valley Authority
11921 Rockville Pike
Suite 402
Rockville, MD 20852

WATTS BAR NUCLEAR PLANT

Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW., Suite 2900
Atlanta, GA 30323

Senior Resident Inspector
Watts Bar Nuclear Plant
U.S. Nuclear Regulatory Commission
1260 Nuclear Plant Road
Spring City, TN 37381

The Honorable Robert Aikman
County Executive
Rhea County Courthouse
Dayton, TN 37321

The Honorable Garland Lanksford
County Executive
Meigs County Courthouse
Decatur, TN 37322

Mr. Michael H. Mobley, Director
Division of Radiological Health
3rd Floor, L and C Annex
401 Church Street
Nashville, TN 37243-1532

Ms. Michelle Neal
Energy Project
The Foundation for
Global Sustainability
P.O. Box 1101
Knoxville, TN 37901

Ms. Ann Harris
305 Pickel Road
Ten Mile, TN 37880

Ms. Beth Zilbert, Energy Campaigner
Greenpeace
20 13th Street, NE.
Atlanta, GA 30309

Mr. James P. Riccio
Public Citizen
4340 Georgetown Square, #612
Atlanta, GA 30338



Tennessee Valley Authority, Post Office Box 2007, Spring City, Tennessee 37381-2000

John A. Scarfo
General Vice President, Watts Bar Nuclear Plant

FEB 03, 1996

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of
Tennessee Valley Authority

)
)

Docket Nos. 50-390

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - REQUEST FOR ADDITIONAL
INFORMATION IN SUPPORT OF ISSUANCE OF FULL POWER LICENSE

By letter dated February 2, 1996, NRC requested TVA to provide answers to questions posed by Chairman Jackson in support of her review of TVA's request for a license authorizing full power operation at Watts Bar Unit 1. The questions and TVA's responses are provided below.

Question 1. How does the reliability of the Watts Bar radiation monitors compare with the reliability experienced in the industry?

Response:

Watts Bar Nuclear Plant has placed a high priority on the radiation monitoring system and tracks the availability of the permanently installed radiation monitors. This reflects our commitment to high standards of performance and the careful approach to power operation being taken at Watts Bar. As was noted in our recent

submittals, overall system availability at WBN is 95.4 percent. This consists of Technical Specification monitor availability of 96.9 percent and availability of the Offsite Dose Calculation Manual (ODCM) monitors 93.4 percent. However, two ODCM monitors were out of service for an extended period of time, contributing to this level. These problems have been corrected and, as a result, the availability of the ODCM monitors, as well as the system as a whole, is expected to increase.

To aid in preparing this response, INRO identified nine utilities that were considered to have good system performance tracking capabilities. TVA attempted to contact all nine of these utilities but was unsuccessful in reaching four. TVA performed an informal telephone survey of the remaining five utilities. As would be expected in the absence of specific numerical standards for availability of radiation monitors, there was no standard methodology for determining availability among the utilities surveyed. One utility does not formally calculate availability, but does track monitor performance by logging out-of-service time. This data, however, is not easily retrievable and no target for monitor performance has been established. Another utility tracks results of quarterly Technical Specification surveillances by recording the number of monitors that pass and fail. A third utility does track reliability, but excludes down time for planned maintenance and minor problems, making comparison with Watts Bar experience impractical.

The remaining two utilities have a formal availability tracking program that is similar to that at WBN. These utilities have an availability target of 95 percent for those monitors within the scope of the maintenance rule. They track the availability of all monitors, not just those subject to the rule. The availability information obtained from these utilities showed that the systems at these two plants perform slightly better than the 95.4 percent system value for Watts Bar. TVA has concluded that the radiation monitors at Watts Bar are performing well in comparison with the utilities surveyed and Watts Bar is tracking system performance to provide assurance that the system will continue to perform well.

Question 2. What is the inventory of spare parts for the radiation monitors and how easy is maintaining this inventory?

Response:

The current inventory at WBN consists of over 500 line items, with a value greater than \$1M. This includes spare parts from Sorrento Electronics/General Atomics, Eberline Instruments, and Kurz Instruments. A review of those spare parts considered most critical (such as spare detectors, preamplifiers, power supplies, and pumps) confirmed that adequate spare parts are available in TVA inventory. There is currently \$375K of spare parts on order from Sorrento Electronics, with delivery expected no later than March 1, 1996. The large inventory of similar spare parts at Sequoyah and Browns Ferry provides additional assurance that items will be

U.S. Nuclear Regulatory Commission
Page 3

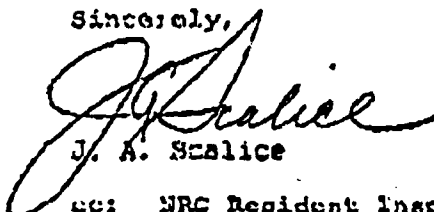
available when needed. Since turnover of the radiation monitoring system to plant operations, the unavailability of spare parts has not been an issue in maintaining and repairing system equipment.

A majority of the spare parts are provided by Sorrento Electronics, an affiliate of General Atomics established in 1979. Sorrento Electronics is a world-wide provider of radiation monitoring systems. Domestically, Sorrento Electronics has radiation monitoring systems installed in approximately 85 percent of all nuclear power plants. With this breadth of exposure in the nuclear industry, Sorrento Electronics is clearly positioned to be a long-term supplier of spare and replacement parts.

The NRC memorandum which was attached to NRC's February 2, 1996, letter, also requested "assurance that TVA has committed to accelerate the implementation of the vehicle bomb rule." TVA is committed to and has initiated acceleration of its implementation activities. Adverse weather currently being experienced at the site has impacted work. If this weather improves by early next week, as predicted, TVA expects to be able to complete physical work associated with implementation of the rule by February 9, 1996. All reviews (including appropriate verifications) and completion of related documentation will be completed by February 17, 1996. TVA's original commitment was to complete this work by February 27, 1996.

If you should have any questions, please contact me at (423) 365-8767.

Sincerely,



J. A. Scalice

cc: NRC Resident Inspector
Watts Bar Nuclear Plant
1260 Nuclear Plant Road
Spring City, Tennessee 37301

Mr. P. A. Tam, Senior Project Manager
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852

U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

EXCERPTS FROM THE TRANSCRIPT OF THE COMMISSION
MEETING DISCUSSION ON THE FULL POWER OPERATING LICENSE
FOR WATTS BAR
JANUARY 31, 1996

[CLARIFICATIONS TO THE TRANSCRIPT ARE SHOWN IN BOLDFACE BRACKETS]

1. (p 60, l 16)

CHAIRMAN JACKSON: You said 22 at Department of Labor and five, that's 27.

MR. JAUDON: And one in the final closure process, five plus one. One is back with the enforcement and investigation coordination staff and they are drafting the final letter to the allegor.

CHAIRMAN JACKSON: That's 28. Isn't there one other?

MR. JAUDON: And one in NRR. May I have Slide 5, please[?]

MR. JAUDON: In summary, Watts Barr operations since the issuance of a low power license have been conservative and acceptable. Their performance is typical, in my experience, of a newly licensed plant. We shall continue to inspect them closely. In addition to the coverage provided by the residents and normal regional support, we plan to do a team assessment during the power ascension, if a full power license is granted. Are there any questions about the inspection activity?

2. (p 61, l 12)

COMMISSIONER ROGERS: I have one question about the control rod position indicators. Are there any other reactors that use this particular system?

MR. JAUDON: It is my understanding that other reactors that have the heavy jack shafts and the boron carbide have gone to a digital rod position indication as part of the changeout. Watts Barr elected to keep the original rod position indication, and that made them unique.

COMMISSIONER ROGERS: I see.

3. (p 61, l 21)

CHAIRMAN JACKSON: Have you reviewed the maintenance backlog, and are there any items in that backlog that, in your opinion, need to be worked before the granting of the full power license?

MR. JAUDON: I am going to ask our senior resident for operations to answer that, if I can. Mr. Van D[o]orn.

MR. VAN D[O]ORN: Yes. Kim Van D[o]orn, senior resident inspector. We selectively look at those backlogs and certainly look at all the things that are carried on the POD on a regular basis, on a daily basis. More indirectly, what we do is evaluate as well their process of evaluating and see what effect they have on systems and how they prioritize them, and that is really more effective for us, I think, rather than look[ing] at [e]very backlogged item. We approach it with sampling [~~and~~] to assure ourselves that they are effectively evaluating and putting the right priority on those issues. We have attended meetings, and they take a very conservative approach.

CHAIRMAN JACKSON: How do you do your sampling?

MR. VAN D[O]ORN: Well, obviously we have system knowledge, and we can pretty much tell [~~them~~] from the types of issues that are being discussed in the plan of the day, and we also, obviously, regularly tour the plant and we look for equipment problems that we see out there. If we see anything that is an anomaly, of course, we validate that they are tracking it, and we look into specific aspects of that. So it is just from our normal knowledge of what is going on in the plant, and what we see them addressing in the morning meetings, and how management is reviewing that, and what those issues are.

4. (p 63, l 4)

CHAIRMAN JACKSON: Have you reviewed any operator workarounds, or control room deficiencies, and are there any that should or could be corrected before exceeding 5 percent power?

MR. VAN D[O]ORN: The definition of operator workaround is a difficult one. I think TVA is still working on what that exact definition is. Certainly, there are --

CHAIRMAN JACKSON: Do you have a definition?

MR. VAN D[O]ORN: My definition would be, if it drives them out of being able to comply with the procedure, if it make[s] something inoperable and they have to take something like compensatory actions to meet a tech spec[; things] such as that, other than provided for compensatory actions, like there are in rad monitors, if there is something special that has to be done and they have to put -- ~~[for instance, assisting, an operator have a valve to make sure that it would close in an event, or something like that]~~ [for instance, a work around exists where the automatic operation of a valve is in a degraded or non-conforming condition and manual operator action is required to compensate]. Those types of things I would consider operator workarounds, and we know of none.

However, there are, obviously, some control room [an]unciation things which TVA talked about. Those aren't good but, in a practical sense, there are going to be some of those, and we look at those daily. We walk the boards, and see what tape record[er]s are out of service, and so forth.

[See also questions 5 and 13]

5. (p 64, 1 3)

CHAIRMAN JACKSON: Do we have any standards relative to control room [an]unciators? This goes back to Commissioner Rogers['] question [that] he posed to TVA, or is it that we just monitor and look at what is?

MR. VAN D[O]ORN: I don't think we have prescriptive regulatory standards.

MR. RUSSELL: The requirements that are imposed are imposed on individual systems as it relates to operability of those systems, particularly those that are called out with procedures that relate to, for example, technical

specifications.

CHAIRMAN JACKSON: When you are looking at things like [an]unciators, you are looking at it relative to [w]hat?

MR. RUSSELL: Relative to regulatory requirements because there are [an]unciators in the control room that are not related directed to regulatory requirements. So, if there is an [an]unciator out, it makes it difficult for them to follow an alarm response procedure, and that alarm response procedure is required, where they, instead of using that [an]unciator, have to use the plant process computer, that would be a workaround. We have recently put out some guidance, and a workaround to the Staff is a degraded or nonconforming condition for which you are still operable, but you substitute some type of human performance for that degraded or nonconforming condition where you are not within the specific actions where there are previously approved compensatory actions.

CHAIRMAN JACKSON: And so, following on his comment, you have identified none?

MR. RUSSELL: I have not personally reviewed [operator workarounds at Watts Bar]. I am responding generically. Based upon what he described, based upon that, there would be no workarounds at this point in time.

MR. EBNETER: I should probably tell you, we discussed this at the public meeting last week, and whatever definition you use, I am quite sure you will find there are some workarounds at Watts Bar, and there are a number of workaround definitions. Every station I go to has a different definition. We are working on one internally, and I believe INPO is working on one, but I don't know of any standard definition. But I think the general definition, if I had to describe it real quick, I would say it is anything that puts an additional burden on the operators that shouldn't be there because you are [not in compliance] or in a degraded condition. But I think the simple answer is, there are probably some workarounds at TVA Watts Barr no matter how you define it. I think there

are some at every plant.

CHAIRMAN JACKSON: But you are satisfied yourself that there are none that we should particularly --

MR. EBNETER: I don't know of any. I have relied primarily on the resident staff for that. That is one of the things that I have listed here as an area that needs improvement when I get to my section. One of them was listed as, there is a need to clarify the concept of workarounds and compensatory measures in the total scope of [a] maintenance and corrective action program.

6. (p 67, l 16)

CHAIRMAN JACKSON: You have "meets," are those the regulatory requirements [slide 6 with respect to fire protection]?

MR. HEBDON: Those are the regulatory requirements.
[See also question 12]

7. (p 71, l 8)

CHAIRMAN JACKSON: -- have there been any exemptions with respect to the actual regulatory requirements?

MR. HEBDON: There have been no exemptions in the area of the radiation monitors. There have been some deviations to Reg Guide 1.97. I believe there are five deviations to Reg Guide 1.97.

CHAIRMAN JACKSON: And they have all been documented?

MR. HEBDON: They are documented in the SER. They are reviewed by the Staff, and five have been approved.

CHAIRMAN JACKSON: Do you have any questions?

MR. RUSSELL: If I could just provide one process piece of information, the Commission, by rule, requires that an applicant identify differences between their application and criteria and standards that are described in the standard review plan that is in effect for licensing of that plant. This is an aid to Staff to focus on those areas of the

application where they are taking positions that are different than generically approved positions. That does not imply that because they are different they are less safe or they are not acceptable. The generic approval is one way of meeting the regulations. Where they deviate from that, there may be a case specific reason that the licensee has. But we review that to make a determination as to whether it provides the necessary commitments to meet the regulations. Each of those deviations is typically documented in our safety evaluation in the application first and then in the safety evaluation.

CHAIRMAN JACKSON:

I want to thank you for that lesson, Mr. Russell. The point is simply that the regulatory basis is clear; what the licensee has committed to is clear; that if there are exemptions from the regulatory requirements, they have been so documented and granted; that if there are deviations, that they have been evaluated and so noted in the SERs or supplemental SERs. And you are telling me that all of that is true?

MR. RUSSELL:

That's correct.

8. (p 74, l 25)

COMMISSIONER ROGERS:

Just say a little bit about that. The slide says the State of Tennessee participation.

MR. HEBDON:

Right. There is a requirement in the regulation that TVA conduct a full participation exercise, [that] any licensee applicant conduct a full participation exercise within two years of issuance of the full power license. The last full participation exercise by TVA was in November of 1993, so the two years had essentially expired. As a result, they had to conduct another full participation exercise, and the State of Tennessee, through TVA, had requested that they not do the ingestion pathway portion of that exercise because they had done it in the earlier exercises and they had also exercised those capabilities because the Sequoyah plant is also located in Tennessee, and so they had requested that and the Staff had approved that.

COMMISSIONER ROGERS: I see. All right. Thank you.

9. (p 75, l 17)

CHAIRMAN JACKSON: Are there any emergency preparedness issues or concerns from FEMA or any other state or local agency with respect to Watts Bar?

MR. EBNETER: Not to my knowledge.

MR. HEBDON: No. We have received from FEMA the finding that they are required to make on the offsite emergency planning, the reasonable assurance finding, and that [had] been completed after the exercise in November.

CHAIRMAN JACKSON: Okay.

10. (p 76, l 4)

CHAIRMAN JACKSON: Let me ask you one last thing with respect to radiation monitoring. I know there were some preoperational tests done, and they were at an approved vendor facility; is that correct?

MR. HEBDON: There was some calibration of some of the individual detectors that were done. Some of those are done on site and some of those are done at vendor facilities using the geometries that different detectors are calibrated in different ways.

CHAIRMAN JACKSON: Do you require any power ascension testing in the sense that you have these in a vendor facility, obviously you are not in a radiation environment.

MR. JAUDON: Let me answer that. What Reg Guide 1.21 states and what TVA plans to do, as they have told us, and are writing procedures to do[,] is to take grab samples once they get a source term, and compare those to the monitor readings[. That] is a program that goes on throughout the life of the plant, really, to validate that.

MR. EBNETER: We have the inspector here, George [Kuzo], who will be monitoring this throughout, if you would like to hear from him?

CHAIRMAN JACKSON: Sure.

MR. [Kuzo]: I am George [Kuzo], senior radiation specialist from Region II. And if you will just ask your questions, I will be happy to answer them. Do you want me just to summarize my findings?

Regarding the calibrations, one of the first things that I looked at, at Watts Bar, because [~~of~~] some of the earlier problems did involve calibrations and the loss of some records mainly, I reviewed the vendor documents to make sure that the calibrations were done properly at the vendor facilities, or [~~that~~] they had done some calibrations onsite for some of the iodine monitors.

Another area that was of importance to review [~~is~~] specifically for some of the sample lines [,] was the construction and the installation of the equipment. On all those, initially, approximately one year ago, we had some findings. You referenced some of the violations that [~~were~~] in that inspection report. Management paid a lot of increased attention to that overall system, System 90. They have an independent review that was done, led by TVA but many outside contractors from Bechtel, Stone and Webster, went through, reevaluated all the monitors, walked down the lines, reviewed the calculations, reviewed all the procedures that go with the calculations, and I subsequently came in and reviewed that review to verify that they did cover all the monitors. That appeared to be a very thorough, very professional job.

Then I was present for much of the preoperational testing. Your question regarding the preoperational testing[:] the monitors have been set up right now as they will work during operations. There will be some changes to the setpoints because of changing background levels for some of the monitors during power ascension, possibly, and further [~~into~~] after they receive an operating license. There will be some changes to some of the monitors, but many of them already have fixed setpoints. So that has been established, and we will be monitoring that, modifying the systems, where

applicable, during the power ascension, I am sure.

I have verified the training for personnel that deal with the system. [This] involved a complex group of people from operations to chemistry to the health physics personnel. They have all been well-trained. Where they have found problems, they have addressed it. They have addressed all those through increased coordination. There were some problems originally on some of the set up of the monitors for some of the filter paper[;] that problem was due to some misunderstanding between groups of who was responsible. That has been addressed properly now. Management has increased the attention to, I think, the daily review of the system through the plan of the day[. D]iscussions have proven very fruitful [in] addressing a lot of the problems that we saw actually one year ago.

CHAIRMAN JACKSON: Okay.

11. (p 79, 1 11)

CHAIRMAN JACKSON: Before you go on, let me ask one other inspection question. We have inspected [Thermo-Lag] and seal penetrations, were there any --

MR. JAUDON: Yes, we have, extensively. I don't have Mr. Miller here who was the inspector in that area, and I don't think Mr. Madden is here either who was the NRR representative who assisted him, but we looked at their configurations, we looked at what they installed. Mr. Madden, I think, went down and witnessed the testing, some of the testing in the laboratory when they were qualifying the configurations of [Thermo-Lag].

MR. EBNETER: I can tell you personally I know that I sent the Staff my own note on the [Thermo-Lag] installations, on the materials and the qualifications of that material. When I toured the plant, I talked with the installers, and they commented to me that the NRC inspector is around regularly to see them on the installation. The NRR Staff actually

did the qualification of the configuration, and Mr. Madden did those inspections.

CHAIRMAN JACKSON: Okay.

MR. RUSSELL: The testing that was witnessed involved both [Thermo-Lag] testing and the fire penetration seal testing that was done recently, and that is documented in the Staff's safety evaluation report.

CHAIRMAN JACKSON: I think there is someone who wants to speak.

MR. WEST: I am Steven West, the chief of the fire protection section in NRR. Mr. Madden is in my section and I can just add a little bit more. They did a total of 14 fire protection inspections at Watts Bar, and with respect to the [Thermo-Lag] installations and the penetration seals, they did detailed inspections[,] beginning [with a] kind of cradle to grave review of the test plans before tests were conducted at the test laboratories, witnessed the qualification tests[,] and made several inspections to witness installations and followup inspections.

12. (p 80, l 23)

CHAIRMAN JACKSON: Since I have you here, and Mr. Hebdon, will you just reiterate for the Commission the regulatory basis for the Watts Barr fire protection program?

MR. HEBDON: I believe that was on Slide 5, if we could have that back, please.

MR. HEBDON: Would you like to discuss some of those? I am sorry, that was Slide 6.

MR. WEST: Yes. Just quickly, if you look at the bullet that says "Meets," and then there are four sub-bullets under that, the actual regulatory requirements would be General Design Criterion 3, and 10 CFR Sections 50.48, and it would be Paragraphs [(a) and (e)]. And then the two following dashed bullets, the Appendix A to the Branch Technical Position and the sections that are listed [in]

Appendix R would be the licensee commitments they made to meet the regulatory requirement.

CHAIRMAN JACKSON: Okay. Thank you.

13. (p 85, l 25)

CHAIRMAN JACKSON: I just have one comment, and then I will let Commissioner Rogers ask his questions. You know, you talk about taking grab samples in lieu of the working radiation monitor. In general, that is an operational methodology and this is probably more to TVA than it is to you. It doesn't seem like a good thing.

MR. EBNETER: And I would agree with you, and particularly if you don't watch it. You may be able to live with one grab sample, but you certainly don't want to have two or three stations that you need to take grab samples, particularly during an emergency, the staff won't be able to respond.

CHAIRMAN JACKSON: Right. So I would not like to see us in a position where, because there is some wiggle room, that there is some cumulative effect of having a number of radiation monitors not working. You were about to say something, Mr. Taylor?

MR. TAYLOR: No. I agree with all that has been said. When it comes to operator workarounds, you almost have to look at the whole plant where the[y] operations are going on and where we have seen problems is where there is an accumulation where equipment is operable but in some type of condition which requires specific operator actions to keep the equipment running.

A lot of the equipment has automatic features. That is the best way to run the plant, to be basically [in] automatic. In many cases, due to problems, you will see people lose the automatic feature, but still [be] able to operate the plant manually. This is particularly true in balance of [plant], heaters, [and] heater drains.

The reason we have talked a lot about operator workarounds is because we have seen

stations where events are complicated because when the plant trips and there are transients, there are just too many places where the operators have been forced to be, say, on manual [,] which do cause problems. So I think it is one of those terms that is getting more and more used, and I think the industry is become more and more conscious -- I am not speaking specifically to TVA, but across the board -- at what it means to operators when equipment isn't in automatic as it should be, and then the responsibilities of operators, particularly in transients, accumulate and sometimes they are not fast enough to keep up with everything. Do you agree with that?

MR. RUSSELL:

Yes. In fact, let me illustrate with one example that is probably fairly significant.

The steam tunnel area of a boiling water reactor has a ventilation system to keep the temperature down, and temperature monitors in that room are one of the systems that are used to initiate protection for a potential steamline break. Some facilities on loss of that ventilation have as short a time as 15 minutes for operators to take action to verify that there is not a steamline break and to bypass that automatic system or you can get the mainstream isolation valves automatically closing as a result of a ventilation problem. It is particularly acute in the summertime when temperatures are higher and you need ventilation.

Those types of things, which are, in some cases, related to balance of plant equipment or nonsafety equipment, when the failure of that equipment impacts other equipment where rapid operator action has to be taken, those kinds of things are the kinds of things we are looking [~~for~~] to identify and correct.

MR. EBNETER:

Your concern is justified, I think, if you look back at plants that we have had trouble with [in] the past from our meeting this morning. The ones who get on the plant list typically have a large number of so-called "workarounds."

CHAIRMAN JACKSON: Right, and if there is an incident and you were worried about the radiation increasing in an area, one wouldn't have to be sending somebody to that area to grab a sample, right?

MR. EBNETER: Certainly.

14. (p 88, l 24)

COMMISSIONER ROGERS: I think both presentations have been quite complete. I think we have had a good opportunity to ask questions, but I would like to just raise the question with you once again, and that is, how confident are you that the resolution of the allegations received to date has gotten to the point [w]here you can rule out safety issues as delaying a full power license?

MR. EBNETER: I am pretty confident of it, but I will let Mr. Jaudon elaborate some on it since he monitors the plant close[ly].

MR. JAUDON: I have looked at these, I have had inspectors go out and look at them. I look at them in two levels. First is, without looking at the issue or any specifics, if the issue is true, what kind of a problem does that cause. And then, second, after we have inspectors look at them and what do we find, and do we think it is correct or is it fully substantiated, partially substantiated or not substantiated. So we look at them in two different ways. I am confident that even if they were all full[y] substantiated, there wouldn't be a safety issue, and most of them are not substantiated or not fully substantiated, only at best partially.

COMMISSIONER ROGERS: And one can say that about all 29 allegations?

MR. RUSSELL: The point that I have been emphasizing in the various meetings is to make sure that we follow the agency procedures for handling any late filed allegations. That is not to say that while the Commission is deliberating on what action the Commission should take that we won't receive additional allegations. If

we do, we will promptly inform the Commission while this is pending with the Commission and we will follow the agency procedures.

We do have one issue that is currently pending before the Commission that the Commission could decide to pass back to the Staff to handle in accordance with 10 CFR 2.206 relating to information that is currently before the Commission. We are working with the [G]eneral [C]ounsel's office and, as you have heard, we have inspections that are underway that are addressing some of these issues.

I have not yet seen, for the one that is in NRR, the package, should we handle this as a 2.206, which would address the notification that would be published in the Federal Register, along with the determination as to why immediate action is not taken. Well, that is essentially the same as completing the late filed allegation process. That is, if true, would there be an impact, et cetera. That aspect needs to be completed.

As you have heard, the inspection is nearing completion, work is going on within the Staff, but that is not yet completed. So, were the Commission to vote to authorize the Staff to proceed with licensing, I would want to at least make sure that aspect is completed before authorizing a license, that is, at least the notification as it relates to the petition.

This is not a requirement. This is more as it relates to the late filed allegation process to look at those, to make judgments as to whether there is anything which would be significant or be a bar to licensing. That is because the petition requests action be taken against the low power license which would, in fact, be superseded if a full power license were to be issued.