UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
*****
DISCUSSION OF FULL POWER OPERATING
LICENSE FOR WATTS BARR
*****
PUBLIC MEETING
*****

U.S. Nuclear Regulatory Commission
One White Flint North
Rockville, Maryland

Wednesday, January 31, 1996

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

COMMISSIONERS PRESENT:
SHIRLEY A. JACKSON, Chairman of the Commission
KENNETH C. ROGERS, Member of the Commission

STAFF SEATED AT THE COMMISSION TABLE:
KAREN D. CYR, General Counsel
JOHN C. HOYLE, Secretary

PARTICIPANTS ON BEHALF OF WATTS BARR UNIT 1:
OLIVER KINGSLEY, JR., President, TVA Nuclear
O.J. ZERINGUE, Senior Vice President, Nuclear Operations
JOHN SCALICE, Site Vice President, Watts Bar
RICHARD PURCELL, Plant Manager, Watts Bar
MARK MEDFORD, Vice President, Engineering & Technical Services
ROBERT BRYAN, Manager, Nuclear Engineering

NRC STAFF:
JAMES TAYLOR, EDO
WILLIAM T. RUSSELL, Director, NRR
STEWART D. EBNETER, Region II, Administrator
JOHNS P. JAUDON, Deputy Director, Division of Reactor Safety, Region II
FREDERICK J. HEBDON, Director, Project Directorate, II-3, NRR

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

and safety for the operation up to full power. This briefing should cover the licensee's self-assessment of fuel load and low power operations, the status of the remaining actions to be completed prior to Commission consideration of

the full power operating license, and the results of the NRC public meeting, in terms of any issues to be followed up from the meeting January 25th of this year.

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

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

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

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

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

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

COMMISSIONER ROGERS: Nothing more to add, thank you.

CHAIRMAN JACKSON: You may begin, Mr. Kingsley.

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

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

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

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

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

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

May I have the first slide, please.

[Slide.]

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

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

We are here today to discuss taking that next

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

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

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

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

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

[Slide.]

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

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

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

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

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

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

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first slide is self-explanatory.

[Slide.]

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

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

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

[Slide.]

MR. SCALICE: Fuel loading commenced on November

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

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

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

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

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

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

May I have the next slide please?

[Slide.]

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

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

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

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

CHAIRMAN JACKSON: Where did you decide improvements were needed?

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

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

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

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

Next slide, please.

[Slide.]

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

Since that time, as construction has completed, over 1,800 employees exited the site. During that time concern resolution staff met with the employees in an exit process. As part of that exit, we conducted a survey and asked them if they would feel free to express any of the

concerns that they may have to their supervisors. We had very good response and the exiting employees indicated a willingness to talk to their supervisors about any of their concerns.

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

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

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

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

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

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

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MR. PURCELL: Thank you John.

[Slide.]

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

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

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

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

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

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

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

MR. PURCELL: Yes.

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

MR. PURCELL: Overall through the testing of our control rod drive system and our analog rod position

indication system, we identified five instances that
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required investigation. Three of them involved personnel error and two of them involved problems with the equipment. Let me just quickly run through them.

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

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

Subsequently, in testing we did identify that we had a slipped rod during our bank swapping testing. We identified this immediately during the bank movement when we had a slipped rod. We received the rod deviation alarm and the operators identified the rod through the analog rod position indication system. We stopped the testing and we
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confirmed that, in fact, the rod had slipped 14 steps. We went through our procedure that we use for realigning a misaligned rod. This is not necessarily a common occurrence, but it does happen with this system. We realigned the rod, we went back and installed test equipment and monitored the performance of this bank and this rod specifically through the remaining rod swaps and identified no other occurrences on this rod or any other rod.

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

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

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

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

Another example --

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

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

Okay, we identified two examples where surveillance logs didn't identify out-of-spec readings. While the technical evaluation determined that there was no safety concern, this performance is unacceptable. Our
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extent of condition review of this incident involved reviewing surveillance logs back to the beginning of the fuel loading operations, which involved approximately 4,400

readings that we reviewed. We found no other occurrences of this performance.

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

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

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

Going beyond operations, in the area of operation

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

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

The next slide, please.

[Slide.]

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

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

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

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

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

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

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

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

In the last six to nine months, we have performed our 18-month surveillances, we have performed several cycles

of our quarterly surveillances and we have performed our conditional surveillances up to Mode 2. We are satisfied with the performance. They are showing good results. We believe our procedures to be of good quality and we recognize that as we continue to use the procedures we will continue to have opportunities to improve them and we will be looking to do that.

Next slide, please.

[Slide.]

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

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

To ensure --

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

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

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

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

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

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

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

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

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

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

CHAIRMAN JACKSON: It is not 30 yet?

MR. SCALICE: It is not 30 yet.

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

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

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

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

We had originally established a quantity for the

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

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

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

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

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

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

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

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

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

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

CHAIRMAN JACKSON: Please do.

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

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

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

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

COMMISSIONER ROGERS: Why was your enunciator goal

four instead of zero?

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

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

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

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

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

MR. SCALICE: Yes.

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

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

COMMISSIONER ROGERS: Okay, thank you.

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

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

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

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

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

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

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

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

in this area.
The next slide, please.
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[Slide.]
MR. PURCELL: The precritical testing and the low power testing has been successfully completed. We have successfully verified the core design. The test results have been evaluated and they meet the acceptance criteria. The test packages have been approved and have been processed to our records.
Since completing the low power testing on January 22, we have used the time to turn our focus to the balance of plant systems, our turbine generator support systems, our heater drain systems, to prepare the balance of plant secondary equipment for the power ascension and putting the generator online.
The slide shows the remaining major test plateaus and some of the key testing upcoming, some of the testing we will be doing in the remainder of the test program.
In summary, I would like to close by saying that we have demonstrated that our people can operate the plant safely and conservatively, that our procedures are of good quality, the plant equipment is performing well and the plant is in good material condition. Our backlogs are low and we are ready to continue with the power ascension testing program.
CHAIRMAN JACKSON: Okay.
MR. PURCELL: Okay.
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I'll turn it over to Bob Bryan.
MR. BRYAN: Thank you, Rick.
Chairman Jackson, Commissioner Rogers, I would like to make four main points about the radiation monitoring system at Watts Bar.
The system conforms to the requirements and criteria that TVA established. The system meets the applicable regulatory requirements and the commitments that we made to the Commission. The system is operational and, since receipt of our low power license, has exhibited a high availability. The system is ready to support power operation and it will perform its required functions.
May I have the next slide, please
[Slide.]
MR. BRYAN: The majority of the system was installed in 1979. Subsequently, we both identified and corrected design and construction problems. Specifically, we had problems and inconsistencies in our design documentation and we had damage to monitors and missing parts, due to the long construction period.
In correcting these, we performed a monitor-by-monitor evaluation of the system, not just our technical specification monitors but every monitor in the plant. We revised our documentation and modified our hardware as required.
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Over the last two years we have refurbished and upgraded much of the system. In doing this, we replaced detectors in electronics, we replaced the main control room meters and we added digital flow control systems to our building of fluent gas paths. We have subsequently verified the operation of the system through our preoperational and start up test program.
May I have the next slide.
[Slide.]
MR. BRYAN: Since receipt of the low power license, the overall system availability has been greater than 95 percent. This does not mean that we have periods of time when the system is unavailable. This availability is based on an average of the availability of each individual monitor. For our tech spec monitors, the availability is almost 97 percent. For our ODCM monitors, we are running somewhat lower, principally because of circuit noise on two monitors that we identified after we had both the radiation monitoring system and balance of plant systems in operation together for the first time. We have corrected these problems and we now expect that the performance of our ODCM monitors will match the performance of the system at large.
We have spare parts available for the system. We have adjusted our inventories to stock more of the parts that are in highest demand. We made these decisions based
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on both our start up experience and also industry experience. To date we have not had any availability loss

due to a lack of parts.

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

May I have the next slide.

[Slide.]

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

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

MR. BRYAN: That's correct.

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

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

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

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

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

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

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

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

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

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

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

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

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

MR. BRYAN: No.

CHAIRMAN JACKSON: None?

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

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

CHAIRMAN JACKSON: Mr. Rogers?

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

MR. BRYAN: Thank you.

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

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

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

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

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

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

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

CHAIRMAN JACKSON: Portable hand-held lanterns?

MR. ELLIOT: Batteried large flashlights.

CHAIRMAN JACKSON: Not candles?

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

Under the provisions of 3(a), their requirements

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

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

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

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

For the area of thermalag, our thermalag program has been subjected also to rigorous test standards, which TVA has conducted. We have conducted that test, the test for fire test, at Omega Point Laboratories. We have

conducted ampassity test at both Omega Point Laboratories and at our TVA laboratories. We have done seismic tests for the thermalag material. We have also done material testing to make sure that from lot to lot the material is the same. We have conducted that test on every lot that has gone into the plant. We have made sure, in comparing the criteria, that what we are putting in the plant is bounded by what was tested.

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

MR. ZERINGUE: Chairman Jackson?

May I have the last slide please?

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[Slide.]

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

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

MR. ZERINGUE: Our oversight organizations.

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

I think part of that has to with the fact that

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

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

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

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

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showed excellent agreement between predicted results and measured results.

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

CHAIRMAN JACKSON: Are you going to mention some?

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

Overall, however, we have been --

CHAIRMAN JACKSON: I want you to mention some.

MR. ZERINGUE: Okay. One of the areas I think is significantly improving is the interdepartmental coordination, the coordination in our scheduling efforts. Part of the reason for the significant improvement we saw between the mode transition was improvement in that coordination. Really, what I am saying by that is, looking

ahead, that is an area we continue to watch and will have to keep watching, particularly throughout the remainder of the power ascension program. That is an area I am watching closely, planning ahead and thinking ahead.

CHAIRMAN JACKSON: Okay.

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

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

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

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

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

MR. ZERINGUE: Yes.

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

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

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

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

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

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

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

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

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

MR. ZERINGUE: I think that I would like at this

time to bring this to our operations manager, Mr. Mende, and let him discuss this issue.

MR. MENDE: We have discussed the operator

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

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

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

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

COMMISSIONER ROGERS: Very important area.

MR. ZERINGUE: Yes, sir.

CHAIRMAN JACKSON: Okay.

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

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

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

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

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

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

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

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

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

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on the oil system. Apparently, that got left in the

strainer. Now, that was still a problem at that time from foreign material exclusion, but our program is fully in effect now and all of the maintenance utilizes foreign material exclusion programs. It is looked on, it is an ingredient, a checksheet from both the maintenance organization and from the quality organization during the witnessing of the maintenance in the plant.

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

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

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

CHAIRMAN JACKSON: That's for operating the site?

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

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

CHAIRMAN JACKSON: And that can't be accelerated?

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

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

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

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

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

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

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

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

CHAIRMAN JACKSON: Okay. Thank you.

Commissioner Rogers?

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

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

CHAIRMAN JACKSON: I think he wants you to --

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

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

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

MR. SCALICE: As Mr. Zeringue indicated, it is

approximately two-and-a-half months from the start.
COMMISSIONER ROGERS: Thank you.
CHAIRMAN JACKSON: Do you have any questions?
COMMISSIONER ROGERS: No, I don't have any other questions.
CHAIRMAN JACKSON: Thank you, Mr. Kingsley.
MR. KINGSLEY: Thank you very much.
CHAIRMAN JACKSON: We will hear from the NRC Staff.
MR. TAYLOR: Good afternoon. With me at the table are Bill Russell, Stew Ebneter, Johns Jaudon and Fred Hebdon. Also here are senior residents from Watts Barr and other specialists who may be called upon as appropriate.
The Staff will brief the Commission on TVA's performance and its issuance of the low power license, and their readiness to operate the plant up to full power.
Johns Jaudon will start the presentation by discussing the Staff's inspection effort. John has been an SES dedicated to this site for an extensive period of time.

He will be followed by Fred Hebdon who will discuss the licensing activities associated with Watts Bar. Finally, Stew Ebneter and Bill Russell will provide their perspectives on TVA's overall performance at Watts Barr and the readiness for full power.
John.
MR. JAUDON: Chairman Jackson, Commissioner Rogers, good afternoon.
May I have Slide 2, please.
[Slide.]
MR. JAUDON: Since the low power license was issued, we have monitored Watts Bar's operational performance closely. The operations senior resident has been onsite since August of 1993, thus the overlap between the construction and operations inspection programs has been assured.
The nominal operations staffing for a single unit site is a senior resident inspector assisted by a resident, or N plus 1 manning. This has been supplemented at Watts Barr with two additional operations inspectors on special assignment. The site manning has been at the N plus 3 level at Watts Barr through the licensed activities to date.
This has allowed around the clock inspection of all significant licensee activities. We project this enhanced manning through power ascension testing if a full

power operating license is granted.
The construction senior resident inspector remained onsite through 1995 assisting as needed. He has been especially helpful in looking at allegations related to construction issues because of his detailed knowledge of a site.
May I have Slide 3, please.
[Slide.]
MR. JAUDON: The observed conduct of operations can be characterized as careful and cautious. This deliberation is obviously being fostered by TVA management. There were no regulatory problems with fuel load, and it proceeded well. Maintenance made an error in connecting plug-in connectors during the final control rod drive mechanism installation. This was detected during preliminary rod testing and quickly rectified.
The operations staff exhibited some initial growing pains. For example, two daily surveillances were missed soon after fuel load. These errors were also detected quickly and the corrective action effected.
Control room demeanor and communications have been acceptable and are improving. TVA management has been responsive to feedback from their own self-assessments and also from observations from the NRC. The affect of earlier errors mentioned above was not significant in a technical

sense. As a result, we found operations performance to be acceptable and to have an improving trend.
Systems and components have performed well to date. There was a problem with the valve strainer on the suction side of the oil lift pump which was discussed in some detail. The troubleshooting and repair caused about a one-week schedule slip for TVA.
Some procedural problems were identified as surveillance procedures were used for the first time. These were identified and procedure changes were made as appropriate. There was no safety impact from these

procedure problems, and the problems may have served to assure that the operators remained very attentive as they performed evolutions under procedures for the first time.

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

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

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

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

Can I have Slide 4, please.

[Slide.]

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

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

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

May I have Slide 5, please.

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 alleger.

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

MR. JAUDON: And one in NRR.

May I have Slide 5, please?

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[Slide.]

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?

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.

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 Dorn.

MR. VAN DORN: Yes. Kim Van Dorn, 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 at 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 DORN: 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.

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 DORN: 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 DORN: My definition would be, if it drives them out of being able to comply with the procedure, if it make something inoperable and they have to take something like compensatory actions to meet a tech spec, 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. Those types of things I would consider operator workarounds, and we know of none.

However, there are, obviously, some control room enunciation 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 records are out of service, and so forth.

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

MR. VAN DORN: 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 enunciators, you are looking at it relative to that?

MR. RUSSELL: Relative to regulatory requirements because there are enunciators in the control room that are not related directed to regulatory requirements. So, if there is an enunciator 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 enunciator, 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

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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. 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 noncomplying or in a degraded condition.

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

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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 maintenance and corrective action program.

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

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

CHAIRMAN JACKSON: Yes, you will.

[Laughter.]

CHAIRMAN JACKSON: Thank you.

MR. JAUDON: Are there any more questions?

[No response.]

MR. JAUDON: Apparently there are no more.

Fred Hebdon will brief the status of licensing issues.

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

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would like to discuss.

Slide 6, please.

[Slide.]

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

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

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

MR. HEBDON: Those are the regulatory requirements.

CHAIRMAN JACKSON: Do you have any questions?

COMMISSIONER ROGERS: No.

MR. HEBDON: Slide 7, please.

[Slide.]

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

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

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

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

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

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

alternative approach to determine if it meets the regulations.

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

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

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

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

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

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

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

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

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

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

MR. HEBDON: Certainly, Slide 7.

CHAIRMAN JACKSON: For the two bullets, where you

have the Watts Barr licensing basis and then what TVA has committed to --

MR. HEBDON: That's correct.

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.

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

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

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

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

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

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

CHAIRMAN JACKSON: Okay.

Do you have any questions, Commissioner Rogers?

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

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

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

[Slide.]

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

There is an exemption to the requirement for a

criticality alarm system provisions in 70.24. That was originally granted in a special nuclear material license that TVA had prior to issuance of the low power license. It is a Part 70 license that they had initially.

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

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

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

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, 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.

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 has been completed after the exercise in November.

CHAIRMAN JACKSON: Okay.

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

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, and 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 Kudat, who will be monitoring this throughout, if you would like to hear from him?

CHAIRMAN JACKSON: Sure.

MR. KUDAT: I am George Kudat, 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 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 was 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

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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. That 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.

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

CHAIRMAN JACKSON: Okay.

MR. EBNETER: Slide 9, please.

[Slide.]

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

CHAIRMAN JACKSON: Before you go on, let me ask one other inspection question. We have inspected thermalag 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 thermalag.

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

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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 thermalag 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 thermalag installations and the penetration seals, they did detailed inspections beginning 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.

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?

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

[Slide.]

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

CHAIRMAN JACKSON: Okay. Thank you.

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

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

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

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

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

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

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

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

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

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

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

and that is a significant change.

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

Our focus has been on operations and the

inspections. We have provided around the clock shift coverage on the major evolutions, and we have done extensive
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back-shift inspections. This enabled us to see a full spectrum of the TVA activity on different shifts, and these results have been very positive. We continue and will continue in the future to have these open meetings that we have at TVA Watts Bar, and with both the public and the media invited, and we think they are important to keep the public and the media informed.

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

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

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

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

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

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

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

MR. EBNETER: Yes, ma'am.

CHAIRMAN JACKSON: I just have one comment, and
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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 they 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 an
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automatic. In many cases, due to problems, you will see people lose the automatic feature, but still able to operate

the plant manually. This is particularly true in balance of clamps, heaters, 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 mainsteam 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 over 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.

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 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.

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 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 general counsel'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 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.

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

MR. EBNETER: No, sir.

COMMISSIONER ROGERS: No, I have no additional questions.

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

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

Unless you have any further comments, Commissioner Rogers?

COMMISSIONER ROGERS: No.

CHAIRMAN JACKSON: We are adjourned.

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