

UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

Title: BRIEFING ON THE STATUS OF SEQUOYAH-1

Location: ONE WHITE FLINT NORTH, ROCKVILLE, MARYLAND

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1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION

3 ***

4 BRIEFING ON THE STATUS OF SEQUOYAH-1

5 ***

6 PUBLIC MEETING

7 ***

8 Nuclear Regulatory Commission
9 One White Flint North
10 Rockville, Maryland

11
12 THURSDAY, AUGUST 4, 1988

13
14 The Commission met in open session, pursuant to
15 notice, at 2:00 p. m., the Honorable LANDO W. ZECH, Chairman of
16 the Commission, presiding.

17 COMMISSIONERS PRESENT:

18 LANDO W. ZECH, Chairman of the Commission
19 THOMAS M. ROBERTS, Member of the Commission
20 KENNETH CARR, Member of the Commission
21 KENNETH ROGERS, Member of the Commission
22
23
24
25

1 STAFF AND PRESENTERS SEATED AT THE COMMISSION TABLE:

2 S. CHILK

3 S. WHITE

4 S. SMITH

5 J. PARTLOW

6 K. JENISON

7 W. PARLER

8 J. BYNUM

9 V. STELLO

10 G. TAYLOR

11 S. RICHARDSON

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1 CHAIRMAN ZECH: Good afternoon, ladies and gentlemen.
2 This afternoon the Tennessee Valley Authority and the NRC's
3 Office of Special Projects will brief the Commission concerning
4 the current status of Sequoyah Unit 1 which I understand is
5 approaching readiness for restart and power operation.

6 On March 22 of this year, the Commission authorized
7 TVA to restart Sequoyah Unit 2. On June 21st, we were briefed
8 by the TVA concerning its planned reorganization which I
9 understand became effective on July 1st. At that meeting, we
10 were also briefed by the TVA authorities concerning the initial
11 operating performance at Sequoyah Unit 2 since restart and also
12 on the status of Sequoyah 1.

13 Mr. White, I'd like to welcome you and your other
14 colleagues here today. I understand that copies of the slides
15 to be used during the presentation are available as you enter
16 the room. Do any of my fellow Commissioners have any opening
17 comments? If not, Mr. White, you may proceed.

18 MR. WHITE: Thank you. Chairman Zech and
19 Commissioners, we're pleased to be here today to report to you
20 the progress we've made on Unit 1. First slide.

21 [Slide.]

22 These are the items that we'll be covering today.
23 Next slide.

24 [Slide.]

25 The purpose of course is to give you and we will be

1 discussing our assessment of the readiness of Sequoyah Unit 1
2 for restart. Before we do that I'd like to kind of briefly set
3 the stage by refreshing your memory on some key points from the
4 past. Slide?

5 [Slide.]

6 We all know that in 1985 all of the TVA plants were
7 shut down. It's well known now that the cause of that -- the
8 basic causes were lack of leadership, fragmented organization.
9 It resulted in symptoms which ranged from everything from low
10 standards of performance to thousands of employee concerns.

11 I first briefed you in March of 1986 on the problems
12 and you recall that I indicated to you at that time the
13 problems were extensive. We had an enormous amount on our
14 plate. The problems were of enormous magnitude. We addressed
15 at that time our get-well plans. If you recall, we documented
16 in a corporate nuclear performance plan and in site-specific
17 nuclear performance plans in detail the things that we knew we
18 had to do to fix TVA and to get each of the plants on line.

19 Those plans were provided to you in March of 1986 but
20 they still remain the blue print and the road map that we
21 follow today in our recovery efforts. In March of 1987 then we
22 briefed you on the progress on a number of wide-ranging
23 programs from technical programs to fitness for duty programs
24 to employee concern programs.

25 In March of 1988 we had made sufficient progress on

1 all of our programs to seek permission to start up our first
2 plant which you granted. You will recall that on the start-up
3 of Unit 2, we had a very smooth start up of Unit 2, later
4 followed by five trips.

5 During the June meeting that you mentioned, Mr.
6 Chairman, I did brief you on the additional actions that we
7 were taking to improve our operations. We restarted Unit 2 on
8 19 June and I'm pleased to report to you that the plant is
9 running well. Next slide?

10 [Slide.]

11 We're here today to talk to you about Sequoyah Unit
12 1. These are the major points that you're going to hear today.
13 These are the major topics. You're going to hear our self-
14 evaluation including information from several independent
15 reviews.

16 With regard to lessons learned, I gave you a small
17 overview in June and you recall one of the things that we did
18 was to take top-level managers and for three hours a day for
19 three weeks put them in a room with the War Room logs, where
20 they learned and wrote down the good decisions, bad decisions
21 that we made, the good things that have happened and the bad
22 things that have happened during the approach to power and the
23 power operations Unit 2.

24 At that time, I also told you of our steam generator
25 work. In fact, I believe I mentioned the probe, the new

1 enhanced probe that we were using and I also briefed you on the
2 work control center and showed you some schematics and
3 described how we were using those with our operators in pre-
4 shift turnover and Chairman Zech, you had a suggestion when we
5 showed you those and we took that to heart and we've done, I
6 think, I think you'll be pleased with the direction that we're
7 going with that.

8 You'll hear some more today, specifics about lessons
9 learned. With regard to material condition, you'll hear how
10 we're doing with work requests, how we're doing with
11 modifications to Unit 1 and we'll give you additional
12 information on our upgrade of the balance of plant program
13 which I also briefed you about in June.

14 In addition to the operation staffing, we'll also
15 describe to you how we're controlling work. Finally, we'll
16 give you a brief on the schedule itself. I think it's
17 important first though to get the basics. Next slide?

18 [Slide.]

19 The common thread -- and let me just talk about
20 people because I think people are very important to our effort.
21 They're key to our effort. The common thread that weaves
22 through everything we do is the philosophy that I am trying to
23 instill into our nuclear program. Some of the major points of
24 that philosophy are shown on this slide.

25 [Slide.]

1 It takes a long time to change a culture. One of the
2 two major factors in how long it takes to change a culture is
3 how willing the people are to accept change. I would tell you
4 that I'm frankly very pleased with the progress we've made,
5 with the cultural changes at Sequoyah in only 27 months and
6 particularly in the last 12 months.

7 I wouldn't try to deceive you. We haven't changed
8 everyone. We never will change everyone. We never will change
9 the attitude of all of our people. The important thing is in
10 all the key management positions I now have people at Sequoyah
11 who have what I call the right philosophy. They're using the
12 right philosophy. What I see is that philosophy permeating
13 down into lower levels of the organization.

14 So, I'm pleased with the progress we've made. We're
15 not there yet, but we're getting there. The attitudes of the
16 people remain good. I see the ever-increasing commitment to
17 reach the standards that I've set and they're high standards.
18 People are really trying to meet them. I see the willingness
19 of our people to learn from not only our mistakes but the
20 mistakes of others.

21 I still see very much a change in our attitude to a
22 very self-critical and I think that's a healthy self-critical
23 attitude. So, I think we've built a good management team both
24 at the headquarters as well as at Sequoyah and I have with me
25 at the table two members of that team.

1 On my left, Joe Bynum. Joe has 16 years of
2 commercial experience. He has a bachelor's degree and a
3 master's degree in nuclear engineering. He was at TVA from
4 1972 to 1982 and in that period of time he held various
5 operational jobs. He left TVA in 1982 and went to Palo Verde
6 where he was the plant manager for all three units at Palo
7 Verde and during the interval of time he was there, all three
8 of those plants were licensed and I believe started up before
9 Joe left.

10 Recently -- he returned to TVA early this year and I
11 recently promoted him to Vice President for nuclear power
12 production. On my right is Mr. Steve Smith who I hired as a
13 TVA employee in July of 1987. Mr. Smith has 23 years of
14 commercial and Navy nuclear experience. Most recently, you'll
15 recall him as assistant plant manager during the Davis-Besse
16 recovery where he had the responsibility for the maintenance
17 program and I believe he briefed you at the time on that
18 program and by the way that program got very high marks from
19 the NRC.

20 I'm very pleased to have Mr. Smith as a member of my
21 team. He's been the plant manager at Sequoyah since November
22 of last year. So with those very brief introductory remarks,
23 I'll turn it over to Mr. Bynum. Joe?

24 MR. BYNUM: This afternoon I'd like to discuss the
25 three key elements we have used in verifying our management

1 assessment. The Sequoyah Unit 1 is ready for restart.

2 [Slide.]

3 MR. BYNUM: The three key elements are independent
4 reviews, lessons learned from Unit 2, and the organizational
5 readiness. With regard to independent reviews, I'd like to
6 discuss three specific reviews that are in addition to the
7 routine NRC inspections, QA audits, monitoring functions.

8 Our Nuclear Managers Review Group and Infinite Safety
9 Engineering Group, who conduct special reviews and
10 investigations, and the Nuclear Safety Review Board reviews.
11 The three that I'll discuss this afternoon are the operational
12 readiness review, INPO plant evaluations, and the American
13 Nuclear Insurance semi-annual inspection.

14 With regard to the operational readiness review, this
15 was an eight-man team, primarily consisting of independent
16 contractors. Seven members were members of the Unit 2 team
17 which I briefed the Commission on prior to Unit 2 restart.

18 All members had greater than 20 years of experience
19 in the nuclear industry, from the military, NSSS vendor, and
20 commercial nuclear. The review took approximately two months.
21 During this two months --

22 MR. WHITE: Let me interrupt you just a second, Joe.
23 Let me remind the Commissioners, the team, you recall when they
24 did this for Unit 2, and they did the same thing for Unit 1.
25 Selected the people based -- personally selected them, based on

1 my knowledge of their standards. Personally instructed them to
2 be tough, to measure us to the highest standards, to absolute
3 standards, not to minimum industry or other standards, but to
4 absolute, what they call absolute standards. The highest
5 standards. And to be very critical. They went in with those
6 kinds of instructions which is the same as we did with Unit 2
7 successfully.

8 I'm sorry. Go ahead.

9 MR. BYNUM: I as I said, the review took
10 approximately two months and included areas such as operations,
11 maintenance, radiation control, chemistry. Basically all the
12 activities that directly relate to the day to day operation of
13 the plant.

14 A draft report will be issued approximately the
15 middle of this month. And although a written report has not
16 been issued, I have reviewed the overall observations and have
17 discussed these observations with several of the ORR team
18 members. And I conclude the following.

19 The Unit 2 report raised several significant issues
20 which were subsequently resolved. In contrast, the Unit 1
21 report does not raise any significant issues. Although there
22 are improvements to be made in some areas, there are no issues
23 which I believe would impact the startup of Unit 1.

24 INPO. You may recall again, prior to the startup of
25 Unit 2, that INPO performed a special assist visit. This last

1 month, INPO performed a full plant evaluation, including a
2 simulator evaluation of two of our operating crews.

3 Draft report from the INPO review should arrive later
4 this month. Again, I have reviewed the INPO field notes and a
5 plant debriefing, and from those, I conclude that although INPO
6 had a number of concerns and strengths, these concerns and
7 strengths are consistent with those normally found in operating
8 plants. And again, the INPO concerns should not adversely
9 impact Unit 1 startup.

10 With regard to the American Nuclear Insurers, they
11 performed a December 1987 semi-annual inspection which resulted
12 in 16 recommendations. Some of these recommendations were
13 discussed with the Commissioners prior to the Unit 2 restart.

14 Subsequent to the December '87 visit, there were
15 three follow-up visits and, again, a semi-annual inspection
16 last month. In these follow-up visits and the semi-annual
17 inspection, 13 of the 16 original recommendations have been
18 closed and the other three are on track to be closed.

19 No new recommendations have been made since December
20 of 1987. In summary, we've been thoroughly looked at by
21 qualified independent reviewers. Based on their assessments
22 and similar assessments for Unit 2, we have improved in
23 virtually every area.

24 Further improvement is still needed and based on the
25 results of these reviews we will continue to upgrade our

1 performance in both Unit 1 and Unit 2.

2 MR. WHITE: Remember that these independent reviews,
3 although important, are only a tool, one of the tools that I
4 use and really to measure the validity of my own assessments
5 which I'll describe later, but they are tools that we use, but
6 they're not the only tools.

7 MR. BYNUM: I'd now like to discuss lessons learned,
8 applied to Unit 1.

9 [Slide.]

10 MR. BYNUM: There are three basics aspects to
11 translating lessons learned from Unit 1. Hardware,
12 programmatic, and people and attitudes. Admiral White has
13 already discussed the people aspects. How that we ensure that
14 attitudes continue to improve through our management
15 involvement and our walking spaces.

16 I'll now address the aspects of hardware and
17 programs. As you all recognize, you can fix a lot of hardware
18 and only treat the symptom. Therefore, you'll see in many
19 cases the hardware improvements directly relate to programmatic
20 issues.

21 [Slide.]

22 MR. BYNUM: On this slide I've listed just a few of
23 the hardware issues which we have translated directly into Unit
24 1 from Unit 2. Again, there are many, many additional hardware
25 lessons learned. These are just a few.

1 I'd like to discuss, too, in particular, which the
2 Commissioners should be familiar with based on past meetings.
3 First is the steam generator tube plugging. As we discussed
4 with you in June, we have advanced the state-of-the-art in eddy
5 current detectors for short radius bend U-tubes. Using this
6 detector, we went in and tested all Row 1 and Row 2 tubes in
7 all four steam generators in Unit 1.

8 As a result of those detailed inspections, we plugged
9 approximately 50 additional tubes, all in Row 1. Some of
10 these, in fact, had through-wall indications. With regard to
11 secondary site maintenance, we took advantage of the problems
12 encountered during Unit 2 power operation.

13 We specifically did additional work on many of the
14 secondary systems including steam dump system, heater drain
15 system, main turban steam seal system, and in fact, as late as
16 this past week, we were performing specific maintenance on the
17 condensate booster points based on recent problems with them in
18 Unit 2.

19 In addition to the hardware work, we are striving
20 very hard to upgrade our attitudes about what, in fact, are
21 acceptable conditions for secondary site hardware. That is an
22 important lesson learned.

23 MR. WHITE: What I am trying to instill is what is
24 what is acceptable in the secondary side of the same standards
25 as in the primary. I view them both the same and that's the

1 emphasis.

2 MR. BYNUM: Again, I have listed only a few of the
3 lessons learned from a programmatic sense. As in the case of
4 hardware, there are many, many more programmatic issues.

5 [Slide.]

6 MR. BYNUM: In this case, I'd like to discuss two in
7 particular which, again, the Commissioners should be familiar
8 with. First is the work control. We actually implemented work
9 control group on Unit 1 before it was implemented on Unit 2.
10 We did this to facilitate an effective system return to service
11 plan.

12 At our last meeting we showed you our system prints
13 which are used to status outstanding work on a particular
14 system. As a result of comments made during that meeting, we
15 are implementing area walkdowns by each shift, by the Assistant
16 Shift Operations Supervisor and the auxiliary unit operator
17 responsible for that area.

18 Mr. Smith will discuss --

19 MR. WHITE: Those are the things that came as a
20 result of your comments.

21 MR. BYNUM: Mr. Smith will discuss the details of the
22 working -- the working details of the work control group in a
23 few minutes.

24 With regard to incident investigation and root cause,
25 we have a dedicated staff trained in human performance

1 evaluation and other root cause techniques such as MORT. And
2 this staff evaluates specific events including but not limited
3 to reactor trips and ESF actuations.

4 The American Nuclear Insurers specifically reviewed
5 this area in their last semi-annual inspection, had many
6 favorable comments on it.

7 In conclusion, we have learned from my experiences on
8 Unit 2 both good and bad and we'll continue to critically
9 assess thermal problems, programmatic issues, and people and
10 performance issues, and apply those lessons learned, not only a
11 specific sense, but in a very broad sense.

12 I'd now like to discuss the organization structure
13 and staffing levels.

14 [Slide.]

15 MR. BYNUM: This slide shows the nuclear power
16 organization down through the site level. I won't go into the
17 slide in detail, it is a typical site organization, two basic
18 objectives. Those two objectives are to allow the plant
19 manager to focus on the day to day activities necessary for the
20 safe operation of the units, but also to provide him with the
21 necessary support for these activities. Then there's a slide
22 on the site directors organization --

23 COMMISSIONER ROBERTS: Excuse me. Could you back to
24 that last slide. Are all those people permanent TVA employees?

25 MR. BYNUM: At this time at Sequoyah, those are all

1 permanent TVA employees.

2 CHAIRMAN ZECH: And all those billets are built, is
3 that correct?

4 MR. BYNUM: I think all but one of those positions is
5 permanently filled. One of the support positions is currently
6 vacant.

7 [Slide.]

8 MR. BYNUM: Site directors organization, the next
9 slide, goes into a little bit more breakdown to show you what
10 in fact is under the site -- again, a fairly typical
11 organization who take those ancillary functions and focus them
12 under management outside the plant managers organization.

13 I'd now like to go the plant managers organization.
14 Again, a typical plant managers organization for multi-unit
15 plants.

16 [Slide.]

17 MR. BYNUM: You see the typical maintenance
18 organization, typical operations organization. I'd like to
19 point out in the plant support group we do have a unique
20 situation and we do have a dedicated fire protection group, a
21 five-member, full-time fire brigade, trained firefighters.

22 In this group is also the plant assessment group,
23 which I discussed, that have the unit performance evaluation,
24 training, and the MORT training to assist different plant
25 events.

1 The work control group, as I said, this is a
2 dedicated group, strictly dedicated for work control and
3 coordinating various work activities, both during unit
4 operation and forced and scheduled outages.

5 In a technical support group, you see this is where
6 we have our system engineers. We've broken our system
7 engineers down into NSSS systems, balance of plant systems, and
8 electrical and heating ventilation systems.

9 With regard to the staffing levels, this next chart
10 shows the TVA staffing levels on-site.

11 [Slide.]

12 MR. BYNUM: These are permanent TVA employees located
13 on-site at Sequoyah. If you look at the site director under
14 the direct reports, what I have included there is that is the
15 organization, on the first chart, if you take all of the
16 organizations to the left of the plant manager, they are what I
17 have designated as direct reports. There are approximately 352
18 in that group.

19 Quality assurance, approximately 120. I'd like to
20 point out, nuclear engineering, 351. These are the design
21 engineering people, the people that are responsible for the
22 technical aspects of the plant. These are the technical owners
23 of the plant, 351. And I might add that in addition to that,
24 they are supported by approximately a 1,200 person corporate
25 engineering staff.

1 Nuclear construction of 713, those are basically
2 where we keep our hourly trades and labor people. We use them
3 for modifications and in maintenance overflow work. Under the
4 plant manager, again, approximately 400 people in maintenance,
5 200 in operations.

6 The 40 people under work control, again, those are 40
7 people dedicated to coordinating work activities. 123 in
8 technical support and that includes the systems engineers of
9 which there are about 60, for a total of 2,568 on-site people.

10 Based on my experience at other multi-unit plants and
11 industry surveys, the organizational structure and the staffing
12 levels are comparable to other multi-unit plants of the 1,000
13 megawatt variety.

14 [Slide.]

15 MR. BYNUM: In conclusion, we have a solid
16 organizational structure in place and we have sufficient
17 staffing to start up and run the second unit and ensure that
18 all the regulatory requirements and commitments are met. We
19 have incorporated the lessons learned from Unit 2 and the
20 programs are in place to continue to apply these lessons
21 learned.

22 Our independent reviews indicate that the program,
23 implementation of these programs is satisfactory for restart of
24 the unit. While the reviews did point out the need for
25 improvement in some areas, we are continually striving to asses

1 ourselves and improve. The bottom line, of course, we expect
2 Unit 1 startup to be improved over the successful startup of
3 Unit 2.

4 CHAIRMAN ZECH: Thank you very much.

5 MR. SMITH: Mr. Chairman, good afternoon. My name is
6 Steve Smith and I would like to discuss the present status of
7 Sequoyah Unit 1, both from a material conditions and operations
8 organization readiness standpoint.

9 [Slide.]

10 MR. SMITH: As you can see from this slide, Sequoyah
11 continues to make progress in the closure of work requests.
12 This chart shows the total number of work requests for support
13 of both Unit 1 and Unit 2 generated since 1986, January of
14 1986. As you can see, from January 1988 through July 31st, we
15 have continued to accomplish more work than the work generated.
16 This also has helped us in the reduction of backlog and
17 although I don't show it on this chart, I would like to briefly
18 discuss the management of backlog of work orders at Sequoyah.

19 During our presentation here in March, we discussed
20 the backlog of work requests at Sequoyah. At that time, we
21 stated that with the means of work control we had at that time,
22 our backlog would be about 2,200 work orders per year. That
23 means we would have an ongoing number of about 2,200 pieces of
24 work to do.

25 Due to the improvements that we have made through

1 establishing the work control group in the system with which we
2 control work, we now believe we can control the backlog at
3 about 1,200 work orders per year or about six weeks worth of
4 work given our present approved staffing levels.

5 [Slide.]

6 MR. SMITH: Currently we have 951 re-start work
7 requests remaining for Unit 1. That is about four weeks worth
8 of work even with the projected incoming number of work orders.
9 Those 951 are what we have to complete before entry into Mode
10 4. As you recall in March when we presented our readiness, at
11 the time we entered Mode 4, Unit 2, Sequoyah, we had
12 approximately 1,600 backlog work orders. It is significant to
13 note that in this case with Unit 1, when we enter Mode 4, there
14 will be about 300 backlog work orders, none of those will have
15 any effect on the equipment necessary to enter Mode 4 at the
16 plant.

17 [Slide.]

18 MR. SMITH: The area of modifications to hangers, we
19 had approximately 1,600 hanger modifications. As of this
20 morning, there were 55 remaining to complete prior to entry
21 into Mode 4.

22 [Slide.]

23 MR. SMITH: RayChem modifications, there were about
24 525. As of this morning, there were 13. Those 13 are not
25 delayed by lack of ability to do the work with the materials or

1 anything, it is just that the equipment that those splices
2 affect are in service right now and with our system restoration
3 schedule, they will be removed and the RayChem replaced prior
4 to Mode 4.

5 [Slide.]

6 MR. SMITH: In the area of hardware modifications,
7 ECN's and DCN's, those might be replacements of valves with a
8 different type valve, installation of a new transmitter, a new
9 indicator, that sort of thing. There were about 333 total to
10 do and as of this morning, I believe there were 34 remaining to
11 do.

12 [Slide.]

13 MR. SMITH: In the area of operations staffing, the
14 operations organization is currently organized into six groups.
15 Those six groups are there to allow for ongoing re-qual,
16 special training, annual leave and time off for personnel.
17 This is the recommended number of sections for an operations
18 organization. Each position in that organization which
19 consists of one shift operating supervisor, one shift technical
20 advisor, two assistant shift operating supervisors, four
21 licensed control room operators and 12 auxiliary operators,
22 each of those positions are filled. In addition, we have
23 approximately 30 additional operating personnel that have been
24 added to the shift to allow for the large number of valve
25 alignments that we have to do for Unit 1 system restoration to

1 get it ready to start up. We feel that we have adequately
2 staffed the shift to meet all contingencies in the restoration
3 systems to service.

4 CHAIRMAN ZECH: How many shifts?

5 MR. SMITH: Six.

6 CHAIRMAN ZECH: The total number of people?

7 MR. SMITH: Total number of people, 102 auxiliary
8 operators in the plant and 24 licensed control room operators.
9 There are 12 SRO level assistant shift operating supervisors; 6
10 STA's and 6 shift operating supervisors. That is the total,
11 almost 200 people.

12 CHAIRMAN ZECH: Thank you.

13 MR. SMITH: We will place senior licensed management
14 personnel on shift during start-up and transients on Unit 1 as
15 we did on Unit 2. Our Unit 1 operator training will include
16 management lessons learned from Unit 2 of those hardware and
17 event type things that we experienced on Unit 2. There will be
18 hands-on operator experience for Unit 1 personnel on Unit 2 at
19 power prior to entry into Mode 2, to make sure everybody is
20 rotated onto the operating unit and is involved with any of the
21 evolutions on the operating unit so they will take that
22 experience with them to Unit 1 for its re-start.

23 We will conduct Unit 1 start-up training on the
24 simulator. That training will include feedwater system
25 transients at low power and we will use again the three man

1 team concept of maintaining steam generator levels and placing
2 the turbine generator into operation.

3 CHAIRMAN ZECH: Will you go through all your start-up
4 procedures on the simulator?

5 MR. SMITH: We will go through -- yes, sir. I will
6 verify that. We will go through all the applicable start-up
7 procedures. There are others that we wouldn't necessarily use.
8 We will go through every one that we had difficulty with. We
9 will go through the events that we experienced.

10 CHAIRMAN ZECH: You will have all your shifts on that
11 kind of training?

12 MR. SMITH: All the shifts that will start up Unit 1;
13 yes, sir.

14 CHAIRMAN ZECH: Thank you. Good.

15 MR. SMITH: They will continue with the normal re-
16 qual training. They are in the fourth week of the six weeks
17 schedule for the year.

18 We have also reviewed all the operator qualifications
19 and experience on Unit 1 and assured that each shift has a
20 balance of experience within the shifts so that one shift isn't
21 overloaded with experience and the other shift has none at all.

22 [Slide.]

23 MR. SMITH: You have heard briefly some discussion
24 about the work control group. The work control group came
25 about as lessons learned mostly from Unit 2 start-up and in an

1 effort to better control the interface of work activities in
2 the plant. When I first arrived at Sequoyah, we began a plan
3 of the day meeting and in that meeting, we brought all
4 disciplines and all the organizations that affected work in
5 progress in the plant together once a day to discuss our
6 schedule and impacts to the schedule.

7 I feel that meeting worked very well to communicate
8 among people our needs and our priorities. We really didn't do
9 anything to communicate to the shift supervisor, the shift
10 people, the maintenance people, the impact that the work was
11 having in the plant and what the aggregate accumulation of work
12 activities that had been performed, what its impact was in the
13 plant.

14 With the work control center and the way that we
15 monitor work activities in the plant, by placing those
16 activities on system diagrams and reviewing those system
17 diagrams with each shift with the shift operating supervisor
18 and the maintenance management personnel, and each of the
19 assistant shift operating supervisors, we built a picture of
20 what the material conditions looked like in each unit and what
21 the overall effect is to the unit and the operating unit.

22 The work control group builds that picture. That is
23 one of their fundamental duties and responsibilities.

24 As you can see, the work control group consists of
25 basically four sections. There is the periodic test

1 coordinator, the two unit work control sections, and the work
2 control and outage shift managers. The periodic test
3 coordinator is responsible for assuring that all the
4 surveillance activities which are performed to support our
5 technical specifications operability are conducted on time.

6 Up until January when we implemented this periodic
7 test coordinator position, we were averaging approximately too
8 late or missed surveillances per month. Since we have
9 implemented this position, we no longer have that problem. We
10 have not had one late or missed surveillance since implementing
11 the position.

12 I feel this was definitely a major improvement in the
13 way that we do our scheduling business with surveillances.

14 In the two work control sections, the work control
15 supervisor is a licensed SRO at Sequoyah and he will be
16 required to maintain his license current at Sequoyah. He
17 supervises a group of approximately 15 people and those
18 individuals perform several very important functions. They
19 prioritize all work requests for both units. That means not
20 only do they prioritize its importance within the units, but
21 they weigh it off against the two units to see which has the
22 most priority.

23 We use that system to make sure that we are not
24 diverting our attention to just meeting a schedule on Unit 1
25 re-start but that we are paying very close attention to the

1 material conditions in Unit 2 and that we are maintaining Unit
2 2 equipment at a level where the operators do not have concerns
3 about their ability to safely or effectively operate the unit.

4 Another of the key responsibilities --

5 MR. WHITE: That is a very important point by the way
6 because a few weeks ago, I saw us with the emphasis on Unit 1,
7 what I felt was slacking off on what we should be doing on Unit
8 2. I conduct an inspection one day a week in Unit 2, get the
9 flashlight and go out there and look. I found a lot of things
10 in Unit 2 that I felt should get higher priority. What Steve
11 just mentioned is very important in balancing those priorities.

12 MR. SMITH: The other very important function that
13 this group performs is to evaluate the operational impact of
14 work going into the field. They prepare for each work request
15 an impact evaluation sheet which uses an index so that the
16 shift operating supervisor who must approve that work going
17 into the field can scan that sheet and see the points that he
18 needs to consider important and pay special attention to, such
19 as taking a component out of service, which would give him a
20 one-out-of-one trip logic should he take that particular
21 component out of service while he has it out of service.

22 Those things are identified to him up front. He
23 doesn't have to waste a great deal of time reviewing a very
24 large, thick work package, if you will. Again, these are
25 prepared by SRO-level individuals. This reducing the amount of

1 time that the shift operating supervisor has to spend reviewing
2 paperwork in the control room allows him to spend more time on
3 his principal responsibilities of monitoring the two units,
4 monitoring his crew's performance in the two units.

5 The last primary function of the work control group
6 is to consolidate work activities. When we first initiated this
7 effort and went through approximately 2000 work orders for both
8 units, we discovered that we had work requests and
9 modifications that conflicted with each other. For example, in
10 one system we had a work request that did repairs to a
11 Limitorque operator on a valve, we had another work request
12 that again removed the Limitorque operator so maintenance could
13 be performed on the valve, and we had a modification that
14 removed the Limitorque operator and the valve from service
15 completely and replaced it all together.

16 In being able to review those and weigh them off
17 against each other and see the effect, we have managed to
18 consolidate a great deal of work activities and save a great
19 deal of management and planning and scheduling time in that
20 reduction effort.

21 Next slide, please.

22 [Slide.]

23 The Unit 2, Cycle 3 refueling outage is currently
24 scheduled to start in early January of 1989, and it will last
25 approximately 60 days. As you can see, the currently scheduled

1 work activities are considerably less than those activities
2 which we accomplished during the second quarter of this year.
3 This was while Unit 2 was at power or being started up and Unit
4 1 was being prepared for restart. We feel that we have more
5 than adequate resource, both manpower and financially, to
6 assure that we can conduct the refueling outage on Unit 2 with
7 no impact whatsoever to the safe and continued operation of
8 Unit 1.

9 Next slide.

10 [Slide.]

11 In conclusion, I would like to state that I believe
12 we have shown here that the work activities for restart of Unit
13 1 are on schedule. We have a two-unit operational organization
14 in place and functioning, and it has performed very well. We
15 have made significant operating program improvements based on
16 the lessons we have learned from Unit 2 restart. From a
17 personal, programmatic and material standpoint, I believe that
18 the Unit 1 restart will be significantly improved over Unit 2.

19 Thank you.

20 CHAIRMAN ZECH: Thank you very much.

21 MR. WHITE: Mr. Chairman, for my brief concluding
22 remarks I would first like to discuss the Unit 1 schedule.

23 Slide.

24 [Slide.]

25 The heatup we actually have scheduled and believe

1 will occur about 7 September, but I am going to discuss that
2 further in a moment. About two weeks, then, for hot operations
3 before criticality. TVA and the NRC Staff have agreed on the
4 hold points at Mode 4, Mode 2, and 30 percent and 75 percent
5 power.

6 Next slide.

7 [Slide.]

8 I, too, am confident that we are ready to take the
9 step from one-unit to two-unit operation. Based on what you
10 have heard, and I hope your staff will agree, there are no
11 technical or programmatic issues remaining to be resolved. We
12 have some work to be done, but as you have heard, we are either
13 meeting or beating our work schedules. I think it is
14 significant for TVA that a schedule which I set in March for
15 the startup of this unit, that we are still on track for that.
16 I think that's important.

17 When I believe that we are ready for the startup, I
18 will go to the Staff and ask for permission to start up, but
19 let me assure you, Chairman Zech and Commissioners, that I will
20 not ask for that permission unless and until I am satisfied.
21 During the heatup period, I will closely observe the operators
22 and the equipment, and very frankly, the long pole in the tent
23 is not the completion of the work orders, and the long pole in
24 the tent is not the completion of the modifications. The long
25 pole in the tent is when I am satisfied from my personal

1 observations the operators and the equipment and the
2 cleanliness and the preservation in that plant are up to the
3 standard required for the startup.

4 In the restart -- by the way, I will, obviously, be
5 in the plant as I have been in Unit 2. I will do the same in
6 Unit 1, so it will be my personal observations. In the
7 restart, I will watch closely, and in this restart, as I have
8 always done in any restart, we will be deliberate, we will be
9 conservative, we will be cautious, and believe me, if any
10 problems arise, I won't hesitate for one second to stop what we
11 are doing and reassess and reevaluate before proceeding.

12 So I think that, as I say, the 7 September date is
13 really contingent on when I am satisfied even though the work
14 will be done by that time.

15 Finally, I would like to say one other thing, and it
16 refers to your staff, the NRC Staff. Your staff has been hard,
17 they have been tough, and they have been professional. I think
18 that they deserve to be commended for the amount of work they
19 have done because this has not been easy, not only for TVA but
20 for your staff, because believe me, there has just been a whale
21 of a lot going on for a long time, and your staff, in my
22 opinion, has done a very good job.

23 We are ready to answer any questions.

24 CHAIRMAN ZECH: Thank you very much.

25 Any questions from my fellow commissioners? Mr.

1 Roberts? Mr. Carr?

2 COMMISSIONER CARR: You are only talking Sequoyah 2,
3 but I guess you are still working Brown's Ferry at the same
4 time, and you feel like you have got plenty of assets to do all
5 the jobs you have on your plate down there?

6 MR. WHITE: That is a good question and it has a
7 complex answer. The basic answer is yes, when I make some
8 changes that I'm in the process of doing now in terms of some
9 changes that I'm making. The difficulty doesn't exist at
10 Brown's Ferry; the difficulty is, frankly, what I am capable of
11 doing and my corporate staff, because, you know, on our plate
12 now is Sequoyah 2 because I want that to continue operating
13 well, Sequoyah 1. We are doing a lot of planning for the outage
14 of Sequoyah Unit 2, so that is there, plus the Brown's Ferry,
15 and, of course, we are starting to do some of the work
16 necessary in Watt's Barr. So it is, frankly, more my
17 capability to stretch than it is the resources at Brown's
18 Ferry.

19 COMMISSIONER CARR: Are you getting all the corporate
20 support you need? I guess you have got a corporation down
21 there. Are you getting the board of directors support that you
22 need?

23 MR. WHITE: Well, let me answer that -- the best way
24 to answer that is in general, yes. There are certainly some
25 specific areas which are of concern to me. They are under

1 active discussion between me and the Board at the present time.

2 COMMISSIONER CARR: We were assured, I think, in the
3 reorganization brief that there wouldn't be any impact, so if
4 there is one, I am sure we would appreciate knowing what it is
5 and how it is affecting you.

6 That's all I have.

7 CHAIRMAN ZECH: Thank you very much.

8 Commissioner Rogers.

9 COMMISSIONER ROGERS: As I recall, when Unit 2 was
10 restarted or permission was given to restart, there were some
11 items that were to be taken care of at the end of the first
12 outage; is that correct?

13 MR. BYNUM: Yes.

14 COMMISSIONER ROGERS: Now, are any of those same
15 items on the open list for Unit 1 that you don't expect to have
16 taken care of before you plan to restart Unit 1?

17 MR. WHITE: If I understand your question, the answer
18 is yes. For example, in the hanger work, in Unit 2, there were
19 certain hangers that were required for re-start and then a
20 number, in fact most of them are required after re-start, the
21 same situation exists on Unit 1. There are some pre-re-start
22 and some post-re-start work. The answer is yes, if that is the
23 thrust of your question.

24 COMMISSIONER ROGERS: Why is that? Shouldn't we
25 expect you really to have everything done that you know about,

1 that you plan to take care of in the first outage of Unit 2,
2 but on Unit 1, the same types of items that have to be
3 corrected?

4 MR. WHITE: I don't think so, Commissioner Rogers.
5 The sheer magnitude of what we have done and what we have to do
6 just -- we have to prioritize. We have to prioritize. We have
7 to do -- if the plant is in safe and reliable condition to
8 operate -- I also have a responsibility to provide power to the
9 ratepayers. The first one is the safety and liability clearly
10 but as a result of that, I have to prioritize and in some
11 cases, the work goes into a subsequent outage.

12 COMMISSIONER ROGERS: Could you be as explicit as
13 possible about what those items are that you expect to do at
14 the end of the first outage of Unit 1 if you re-start?

15 MR. WHITE: My guess is it would be significantly
16 less on Unit 1 than on Unit 2 on the first outage because we do
17 have quite a bit of work on Unit 2 for the first outage. We
18 have corrected a lot of those things already on Unit 1 but not
19 all. We will be happy to furnish you that detailed
20 information.

21 COMMISSIONER ROGERS: If you could say a little bit
22 more about what you have done to try to avoid the recurrence of
23 the five trips that occurred on Unit 2 after what you said was
24 a good re-start but then during the early stages of operation,
25 not the initial but certainly in the early stages, were a

1 succession of trips, how would you characterize those and what
2 have you done to avoid repetition of the problems that led to
3 those?

4 MR. WHITE: Certainly there are a number of things.
5 One would be the attention we have paid to balance-of-plant.
6 We have certainly upgraded the balance-of-plant in Unit 2 and
7 at the same time done that in Unit 1. The things that we found
8 troublesome in Unit 2, we have already corrected in Unit 1.
9 There will be other things which I can't predict obviously.

10 Certainly we recognize the sensitivity of the
11 Westinghouse four loop to those kind of trips. Balance-of-
12 plant is part of it. A lot of it is training. Adding the
13 additional operator inside the horseshoe. As Mr. Smith
14 indicated earlier, actually working through the specifics of
15 those kind of trips in the simulator with all the sections.

16 MR. SMITH: Three of those five trips specifically
17 related to the method that we operated the feedwater portion,
18 the secondary portion of the plant during low power transients,
19 placing the turbine generator in service. We developed the
20 three man method which was also a recommendation coming from
21 the Westinghouse Owners Group's trip reduction program, so
22 there is a third individual there who acts as both a coach and
23 a middleman in the performance of those transients.

24 We used that method, trained on that method for the
25 re-start of Unit 2 subsequent to the trips and it worked very

1 well. We controlled the plant at low power because of some
2 feed pump governor problems for about five days using that
3 method. It worked very, very well.

4 We feel that if we used this method, trained on this
5 method and of course were cautious and we don't rush into
6 things, that we can significantly reduce if not eliminate -- I
7 won't say eliminate, you will never totally eliminate things
8 like this because of the chance of component breakage, but
9 personnel error and personnel interface to the machine now
10 works very well.

11 One of the first two trips was caused by the improper
12 performance of a procedure. We have had a very strenuous
13 procedure upgrade program. The individual read the procedure
14 and the procedure had been revised and field validated to make
15 sure it worked and he decided that procedure wouldn't work and
16 he took a step outside the procedure. That won't happen again
17 for that individual or for those individuals in his group
18 performing similar procedures.

19 MR. WHITE: Or others who have heard of the results
20 of that, I would hope, would be less apt to violate procedures.

21 MR. BYNUM: The other thing with regard to the
22 methodology that we tested on the simulator and we used
23 subsequently to start up, we have also explicitly
24 proceduralized that methodology, whereas before, there was
25 really more leeway for the operator to decide what power levels

1 and in some cases what sequences, how much steam dumps could be
2 opened when we synchronize the turbine, things like that are
3 much, much more specifically proceduralized and outlined to
4 follow the methodology that we developed. That procedure
5 obviously applies to both units.

6 MR. SMITH: Underlying all that is the most
7 significant thing and that is attitude. We got pretty cocky
8 with Unit 2 start-up, everything went so well, the plant came
9 right up to power. We weren't scared enough. We won't have
10 that affliction with Unit 1 re-start. We will be very
11 cautious. We will be very, very concerned about each step that
12 we take and what it means.

13 MR. WHITE: Commissioner Rogers, you are asking a
14 very good question. I would not want to leave this room and
15 have you think White said they aren't going to make any
16 mistakes down there, everything is going to be okay.
17 Obviously, we are going to learn and do the best we can. I've
18 been in the business long enough to know that you can't make
19 that absolute kind of statement. We certainly are trying to do
20 everything that we can think of to cause this to be a better
21 start-up than Unit 2 and to get that plant on line and keep it
22 there smoothly.

23 MR. SMITH: One of the items shown in our material of
24 lessons learned, we have put together a task force consisting
25 of design engineering, systems engineering, our operations

1 staff, to do a composite review of the feedwater controls,
2 steam generator interactions and plant trips. There are
3 several Westinghouse Owner Group investigations that have
4 indicated that certain modifications to the trip set points on
5 low/low steam generator level at low power, some improvement in
6 electronic feedwater controls virtually do eliminate the
7 man/machine interface problem for control of plant and
8 feedwater system at low level.

9 We are pursuing that. Our 1989 fiscal budget
10 supplies funds to get the engineering work done and some
11 hardware fixes during Unit 2 Cycle 3 outage.

12 CHAIRMAN ZECH: Did you say Unit 1 operators have
13 been trained on Unit 2? Do you have them trained on both
14 units? Are they licensed for both units?

15 MR. SMITH: Yes, sir. They are licensed for both
16 units. What we are doing right now through the month of August
17 and prior to Mode 2 on Unit 1 is to make sure they get on
18 shift, hands-on operating experience on Unit 2 at power. As
19 you will recall, when we first entered Mode 4 and 3 on Unit 3,
20 we had some difficulties with the operators understanding that
21 the plant was now different from the three years of shutdown.
22 They weren't sensitive to the nuances of operations. What we
23 are making sure of is that the Unit 1 operators become
24 sensitized to the expanded scope of attention for an unit
25 operator.

1 CHAIRMAN ZECH: I certainly agree with your emphasis
2 on people. We all know the difficulty with changing cultures
3 and changing attitudes, but that emphasis is also extremely
4 important. When I was down there prior to your restart of Unit
5 2, even though it was a brief visit, it did seem to me that
6 there was a change in cultural attitude, at least that was my
7 perception from my previous visits to both Sequoyah and Brown's
8 Ferry sites.

9 And I encourage you to continue that effort. It
10 doesn't change overnight. You don't always change it
11 completely, but the curve certainly would appear to be in the
12 right direction and I know how hard that is and I encourage you
13 to continue that effort.

14 It refers to management involvement and I certainly
15 agree with that, and I've used that term. I've recently
16 changed it to leadership involvement because I think it
17 connotes people more than necessarily resources. But that kind
18 of involvement is definitely a key to excellence of operation
19 and of safety in my judgment.

20 So those are things that I think you're working on
21 apparently and I commend you to continue in those particular
22 areas. And also to get that attitude down through your chain,
23 not only at the top levels of leadership, but it's a challenge
24 for your Vice President, for your plant manager, to continue to
25 work on leadership involvement of your middle level management

1 people, too.

2 Walking the spaces is part of that, insofar as I'm
3 concerned, and your emphasis on that I think is also right on.
4 You mentioned balance of plant. I think, again, I'd appreciate
5 that very much and I think that we all know that balance of
6 plant can give us as many problems as the other part of our
7 plant and sometimes it has not received, at least in my
8 judgment, the attention that it should have and I appreciate
9 your trying to emphasize that important part of your plant.

10 Reorganization, Commissioner Carr mentioned, and I
11 would just like to emphasize, too, we're very mindful in the
12 Commission that part of your success in attempting to turn
13 around TVA is a support that is necessary in the nuclear
14 organization from the TVA Board.

15 You know the Commission's personal interest in that
16 particular relationship and so we want that to continue. We
17 would hope that -- we've already received a commitment from the
18 Chairman and the Board of their intent to continue support for
19 the nuclear organization.

20 This Commission feels that is extremely important.
21 If you see that's not there, we would certainly believe you
22 have the obligation to tell us about it. We think that that
23 commitment and that support for the nuclear role at TVA is
24 critical and we will be mindful and watching for that kind of
25 support.

1 Unless my fellow colleagues have any other comments,
2 thank you very much for your presentation and ask the staff to
3 come forward. Thank you very much.

4 Before we begin with the staff's presentation, let me
5 just, on behalf of the Commission and the agency, congratulate
6 you, Mr. Stello, on our receipt yesterday of the Presidential
7 Distinguished Rank Award, presented to you personally by
8 President Reagan.

9 It's my pleasure to be there and we recognize that as
10 the highest award for a Federal government senior executive
11 service official, and certainly believe it was well deserved
12 and well earned and we congratulate you on that high award.

13 MR. STELLO: Thank you, Mr. Chairman.

14 CHAIRMAN ZECH: And you may proceed.

15 MR. STELLO: What we wanted to do today is to
16 describe for you the remaining work that we see the staff has,
17 in reasonably general terms. We are prepared to go into any
18 detail you'd like us to. And to commit to the Commission that
19 we would communicate later to the Commission and we feel that
20 that work is reasonably complete and we'd be prepared, if the
21 Commission would be at that point in time, to authorize the
22 restart of Unit 1.

23 And our expectation and belief is that the schedule
24 that you've heard here today is one that is achievable. We're
25 watching very carefully. As you well know, when you're

1 starting up a unit and getting ready, those last few weeks are
2 very uncertain. But we will be monitoring that and get back to
3 the Commission when we feel comfortable that we're ready to
4 suggest it is okay.

5 And with that, let me, with a brief introduction,
6 turn to Mr. Partlow to give a brief overview and let the
7 Commission get into any area you wish to.

8 MR. PARTLOW: Thank you. Good afternoon. This is
9 the staff's brief on the status of Sequoyah Unit 1, readiness
10 for return to operation after a shutdown of some three years.

11 With me today are Steve Richardson, Director of the
12 TVA Project Division, and Mr. Ken Jenison, our Senior Resident
13 Inspector of the Sequoyah site.

14 [Slide.]

15 MR. PARTLOW: This slide only shows the TVA schedule
16 for the restart of the unit, I won't get into that. But let me
17 do say at this point that the staff believes that the TVA's
18 schedule for the startup of Sequoyah 1 is realistic and that it
19 is safely achievable.

20 Later in this brief, we're going to be talking about
21 our final resolution of technical issues, about the final kinds
22 of inspections that we want to conduct at that plant, but given
23 that, given that there are still issues to work on and
24 inspections to conduct and absent anything unknown at this
25 point, we believe the schedule is realistic and safely

1 achievable.

2 [Slide.]

3 MR. PARTLOW: TVA has discussed with you the restart
4 of Sequoyah Unit 2, its five trips and so forth. We did meet
5 with TVA management in June following that, and we understood
6 their corrective actions which you have heard and improving
7 secondary systems, maintenance and procedures, and training and
8 so forth.

9 And since mid-June then, the plant has operated at
10 varying power levels between 50 and 100 percent power. My own
11 impression and the impressions of the staff has been that that
12 period of operations at Unit 2 has been stable, has been
13 unremarkable, and has been satisfactory.

14 Ken Jenison, I think, is our staff member who has
15 been the closest to Sequoyah. He went to the Sequoyah site in
16 early 1985, a few months before the units were shut down, and
17 he has been there and has seen Sequoyah nearly every day for
18 the past three years.

19 So we've asked him to come here and to provide for
20 the Commission his own perspective on the nature of operations
21 at Sequoyah. Ken?

22 We have watched the daily operation since June and we
23 have seen a steady improvement in the activities and
24 coordination in the control room. We've seen a steady
25 improvement in the activities in the work control center and

1 the outage control center. We have seen a learning process on
2 the part of the management that's was newly installed November
3 or so, 1987 on. The management makes solid, good, conservative
4 decisions as a rule. The Plant Manager seems to make good,
5 tough decisions based on safety rather than cost or schedule.
6 The Site Director and the Outage Manager are very talented
7 managers on site to coordinate the work that needs to be done.
8 The real improvements on site started to occur about November
9 of 1987 when those three individuals showed up. I have
10 confidence in the plant operations review committee now to make
11 safety evaluations and to take conservative, safe actions if
12 they find a condition that they don't think is safe.

13 CHAIRMAN ZECH: Do they keep you informed on
14 activities in your area of responsibility? Are you welcome to
15 their meetings and so forth?

16 MR. JENISON: Yes, sir. Yes, sir, I am. The
17 independent safety engineering group we monitor routinely.
18 That group has been strengthened and reviews site programs and
19 has taken on several initiatives since the end of last year.
20 The NMRG, the off-site safety review committee, appears to be
21 more aggressive and more knowledgeable about what is going on
22 on the site. There seems to be more communications between the
23 on-site and the off-site -- I made a mistake, it's NSRB, excuse
24 me -- on-site and off-site safety review committees.

25 Nearly all of the levels of management on the site

1 have been replaced over the last year in the operations and
2 maintenance area with few exceptions. People seem to be
3 involved, interested --

4 CHAIRMAN ZECH: Do you see a change in attitude since
5 you first came?

6 MR. JENISON: Since I first came?

7 CHAIRMAN ZECH: Yes.

8 MR. JENISON: Yes, sir. Big change. There has been
9 an equal change since the end of last year.

10 CHAIRMAN ZECH: Can you give us any examples of that,
11 any concrete -- it is kind of hard to define attitude. Have
12 you thought about it enough to give us any examples?

13 MR. JENISON: I think the simplest example was about
14 two weeks ago they were blowing ice in the ice condenser and
15 the Plant Manager wanted to complete the job. He was pressing
16 to get the job closed. An M-5 level manager, a first line
17 supervisor, said that he made three days up on his schedule and
18 he wanted to continue to blow ice to make sure that he had
19 enough ice in all the baskets. Okay, so the Plant Manager
20 turned to him and said if we can continue to do that, we'll do
21 that. Just add the extra margin that we may need. He already
22 had satisfied himself that he met the weighing requirements for
23 the annual weighing requirement at that particular time but
24 they continued to blow ice and they lanced the flow holes for
25 another three days.

1 CHAIRMAN ZECH: So they were ahead of schedule.

2 MR. JENISON: In that particular area.

3 CHAIRMAN ZECH: They want to stay ahead of schedule,
4 is that what you are saying?

5 MR. JENISON: He was at schedule. He had made up
6 three days and he wanted to use the three days to add extra
7 margin to the weight of ice inside the ice condenser.

8 CHAIRMAN ZECH: And you think that might have been a
9 different attitude than three years ago?

10 MR. JENISON: Three years ago they would have argued
11 whether or not they needed to weigh at all.

12 CHAIRMAN ZECH: All right. Thank you.

13 COMMISSIONER ROGERS: I wonder if you could comment,
14 if I could break in just for a second, on this question of the
15 learning of experiences on Number 2, how that in your opinion
16 affects the -- particularly say the operators in Number 1. We
17 have heard from the TVA people. What is your view on that?

18 MR. JENISON: My personal opinion is that two things
19 that have improved the life the senior reactor operators and
20 the operators in the control room were the outage control
21 group, where they have gone to a system outage concept so that
22 an operator knows that he will lose a particular system and all
23 those aspects for a certain period of time, to get all the work
24 done and then they bring the system back up rather than work on
25 the system piecemeal. That is the first improvement in my

1 mind.

2 The next improvement I think that has made the life
3 of the operator in the control room better is the Activities
4 Control Center and it was described previously. What that has
5 done is remove a major portion of the review and research work
6 that the SRO had to do in the control room in order to
7 determine what safety functions he was going to lose and what
8 things he had to observe during a performance of a specific
9 activity. What I mean by that is they have a very complicated
10 electrical system on site and it is possible to remove a diesel
11 generator on one train and a valve on another train and
12 completely eliminate a safety function so you have to be very
13 careful of that.

14 Those two activities in my mind have improved the lot
15 of the operators significantly.

16 CHAIRMAN ZECH: You may continue. We interrupted
17 you. Go ahead.

18 MR. JENISON: I'm done.

19 CHAIRMAN ZECH: Thank you.

20 MR. PARTLOW: Next slide, please.

21 [Slide.]

22 COMMISSIONER ROGERS: Technical issues, review
23 matters left before restart -- Mr. White said that he
24 understood there were no technical issues remaining to be
25 resolved prior to restart.

1 MR. PARTLOW: That's right. At this point we on the
2 staff know at this point know of no major technical issues that
3 are likely to come up but there still is submittals to be
4 received for TVA and reviews to be conducted by us.

5 The staff holds fairly frequent meetings with them so
6 I think we generally know the nature of the submittals but we
7 don't quite have them yet and we are going to be looking at
8 those.

9 CHAIRMAN ZECH: When you get them, you need the time
10 to review them too, so I hope you are going to -- you know, the
11 schedule's important to TVA but I am sure they recognize that
12 you need the time to review them carefully and cautiously and
13 confidently.

14 MR. PARTLOW: Yes. We have made them aware of that,
15 that we need that time and if they come in now on the schedule
16 that we understand, we should be able to be consistent with the
17 TVA schedule.

18 CHAIRMAN ZECH: Fine.

19 [Slide.]

20 MR. PARTLOW: But an example is the electrical design
21 calculations. This was a major improvement program in
22 electrical and mechanical and so forth, to go back and review
23 and redo a whole lot of electrical design calculations to sort
24 of reestablish the design basis of the plant.

25 That package is due in imminently for Sequoyah Unit

1 1. It covers the whole site electrical distribution system
2 including emergency diesel generators. It gets into the design
3 calculations of the capacity of the diesel generators --

4 COMMISSIONER ROBERTS: Is this similar to the problem
5 in Unit 2?

6 MR. PARTLOW: It will be a review of the similar
7 concerns that were raised at Unit 2, Commissioner. Yes, sir.

8 So we don't anticipate any problems in that package
9 in this regard in terms of the diesel generator capacity for
10 two unit operations but we need to get the package and go
11 through it for ourselves.

12 The second item on the list, fire protection, that is
13 not a technical issue. We conducted our inspection of fire
14 protection, Appendix R, at Unit 1 just this last week. It was
15 a satisfactory inspection. We did find that they still need to
16 complete some matters that they have been working on, some
17 sprinkler head locations, some emergency lighting and so forth,
18 but I guess the important thing here is that we had earlier in
19 March found some Appendix R problems at Unit 2 and here on this
20 inspection at Unit 1 we did find that they had successfully
21 transferred those lessons learned over to Unit 1.

22 Finally, there have been a number of bulletins issued
23 this year that the responses are soon coming in from TVA -- not
24 that any of these bulletins are going to hold up start up but I
25 want to understand and TVA I'm sure wants to understand what is

1 being done short term versus long term on these bulletins. A
2 very recent one on the thinning of thimble tubes at
3 Westinghouse reactors just came out, but it is something that
4 needs to be looked at while there's the opportunity to look at
5 it.

6 There are several other bulletins in that regard that
7 we are waiting to receive, several tech spec changes that still
8 need to be processed. There is an exemption request on the
9 testing of a valve that is being processed. Again, I
10 anticipate no major problems but I don't want to leave you with
11 the impression that nothing will possibly come up.

12 CHAIRMAN ZECH: There is still work to do.

13 MR. PARTLOW: Yes.

14 CHAIRMAN ZECH: Right.

15 MR. PARTLOW: Next chart, please.

16 [Slide.]

17 MR. PARTLOW: The inspections that we have conducted
18 recently and will be conducting in the future -- in June and
19 July we did a containment spray system evaluation. This was a
20 team inspection that was very focused upon one relatively small
21 system, the containment spray system. The intent here was to
22 really shake out one system to ask the question, okay, they
23 have all these improvement programs, they did all this work on
24 Unit 2 that we looked at rather exhaustively. Let's take a
25 little snapshot in Unit 1 to see if that's been done there.

1 Through this team inspection we examined maintenance
2 and surveillance and design calculations and drawing control
3 and QA and the whole thing on the system. We even took the
4 employee concerns that had been raised concerning this system
5 and pulled the thread on those to see if they had been
6 adequately addressed.

7 It was a satisfactory inspection. It did again tell
8 us that the programs that had been implemented and promised at
9 Unit 2 also had been implemented at Unit 1. We found some
10 things. We found some missing electrical calculations. We
11 found some minor as-built deficiencies in walking down the
12 system. We found some -- where they could do better protecting
13 open equipment while it was being maintained or modified and so
14 forth, but it was a satisfactory inspection.

15 COMMISSIONER CARR: That was a mini-vertical slice?

16 MR. PARTLOW: Yes, sir.

17 COMMISSIONER CARR: Okay.

18 MR. PARTLOW: Maximum vertical slice on the mini-
19 system.

20 Fire protection we have already discussed. And what
21 do we intend to do between now and the time of startup at
22 Sequoyah? Unless something comes up, we're basically finished
23 with our major programmatic technical team inspections.

24 I do want to still take a look at the maintenance
25 status at the plant later this month, not the programs so much,

1 but again the backlog, the kind of things that TVA talked to
2 the Commission about. Is it well prioritized, is it well
3 scrubbed down for those things that can be done or should be
4 done prior to startup.

5 Prior to the plant's mode change, permission for mode
6 change, prior to the staff's readiness to recommend to the
7 Commission that the plant is ready to start up, we will do a
8 restart readiness team inspection.

9 The primary emphasis will be upon the readiness of
10 Unit 1 to operate and also upon the readiness of Sequoyah to be
11 a two-unit operating site. There will be a team inspection
12 looking at maintenance, modifications, the work of the
13 committees, how the QA program and the corrective action system
14 is operating and so forth.

15 Then as the -- just prior to the plant's beginning
16 heat-up and throughout the approach to criticality and so
17 forth, we will be doing an augmented site inspection coverage
18 program of periods of backshift coverage, perhaps in 24 hour
19 coverage, and so forth, throughout the process of a heat-up,
20 approach to criticality, and power ascension.

21 One of the things that I will ask our people to do
22 during these observations that are going to be going on over
23 the next week is to be very careful to note that -- to observe
24 that the operators, that the managers, are now back into the
25 mode of using our technical specifications, of using our

1 limited conditions for operations, and our action statement,
2 recognizing them and it requires a mode change in your mind as
3 you go back to operations. Recognize them, interpreting them
4 narrowly and conservatively and acting upon them.

5 So I'll be asking our observers to be especially
6 cognizant of that as they do their work. That completes the
7 staff's presentation. We'd be happy to try and answer
8 questions.

9 CHAIRMAN ZECH: Thank you, everyone.

10 MR. STELLO: One final comment, as I said before, our
11 intent would be to prepare a summary report and provide it to
12 the Commission before we would feel comfortable allowing a
13 restart of the plant. So we do plan to provide you with a
14 report that documents the completion of the items that you've
15 heard this afternoon.

16 CHAIRMAN ZECH: Thank you very much. Questions,
17 comments. Commissioner Roberts?

18 COMMISSIONER ROBERTS: No.

19 CHAIRMAN ZECH: Commissioner Carr, Commissioner
20 Rogers?

21 [No response.]

22 CHAIRMAN ZECH: Well, let me just say, make one
23 comment, and I think we've covered the Sequoyah 1 situation
24 very well. Mr. Smith mentioned that perhaps there was a little
25 bit of over-confidence during the restart of Sequoyah Unit 2.

1 I know exactly what he means. It's a natural
2 tendency when things start out rather smoothly to -- everybody
3 feels pretty good about it. That's something that has to be
4 watched and so I would say to our resident and to our special
5 projects people in your oversight and to the TVA people, too,
6 that confidence is fine, but over-confidence is not fine.

7 And so I hope you'll all be mindful of that and I
8 think that's what Mr. Smith was saying and I appreciate that
9 and I agree with him. Confidence but not over-confidence.
10 That's what we're looking for. And a cautious prudent approach
11 to all of the activities is also important.

12 Mr. Partlow, I agree with you. You do have work to
13 do obviously. I appreciate the fact that you believe you're
14 reasonably on schedule. I would just say, just make sure that
15 you do take the time you need to review the remaining issues
16 and I think that TVA, from what we've heard today, wants to do
17 the same thing.

18 I would just like to thank both TVA and the staff for
19 the briefing. It's my understanding, Mr. Stello, that what
20 you've said is that the Commission, at least at this time and
21 barring any unforeseen events, would believe that it will not
22 be necessary for the licensee to come back before the
23 Commission prior to restart decision on Sequoyah Unit 1. Is
24 that what you're saying, your intention at the moment?

25 MR. STELLO: It is my belief that that would not be

1 necessary, barring something unusual. If things go badly, I
2 think it might be appropriate to have them come up here and you
3 shake your finger at them a little bit if things don't go well.

4 CHAIRMAN ZECH: It's my understanding that my fellow
5 Commissioners would agree with that at the moment, but we would
6 reserve the right to change our mind between now and the time
7 it comes. On the other hand though, no matter what, we would
8 request that the staff provide a paper to the Commission with
9 your recommendation for restart, when you are satisfied that
10 all the prerequisites for restart are completed.

11 We will expect that as a minimum. We'll reserve the
12 right to call the licensee back to the table if we believe,
13 between now and then, it should be necessary and we'd ask --

14 MR. STELLO: We will give you that recommendation.
15 If we think that's necessary, we won't hesitate. But at the
16 moment, I don't believe that's necessary.

17 CHAIRMAN ZECH: All right. We will be continually
18 mindful of it. I know Mr. Partlow will, too, as we move ahead.
19 All right. Are there any other comments?

20 [No response.]

21 CHAIRMAN ZECH: If not, thank you very much. We
22 stand adjourned.

23 [Whereupon, at 3:25 p.m., the Commission meeting was
24 adjourned.]

25

CERTIFICATE OF TRANSCRIBER

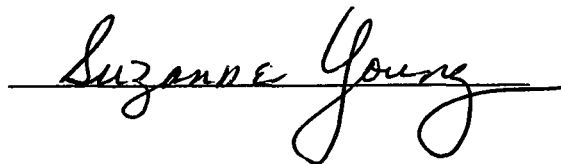
This is to certify that the attached events
of a meeting of the U.S. Nuclear Regulatory Commission
entitled:

TITLE OF MEETING: BRIEFING ON THE STATUS OF SEQUOYAH-1

PLACE OF MEETING: Washington, D.C.

DATE OF MEETING: THURSDAY, AUGUST 4, 1988

were transcribed by me. I further certify that said
transcription is accurate and complete, to the best
of my ability, and that the transcript is a true and
accurate record of the foregoing events.

A handwritten signature in cursive script, reading "Suzanne Young", is written over a horizontal line.

Ann Riley & Associates, Ltd.

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

157B Lookout Place

AUG 17 1988

U.S. Nuclear Regulatory Commission
Attention: Office of the Secretary
Mail Code 16H-3
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852


Dear Sir:

TRANSCRIPT CHANGES REGARDING MEETING BETWEEN TVA AND THE NRC HELD ON
AUGUST 4, 1988

Please add the enclosed corrected transcript to the record of the meeting
between NRC and TVA on August 4, 1988, entitled, "Briefing on the Status
of Sequoyah-1."

Very truly yours,

TENNESSEE VALLEY AUTHORITY


R. Eridley, Manager
Nuclear Licensing and
Regulatory Affairs

Enclosure

cc (Enclosure):

Mr. S. D. Richardson, Director
TVA Projects Division
U.S. Nuclear Regulatory Commission
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852

CHANGES ON TRANSCRIPT REGARDING

BRIEFING ON THE STATUS OF SEQUOYAH-1

HELD THURSDAY, AUGUST 4, 1988

<u>PAGE</u>	<u>LINE</u>	<u>DESCRIPTION OF CHANGE</u>
4	8	Insert "and a" after "leadership"
5	20	Insert "and the" after "decisions"
5	21	Change "have" to "had"
5	22	Change "have" to "had"
6	10	Insert "and" after "requests"
9	13	Change "Insurance" to "Insurers"
9	25	Insert "I" before "selected"
10	4	Change "they" to "I"
13	15	Change "turban" to "turbine"
13	23	Change "what" to "that what"
13	24	Delete "what is"
13	24	Change "of" to "are"
26	8	Insert "during" after "inspection"
31	3	Change "Brown's" to "Browns"
31	14	Change "Brown's" to "Browns"
31	16	Change "Watt's Barr" to "Watts Bar"
31	17	Change "Brown's" to "Browns"
33	9	Change "liability" to "reliability"
38	7	Change "Brown's" to "Browns"

TENNESSEE VALLEY AUTHORITY

**SEQUOYAH NUCLEAR PLANT
UNIT 1**

**NRC COMMISSION MEETING
AUGUST 4, 1988**

AGENDA



OPENING REMARKS

MANAGEMENT ASSESSMENT OF READINESS

PLANT READINESS

CONCLUSIONS

PURPOSE

- **ASSESSMENT OF READINESS OF SEQUOYAH UNIT 1**

BACKGROUND

- **1985 - ALL OPERATING PLANTS WERE SHUTDOWN**
- **MARCH 1986 - BRIEFED NRC ON PROBLEMS AND NUCLEAR PROGRAM GET-WELL PLANS**
- **MARCH 1987 - STATUS OF IMPLEMENTATION OF PLANS**
- **MARCH 1988 - REQUESTED RESTART OF SEQUOYAH UNIT 2**
- **JUNE 1988 - UPDATE ON STATUS OF SEQUOYAH UNITS AND NEW ORGANIZATION**

SEQUOYAH UNIT 1

- **SELF EVALUATION**
- **LESSONS LEARNED**
- **MATERIAL CONDITION**
- **OPERATIONS STAFFING**
- **SCHEDULE**

OPERATING PHILOSOPHY

- **SAFETY AND QUALITY COME FIRST**
- **HIGH STANDARDS OF EXCELLENCE**
- **MANAGEMENT INVOLVEMENT**
- **FORMALITY AND DISCIPLINE**
- **WALKING SPACES**
- **PROFESSIONALISM AT ALL LEVELS**

AGENDA

OPENING REMARKS



MANAGEMENT ASSESSMENT OF READINESS

PLANT READINESS

CONCLUSIONS

SEQUOYAH UNIT 1

INDEPENDENT REVIEWS PRIOR TO RESTART

OPERATIONAL READINESS REVIEW

MAY 16 - JULY 22, 1988

INPO - PLANT EVALUATION

JULY 11 - 22, 1988

ANI - SEMIANNUAL INSPECTION

JULY 5 - 8, 1988

UNIT 2 LESSONS LEARNED

APPLIED TO UNIT 1

- **HARDWARE**
- **PROGRAMMATIC**
- **PEOPLE**

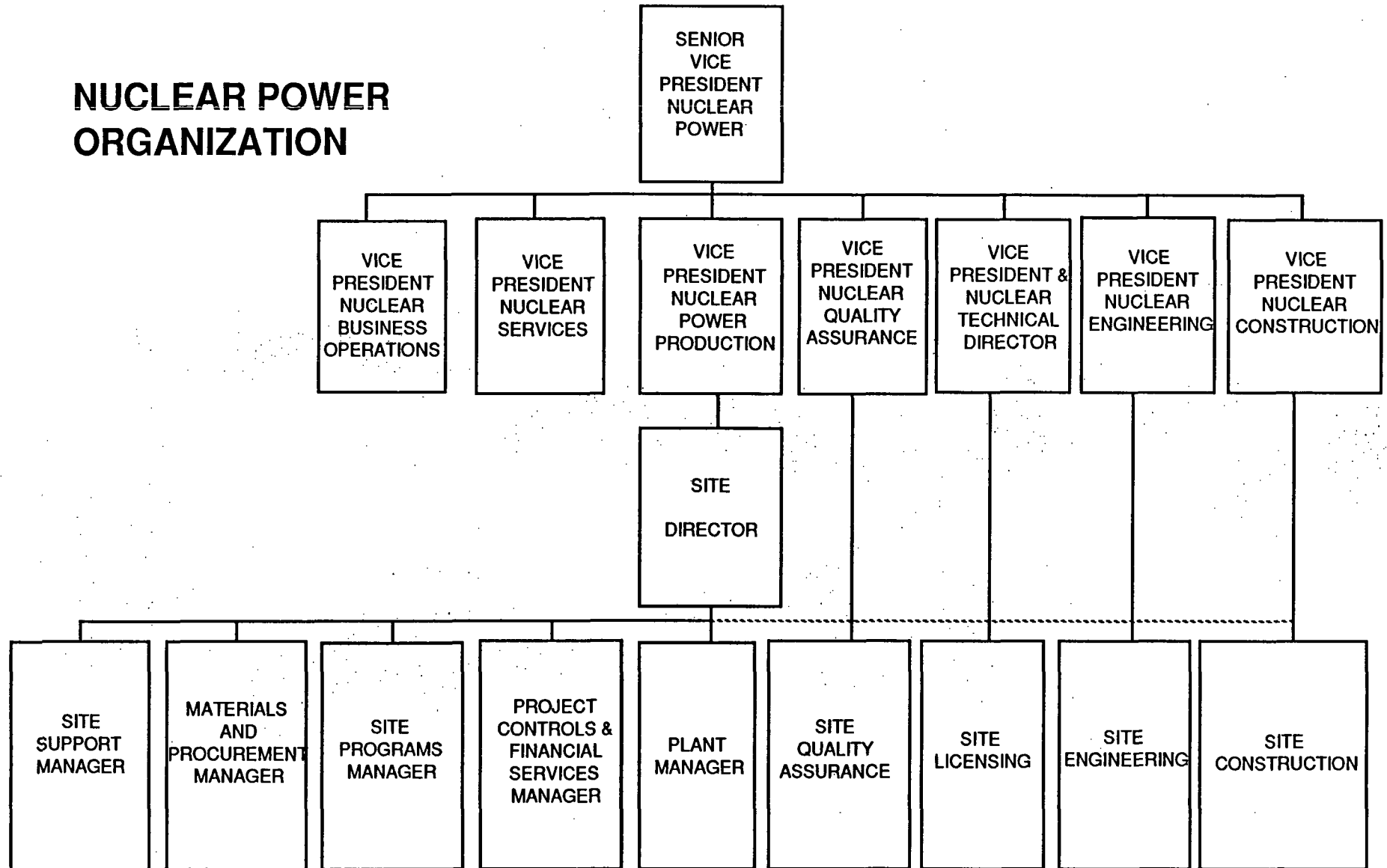
LESSONS LEARNED - HARDWARE

- **STEAM GENERATOR TUBE PLUGGING**
- **PRESSURIZER SAFETY VALVES**
- **MAIN FEEDWATER PUMP CONTROL SYSTEM**
- **ICE CONDENSER**
- **SECONDARY SIDE MAINTENANCE**
- **ERCW CHECK VALVES**
- **APPENDIX R SPRINKLERS**
- **CONTROL ROOM WORK REQUESTS**

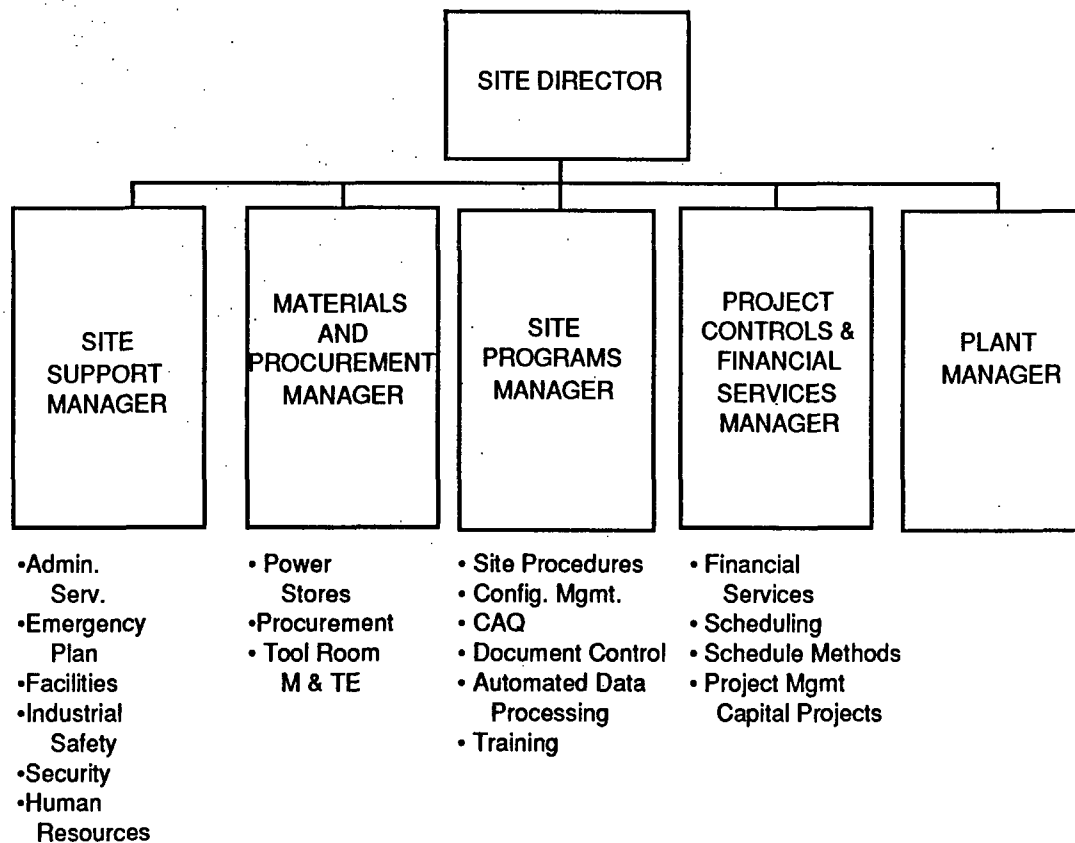
LESSONS LEARNED - PROGRAMMATIC

- **CONDUCT OF OPERATIONS**
- **SYSTEM VALVE ALIGNMENT**
- **WORK CONTROL**
- **OPERABILITY LOOKBACKS - SECONDARY SIDE**
- **INCIDENT INVESTIGATION - ROOT CAUSE**
- **IMPROVED STARTUP PROCEDURES AND TRAINING**

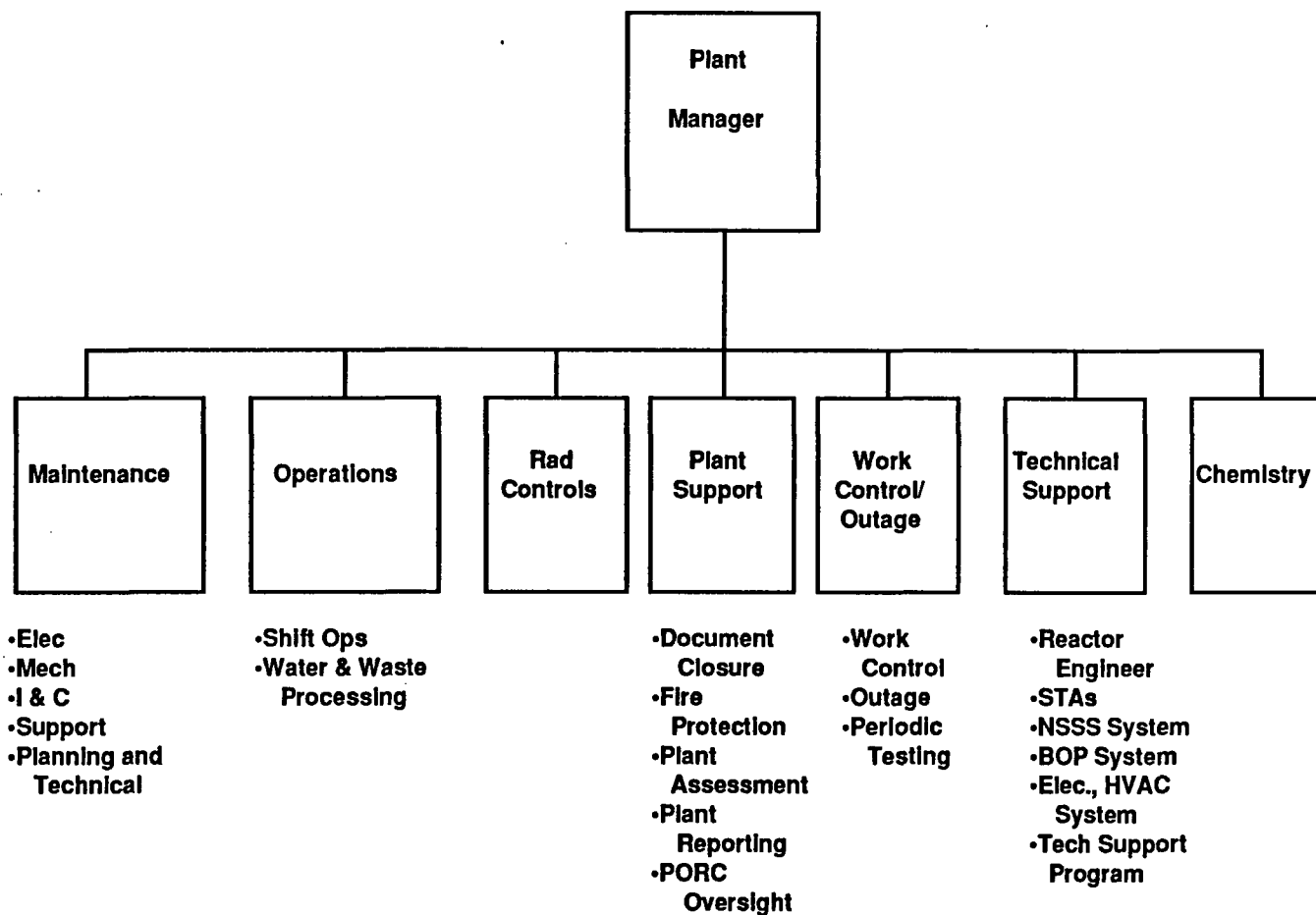
NUCLEAR POWER ORGANIZATION



SITE DIRECTOR 'S ORGANIZATION



PLANT MANAGER'S ORGANIZATION



STAFFING LEVELS

SITE DIRECTOR ONSITE SUPPORT

Direct Reports	352
Quality Assurance	120
Licensing	31
Nuclear Engineering	351
Nuclear Construction	713
	<hr/>
	1567

PLANT MANAGER

Maintenance	397
Operations	223
Radiological Controls	91
Plant Support	80
Work Control Outage	39
Technical Support	123
Chemistry	48
	<hr/>
	1001
	<hr/>
Site Total	2568

CONCLUSIONS

- **SOLID ORGANIZATIONAL STRUCTURE IN PLACE**
- **SUFFICIENT STAFFING TO STARTUP AND RUN SECOND UNIT**
- **LESSONS LEARNED INCORPORATED FROM UNIT 2**
- **INDEPENDENT REVIEWS INDICATE PROGRAMS AND IMPLEMENTATION SATISFACTORY TO RESTART UNIT 1**

**• WE EXPECT UNIT 1 STARTUP TO BE IMPROVED
OVER THE SUCCESSFUL STARTUP OF UNIT 2**

AGENDA

OPENING REMARKS

MANAGEMENT ASSESSMENT OF READINESS



PLANT READINESS

CONCLUSIONS

PLANT READINESS

- **PLANT MATERIAL CONDITION**
- **OPERATIONS/WORK CONTROL GROUP**
- **UNIT 2 OUTAGE IMPACT**

WORK REQUEST PERFORMANCE UNITS 1 & 2

1986	SUBMITTED	19,842
	COMPLETED	19,001
1987	SUBMITTED	20,043
	COMPLETED	20,362
1988 THRU JULY 31	SUBMITTED	9,679
	COMPLETED	10,490

WORK REQUEST PERFORMANCE UNIT 1

- **951 RESTART WORK REQUESTS REMAIN**

UNIT 1 MODIFICATIONS HANGERS

TOTAL IDENTIFIED REQUIRED FOR RESTART	1613
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TOTAL COMPLETE	<u>1549</u>
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TOTAL REMAINING	64
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UNIT 1 MODIFICATIONS RAYCHEM SPLICES

TOTAL IDENTIFIED REQUIRED FOR RESTART	527
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TOTAL COMPLETE	<u>514</u>
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TOTAL REMAINING	13
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UNIT 1 MODIFICATIONS ECN's/DCN's

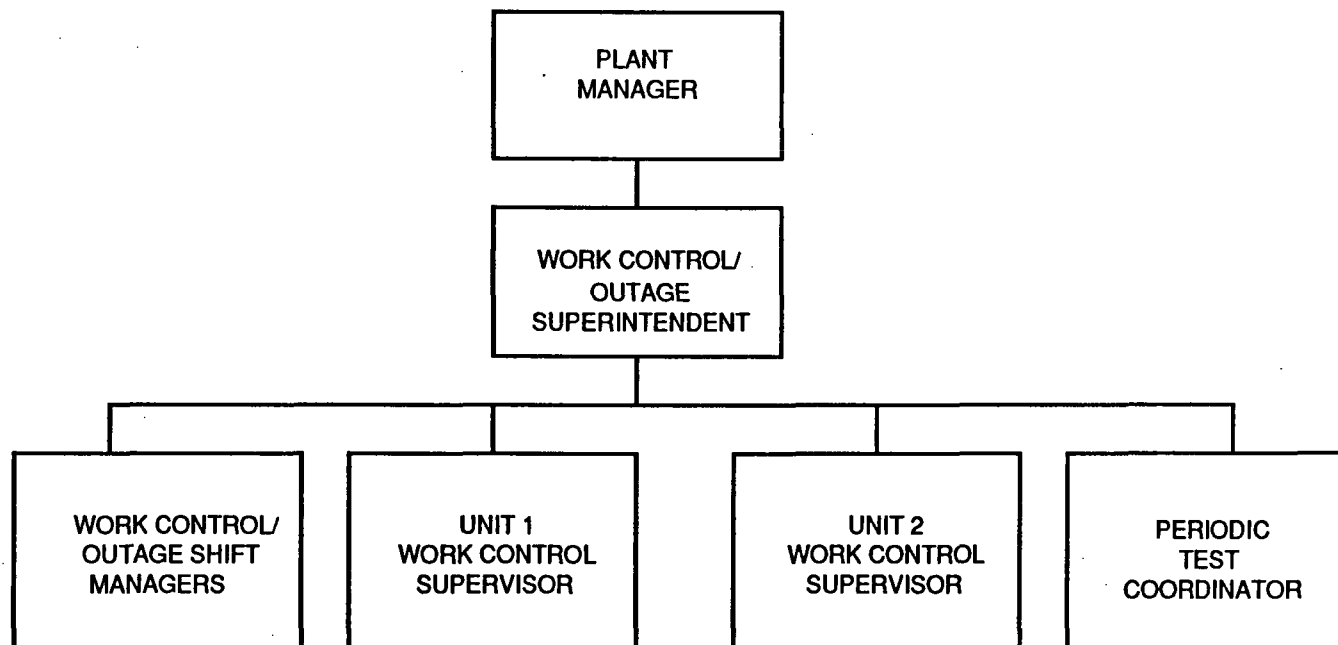
TOTAL UNIT 1 MODIFICATIONS IDENTIFIED	333
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TOTAL UNIT 1 RESTART MODIFICATIONS REMAINING	47
---	-----------

OPERATIONS STAFFING

- **OPERATING ORGANIZATION IN 6 GROUPS**
- **TRAINING FOR CONTROL ROOM PERSONNEL**
- **EXPERIENCE AND QUALIFICATIONS OF LICENSED PERSONNEL**
- **WORK CONTROL**

SEQUOYAH NUCLEAR PLANT WORK CONTROL/OUTAGE GROUP



SEQUOYAH WORK ACTIVITIES

	ACTIVITIES COMPLETED 2nd QTR '88	PLANNED ACTIVITIES UNIT 2 CYCLE 3 OUTAGE
WORK REQUESTS	3907	1000
MODIFICATIONS	58	52
PREVENTIVE MAINTENANCE	2027	200
SURVEILLANCE INSTRUCTIONS	1992	350

CONCLUSIONS

- ALL WORK ACTIVITIES ARE ON SCHEDULE
- TWO UNIT ORGANIZATION IN PLACE
- SIGNIFICANT OPERATING PROGRAM IMPROVEMENTS HAVE BEEN MADE

- FROM A PERSONNEL, PROGRAMMATIC, AND MATERIAL STANDPOINT WE EXPECT UNIT 1 RESTART TO BE SIGNIFICALLY IMPROVED OVER UNIT 2

AGENDA

OPENING REMARKS

MANAGEMENT ASSESSMENT OF READINESS

PLANT READINESS

—————→ CONCLUSIONS

SEQUOYAH UNIT 1 SCHEDULE

- **BEGIN HEATUP IN SEPTEMBER**
- **CRITICALITY ~ 2 WEEKS AFTER HEATUP BEGINS**
- **TVA/NRC AGREED UPON HOLD POINTS**

CONCLUSIONS

- **UNIT 2 LESSONS LEARNED HAVE BEEN IDENTIFIED AND UTILIZED ON UNIT 1**
- **TWO-UNIT OPERATIONAL READINESS HAS BEEN ASSESSED**
- **PROGRAMS TO ENSURE CONTINUING IMPROVEMENT AND SELF- ASSESSMENT ARE WORKING**
- **READINESS FOR UNIT 1 RESTART**

COMMISSION BRIEFING
OFFICE OF SPECIAL PROJECTS
AUGUST 4, 1988
SEQUOYAH UNIT 1 STARTUP STATUS

JAMES G. PARTLOW, DIRECTOR
OFFICE OF SPECIAL PROJECTS

TVA SCHEDULE FOR SEQUOYAH
UNIT 1 RESTART

- o NON-NUCLEAR HEATUP (MODE 4)
EARLY SEPTEMBER 1988
- o CRITICALITY (MODE 2)
OCTOBER 1988

UNIT 2 OPERATING EXPERIENCE

- 0 CRITICALITY 5/13/88
- 0 5 REACTOR TRIPS (5/19 - 6/9)
- 0 OPERATIONS IMPROVEMENTS
SINCE 6/13/88 MANAGEMENT
MEETING
- 0 STEADY POWER OPERATIONS
SINCE 6/19/88

SIGNIFICANT RESTART TECHNICAL ISSUES

- o ELECTRICAL DESIGN CALCULATIONS
- o FIRE PROTECTION
- o RESOLUTION OF RECENT BULLETINS

MAJOR UNIT 1 RESTART INSPECTIONS

- o CONTAINMENT SPRAY SYSTEM EVALUATION
(6/20 - 7/8/88)
- o FIRE PROTECTION
(7/25-29/88)
- o MAINTENANCE
LATE AUGUST 1988
- o RESTART READINESS
LATE AUGUST 1988
- o AUGMENTED STARTUP COVERAGE