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In the Matter of: ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

SUBCOMMITTEE ON COMMANCHE PEAK STEAM ELECTRIC STATION UNITS 1 AND 2

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NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

SUBCOMMITTEE ON COMMANCHE PEAK STEAM

ELECTRIC STATION UNITS 1 AND 2

- - -

Holiday Inn
Dallas-Fort Worth Airport South
Dallas-Fort Worth, Texas
Monday, June 29, 1981

The meeting of the Subcommittee convened, pursuant to notice, at 1:00 p.m.

SUBCOMMITTEE MEMBERS PRESENT:

M. Bender, Chairman
W. Kerr
C. P. Siess
J. J. Ray

DESIGNATED FEDERAL EMPLOYEE:

Sam Duraiswamy

P R O C E E D I N G S

(1:00 p.m.)

MR. BENDER: The meeting will now come to order. This is a meeting of the Advisory Committee on Reactor Safeguards Subcommittee on Comanche Peak Steam Electric Stations Units 1 and 2.

I am Myer Bender, Subcommittee Chairman. The other ACRS members present today are: William Kerr, Jeremiah Ray and Chester Siess.

The purpose of this meeting is to review the application of the Texas Utilities Generating Company for a license to operate Comanche Peak Units 1 and 2.

This meeting is being conducted in accordance with the provisions of the Federal Advisory Committee Act and the Government in the Sunshine Act. Mr. Sam Duraiswamy is the Designated Federal Employee for the meeting.

The rules for participation in today's meeting have been announced as part of the notice of this meeting previously published in the Federal Register on Friday, June 12, 1981. A supplement to the June 12, 1981, Federal Register notice was issued on June 26, 1981, to change the meeting place from Braniff House Hotel to Holiday Inn South.

A transcript of the meeting is being kept and will be made available as stated in the Federal Register notice.

It is requested that each speaker first identify himself or herself and speak with sufficient clarity and volume so that he or she can be readily heard.

We have received no written comments or requests for time to make oral statements from members of the public.

(Gap in recording.)

And in order to do that it may be necessary to cut short some parts of the presentation if it doesn't appear that it will fit within our schedule. As many people know, we are planning another Subcommittee meeting in Washington on July 22nd and matters that are not covered here will be carried over to that meeting. But hopefully we'll get through this agenda today.

And with that, I would like to call on Mr. Scott Burwell of the NRC staff to make a brief presentation.

MR. BURWELL: Okay. My name is Scott Burwell. I am the licensing --

MR. BENDER: Could you use the microphone?

MR. BURWELL: My name is Scott Burwell. I'm the licensing project manager for the NRC staff. I've been asked to briefly cover the status of the staff's review of the plant.

First of all, the initial scheduling of the issuance of the SER was June the 11th. We were delayed by open issues. Our present schedule for issuance of the SER is July the 8th. We intend to issue a supplement to the SER on September the 18th and the projected OL decision date for issuance of the license is 10-82.

MR. BENDER: Excuse me. Could you stand closer to the mike. You're still not coming through well.

MR. BURWELL: Of course. I'll just move over closer. I'm not used to using these things.

Okay. With that, I'll go on to the next, which in essence -- I was asked to cover the major differing issues between the staff and Applicant. I would say at this time we have not identified any issues in which we really disagree our positions. What I'm going to talk about is incomplete items, items which are incomplete eit because of the status of the design and construction or where we are in terms of readiness to operate the plant or because the staff and the Applicant have not completed the details in their review.

I expect most of the latter to be completed by the August ACRS meeting.

I'm going to organize my breakout of incomplete items by non-TMI items and TMI items in that order. With that, I will say that the non-TMI items as of this date, I count about 34.

Between now and July the 8th, I intend to resolve nine of these items. In essence, most of these are already -- the staff and the Applicant are in substantial agreement.

It's a matter of closing it out, getting the documentation or bringing the matter to an end. I will not waste time on going down through them.

Obviously 34 minus 9 is 25, and of the 25 between this time and our issuance of the SER I'm projecting that I will have an additional 12 closed by the time of the ACRS meeting, leaving a total after the ACRS meeting of about 13 items.

Now let's see --

VOICE: Before you go further, are any of the items that you've found so far unique to Comanche Peak or are they the same types of things that you're faced with on all Westinghouse PWR's?

MR. BURWELL: On this slide you will notice item 9, which is the use of (Inaudible) control rods. This will be the first Westinghouse plant to use these control rod.

VOICE: I see.

MR. BURWELL: I believe the rest are fairly routine.

VOICE: How about the discussion of the SSI items?

MR. BURWELL: Sorry?

VOICE: SSI.

MR. BURWELL: Well, the safe shutdown, there is some discussion with the staff. It is something that we will have resolved by the time of the ACRS meeting. In fact, we ought to have it resolved by next month.

Okay, fine. Now, by the time of the ACRS these are the items that I am predicting --

VOICE: Would you move nearer the mike.

MR. BURWELL: Okay.

As of the time of the ACRS meeting, these are the items that I do not believe will be completed. Many of them, we will be well along and I think we can pull together some of them, particularly things like emergency plans, environmental qualification for electrical equipment, NUREG-0588. That's a unique item for this plant in that this is the first plant to be qualified to IEEE-323 1974.

That's an ongoing program and we would --

VOICE: Do you want to go bac.. one slide? Would you go back one slide.

Could you explain item 11 to me, please?

MR. BURWELL: This is one in which we have asked the Applicant to give a paragraph by paragraph explanation that he has in fact or will conform to the regulations 22, 32, and 100. He has not responded to this. We expect to get an answer to that about -- let's see, July the 24th is the date I have. And so that's a matter of closing that out.

VOICE: Is this something new and different? Because I thought that's what the SER addressed?

MR. BURWELL: That's correct.

VOICE: And the SAR.

MR. BURWELL: That's correct. However, this is more a tabulation of it, of the legal requirements as opposed to just simple technical, as opposed to the technical comp?iance.

VOICE: This is legal rather than technical?

MR. BURWELL: In my view, yes. However, we have, as we have in the past, included this in the SER.

VOICE: Okay.

VOICE: Tell me what it is you're going to require? That he conforms to the regulations?

MR. BURWELL: Well, it's not -- I understood it was noticed that way --

VOICE: Well, who understands this, because I don't? Tell me what it is that you want him to say.

MR. BURWELL: We want him to go down through the regulations and in each paragraph give a description of how he conforms to that. We want him to flag any exceptions.

VOICE: In what sense? Why can't he just write a thing that says: I am conforming to Part 20?

MR. BURWELL: I'm unable to answer that. No, I shouldn't say that.

VOICE: Maybe we should ask the Applicant if he knows what he's supposed to do.

MR. SCHMIDT: My name is Homer Schmidt.

And as we understand the requirement, NRC staff has asked us to identify each regulation, and that I guess means that we mutually identify it between us and the staff, and then describe how we comply with that and where in the FSAR we comply with it, or address that, I think.

VOICE: There is a format?

MR. BURWELL: There is a format.

VOICE: Is this in response to the Bingham amendment or is this something else?

VOICE: Yes, this is in response to the Bingham amendment.

VOICE: Is it partly responsive to Commissioner Bradford interest in making certain that the regulations are fully covered in the application? But you have references to the FSAR -- okay, I'll accept your explanation.

MR. BURWELL:

MR. SIESS: No, go ahead.

MR. BURWELL: If not, then I'll go on.

VOICE: May I ask a question. On there, the seismic qualification of the PORV operator. Does the staff not have a requirement that the PORV operator be seismically qualified?

MR. BURWELL: The basis for that goes to RSV-5-2, I believe, in which we are concerned about the low temperature effect, overpressure protection of the reactor system. And on the low end, when you're operating at low temperatures, you use the pressurizer PORV, and you used to go through the low pressure scale of operation on it.

And in the event of an earthquake the staff has found that the operator is not qualified to operate, seismically qualified. The pressurizer valve, the body remains intact; it is the operation that's in question.

VOICE: In other words, you use the PORV as a safety valve in some manner?

MR. BURWELL: That's the staff's understanding.

VOICE: By resetting the pressure point?

MR. BURWELL: I'm sorry. With resetting the pressure point.

VOICE: You reset the pressure point.

MR. BURWELL: You reset the pressure point.

VOICE: There is one there that says "control system failures," number 6. To what does that refer? If you don't know --

MR. BURWELL: "Control system failures" refers to -- it's almost a generic item, in which failures caused by failure on the common power source would possibly lead into multiple failures back in the system. And we have a question out on that to the Applicant and to this point he has not responded.

VOICE: Thank you.

VOICE: Just to be clear, does he know what to respond to?

MR. BURWELL: Does he know what to respond to?

VOICE: Does he know what he needs?

MR. BURWELL: I think so, but it's quite an extended schedule.

VOICE: Have you gotten such a response from any other, comparable responses?

MR. BURWELL: I would have to say I don't know.

MR. SCHMIDT: Mr. Bender, if I might. Homer Schmidt again.

We'll be addressing some of these in our prepared presentation later today. So if that would help..

MR. BENDER: All right. Just to get this point clear, do you know what's expected of you?

MR. SCHMIDT: I believe we do, yes, sir.

MR. BENDER: Fine, thank you.

Go ahead.

MR. BURWELL: Now, with this I go on to the TMI open issues. I had a great deal of trouble trying to give a true picture of where we are in this because many of them are things going on, but they're not likely to be completed by the ACRS meeting.

The Applicant did submit his responses to

NUREG-0737 back in January '81 and we believe that he will meet the implementation schedule given in that document. As you can see, for things like operational safety we have done a review of his organization and we found that in substantially good shape.

However, we will need to make a site visit, final check, before we write off on all these matters here. We have much the same problem in operating procedures. In control room review, we've already done our initial control room review and we'll go back again. Many of the others fall in much the same type of thing as far as the status of the program, as far as the operating procedures.

This summarizes pretty well what I said. We now have 34 non-TMI items. We hope to be down to 13 by the time of the ACRS meeting, of which -- in addition we have 13 TMI items, which I hope to have down to about 11 by that time.

VOICE: When you say the ACRS meeting, which meeting? Are you talking about the August meeting?

MR. BURWELL: August meeting.

VOICE: That doesn't sound like the world's greatest record to me, 13 out of 34 and 11 out of 13.

MR. BURWELL: We might do better.

VOICE: Well, I won't try to hold you to any set number. But it's going to be difficult for the Committee to deal with this application if you haven't done that, and I think the Committee ought to be (Inaudible) to whittle it down to what we can reasonable agree to, leave these administrative matters to be sorted out after the Committee's deliberations.

MR. BURWELL: We will do our best.

VOICE: Do you have any questions, Mr. Burwell?

(Pause.)

VOICE: I notice you haven't indicated a date for the resolution of the ACRS issues, but you indicated a supplementary SER issue in September. Does this mean in your -- yes, September 18. Does this mean that you expect that you expect to get all of these items, including 13 and 11, completed by September 18 of this year?

MR. BURWELL: I would expect all of these to be down to the status of the staff work essentially completed, but subject to a need to confirm that certain things were done in accordance with criteria or agreed upon positions.

VOICE: I see. And the major issue isn't corrective, as I understand it. It's just a matter of bringing in paperwork?

MR. BURWELL: Correct. Items would be more appropriate than --

VOICE: There's no disagreement between you?

MR. BURWELL: Right.

VOICE: On June 17 you wrote a letter to Mr.

Eisenhut, director of licensing, and you wrote a letter to Mr. Gary, executive vice president of TUGCO, in which you listed, from what I understand it here, some 94 items.

MR. BURWELL: That's correct, sir.

VOICE: That's not totally consistent with the number I see up there. Does that mean a lot of these items have already been cleaned off the list?

MR. BURWELL: That means two things. An awful lot of them have been cleaned off of those lists; and of course, the other problem was that the 94 represented further back in history than the date on the letter. My concurrence chain was somewhat slow on that letter.

VOICE: So what you're saying is that the June 17 letter doesn't add much. I didn't realize how slow the communication chain is within the NRC. But that's another issue.

Anything else, Mr. Burwell?

(No response.)

MR. BENDER: If not, let's move to the next item on the agenda. Mr. Schmidt, do you want to pick up here?

MR. SCHMIDT: Yes, sir, thank you.

My name is Homer Schmidt. I am manager of nuclear services at Texas Utilities Services, Incorporated, TUSI, the acronym, we refer to as "TUSI." It's a subsidiary of Texas Utilities Company.

We are representing Texas Utilities Generating Company, TUGCO, the Licensee for Comanche Peak Steam Electric Station. We have available here today representatives from TUGCO, from TUSI, from Gibbs & Hill, who is our architect-engineer, from Westinghouse, who is our nuclear steam system supplier and vendor.

The Comanche Peak project was conceived in 1971 when preliminary design studies were performed. The part owners are Texas Electric Service Company, Texas Power & Light Company, Dallas Power & Light Company, Texas Municipal Power Agency, the Dallas Electric Power Cooperative, and the Texlaw Electric Cooperative of Texas.

With respect to our design philosophy, Comanche Peak consists of two units, each with a rating of 3425 megawatts thermal. It's a Westinghouse RESAR 3 reference plant, a fairly standard type of plant. It complies with the format requirements of the NRC's Reg Guide 1.70, Revision 2. Also, it is the first plant to meet the requirements of IEEE Standard 323 '74 for environmental qualification.

Some of the parameters utilized in the design of the plant are that we have two reactor buildings, two safeguards buildings, two diesel generator buildings per unit, a common turbine building with the turbine generators oriented radially from the reactors, a common auxiliary building, a common fuel building and a common control board with two identical same-hand control -- a common control room and two identical same-hand control boards, one for each unit.

The containment design is steel-reinforced concrete. The condenser cooling is supplied by a reservoir with approximately 3200 surface acres. The electric output of the plant enters the TU transmission system through four circuits.

The basic underlying design philosophy is to design and build and operate the plant to provide safe, reliable and economical power throughout plant life.

The Comanche Peak design is similar in most respects to the following plants: Maguire, Trojan, and North Anna. A design comparison is included in section 123 of the Comanche Peak FSAR.

With respect to scheduling status, our construction permit was issued in December 1974. The operating license application was docketed by NRC staff in April '78. The safety evaluation report is expected in July of '81. The environmental statement was issued in June of '81.

Our licensing status is, with the Atomic Safety & Licensing Board we're in the process of discovery right now. We have three intervenor groups that have been admitted to the proceeding and we're in the discovery stage at this point in time.

Our current construction completion is 88 percent on Unit 1, 52 percent on Unit 2, and our total project percentage is 77 percent. We expect operation of the first unit in 1982.

The fuel status, the first core for Unit 1 has been completed and the fuel is in storage at the Westinghouse fuel facilities in Columbia, South Carolina, and is available for shipment when required.

That concludes my introductory remarks. If there are any questions, we'll try and answer them.

I'd like to introduce next Mr. Bill Clemens, executive vice president, nuclear, Texas Utilities.

MR. CLEMENS: My name is B.R. Clemens and I'm the vice president, nuclear, Texas Utilities Generating Company, and the corporate officer responsible for the operation of Comanche Peak Steam Electric Station. I have no other assigned duties.

Texas Utilities Company is a holding company comprised partially of the five companies shown on this viewgraph. Other companies in the system are not directly involved with Comanche Peak. Mr. Schmidt has already discussed the owners. Texas Utilities Generating Company, TUGCO, and Texas Utilities Services, Incorporated, TUSI, are wholly owned subsidiaries of Texas Utilities Company.

TUGCO is the Licensee and the designated agent for the owner for the design, engineering, construction and operation of Comanche Peak. TUSI has been designated by TUGCO to furnish design, engineering, construction, licensing, fuel management and engineering technical support for Comanche Peak.

This next -- this viewgraph shows the corporate level organization. I report to Mr. Gary, the executive vice president and general manager of TUGCO. As I said before, my sole responsibility is the safe and effective operation of Comanche Peak.

To carry out this responsibility, I have a technical and administrative staff as shown in this viewgraph: quality assurance, health physics, engineering and administrative support, and nuclear operations. Quality assurance, health physics, and engineering and administrative support are located in the Dallas corporate offices. And the office of the manager of nuclear operations is located on company property a couple of miles from the plant.

Do you have any questions concerning this viewgraph?

MR. BENDER: No.

MR. CLEMENS: As I said before, the manager of nuclear operations organization is located right outside of of Glenray, and supporting the manager of nuclear operations are: the coordinator of public information, the lead startup engineer, the director of nuclear training, and the superintendent, operations support. Also shown on this viewgraph are the positions of plant manager and the plant department superintendents.

It's our philosophy that the manager of plant operations and his staff have all the assets that's required to operate the plant and support that operation. Mr. Kuykendall, the manager of nuclear operations, will have the outside functions such as I said before -- public information, startup, and training. He will also have a superintendent of operations support.

Current authorized strength for our startup group --

VOICE: Excuse me, Mr. Clemens. I'm a little slow on my pickup, too.

In your organization chart, you don't show the role of the operating review committee. Are you going to take this up later?

MR. CLEMENS: I will take it up right now.

VOICE: Okay.

MR. CLEMENS: The operating review committee -- there's three or four of them. You're talking about the plant operations review group. What else are you talking about?

VOICE: I don't know what I'm talking about.

MR. CLEMENS: We have an organization called the CORC, which is the plant manager and his department heads, the QA representative, and something else -- Does anybody else want to join in?

VOICE: Health physics.

MR. CLEMENS: The health physics engineer. They overlook the safety-related functions inside the plant, and that committee then reports to the ORC, the offsite review committee, of which I am the chairman. And we meet the requirements for the group, the certain disciplines that are required by the FSAR.

And then the independent safety evaluation group, which of course came out of TMI, reports to Mr. Kuykendall through the superintendent of operations. So there are three groups we're talking about.

VOICE: What are the requirements of ORC? What are they supposed to do?

MR. CLEMENS: Oversee the information that comes up from the CORC, the plant group, as far as safety-related functions, approve changes in safety-related procedures, and matters of that sort.

VOICE: What's the makeup of that?

MR. CLEMENS: The ORC? I am the chairman, and there will be various -- Mr. Kuykendallk, who is the manager of nuclear operations, will be on the committee. And then a minority of the members -- a majority of the members will be people not responsible for the operation of the plant. We will meet the requirements in the FSAR for the technical disciplines that are supposed to be represented on that review committee.

VOICE: Have you and your staff discussed the functions of that committee?

MR. CLEMENS: Yes, sir.

VOICE: Are they written down somewhere?

MR. CLEMENS: The functions? No, sir, we haven't written those functions down yet. We have discussed what the functions are, who should be on it. Obviously we're not going to go out a hire a radiochemist or a metalurgist for that staff. We'll get that expertise from outside our own organization.

VOICE: I think it would be useful at some early date for you to write down what you think that committee is suppo: to do, so we at least can understand, we can have a com.non understanding with you as to what it's going to do.

MR. CLEMENS: It's our plan to put that in -- the paperwork to effect this, some is already filed, I believe.

VOICE: The participation of the membership on board -- you were a little too fast for me. Did you enumerate someone with the corporate training responsibilities?

MR. CLEMENS: No, sir, I didn't. I said that the people that would be there from the organization who represents the generation group would be myself and Mr. Kuykendall, who's the manager of nuclear operations. The majority of the members will be, as required, people not responsible for the operation of Comanche Peak.

VOICE: Well, in the other subcommittee setup, will there be any on it that is responsible for the training programs, membership on any of those other committees?

MR. CLEMENS: Mr. Kuykendall is responsible for the training programs.

VOICE: And he is on the committee?

MR. CLEMENS: Yes, sir.

The current authorized strength of our startup group is 51 startup engineers. The operations support group is authorized 18 engineers. The training group is authorized 28 people. Mr. Kuykendall will discuss training more in his presentation.

The TUGCO-TUSI relationship sometimes confuses people, so I thought I'd put this viewgraph up there and we'll try to discuss it. This is an integrated organization. The way the viewgraph is drawn, you maybe think that the operations superintendent and the manager of technical support would have to go up through the vice presidents to get anything done. But that's not the way it is.

Any man in either side of the organization has complete contact, complete authority to contact any other person in the other organization. So TUSI and TUGCO really are more like departments of the same company. The only time when Mr. Joe George, vice president of TUSI, and I would be involved directly would be if there was a policy that needed to be changed in one of the two companies. So it's a completely integrated organization.

At present TUSI has ten engineers in the nuclear services area under Mr. Schmidt, and the technical support group has 17 engineers. We expect to have a total of 40 engineers by two-unit operation.

VOICE: Mr. Clemens, I wouldn't want to argue with you about what your lines of communication are. But I'm just worried about what can drop between the cracks. There is a split of some sort here.

Is there some understanding of how the responsibilities are subdivided?

MR. CLEMENS: Yes, sir, there is. TUGCO is the Licensee. TUGCO is responsible for the plant totally, and the services that we get from TUSI are controlled by TUGCO.

VOICE: Mr. Clemens, I don't understand organizational charts very well because I don't think they have very much significance to the way a thing is operated. How's this show going to be run? Who's going to be responsible for it? You?

MR. CLEMENS: Yes, sir. For the operations, I'm responsible. For the engineering, design and construction, TUGCO is responsible. We have, let's say, designated TUSI as the way to oversee the AE, the constructor, but TUGCO is the Licensee and responsible party for the construction.

VOICE: All right.

MR. CLEMENS: The other item I was asked to look at was the corporate nuclear experience, and I put it on this viewgraph. These are the primary jobs on the corporate staff. If you have any questions I'll be happy to answer them. These are just the major jobs, the jobs on the corporate staff.

VOICE: What do the two columns mean? The left-hand column is --

MR. CLEMENS: The years assigned to the Comanche Peak project; and the right-hand column is years of nuclear experience.

VOICE: Okay, thank you.

MR. CLEMENS: This is the same information showing the startup group. The startup group is also an integrated organization. We have people on there, in the startup group, from TUGCO, from EDS Nuclear, Service Company, and Gibbs & Hill.

The columns show the number of people from each organization, the number of years of experience at Comanche Peak, and the total number of years of nuclear experience.

VOICE: Refresh my memory from the organization chart or something.

MR. CLEMENS: Yes, sir.

VOICE: What is EDS Nuclear?

MR. CLEMENS: EDS Nuclear is a consultant that we hired back in 1975 or '6, 1975. We knew we lacked startup experience for nuclear plants and facilities, and we hired this consultant to provide the lead startup engineer, the assistant lead startup engineer, and the majority of the people in the startup group.

VOICE: And at what point will there be a transition from EDS Nuclear control to your taking that responsibility over yourself? Or is this going to be a permanent arrangement?

MR. CLEMENS: No, sir. This is a startup arrangement, and we use EDS Nuclear for technical support to our management. But the operations technical support will be done by TUSI. It is being done by TUSI now. This is just -- the support from EDS is management, direct management type support, advice and suggestions.

VOICE: To what extend do you expect to use that support for the startup of Unit 2 as compared to Unit 1?

MR. CLEMENS: Completely, sir. We'll use the same startup arrangement.

VOICE: Mr. Clemens, in looking at the resumes that you provided us for the EDS people as well as some of your own, I was struck by the fact that their experience was varied. Some had BWR experience, some had Navy experience, and some had PWR experience.

Is this a team that has worked together before?

MR. CLEMENS: You mean these?

VOICE: Yes.

MR. CLEMENS: No, sir. No, sir. They have come in from different plants. Some have come directly from the Navy. Most of them have commercial experience on another commercial startup.

VOICE: Who is doing the integration of these personnel? Are you the one that's responsible for the integration?

MR. CLEMENS: TUGCO has the ultimate responsibility. Mr. Dick Camp, who is the lead startup engineer, reports directly to Mr. Kuykendall. Mr. Kuykendall is involved with Mr. Camp on a daily basis. And so between the two of them -- I guess we have the responsibility through Mr. Kuykendall, but Mr. Camp assists him.

VOICE: I would you judge the EDS people to be supplemental hands.

MR. CLEMENS: Yes, sir, Mr. Camp is an EDS employee. He is the lead startup -- it is an integrated group. You really can't say that Mr. Camp is an EDS employee, although he gets his check -- he takes all of his directions from Mr. Kuykendall.

VOICE: Many organizations use supplemental people and I didn't mean to cast any aspersions on them. What I'm concerned about is trying to be sure there is a complete startup organization and there is a well defined set of responsibilities for all the people.

MR. CLEMENS: There is, there is.

VOICE: If you can come through and you can take that thing so far -- and I don't know how far the regulatory staff has dealt with it to this extent. But it's one of the so-called post-TMI issues that we are trying to address. Hopefully, we will know a lot more about how you're organized when we have gotten through this review.

VOICE: You have referred to Mr. Camp as the leading startup engineer. Does that mean he has lead functional responsibility for the startup process?

MR. CLEMENS: Yes, sir, reporting to Mr.

Kuykendall.

VOICE: He is an EDS employee?

MR. CLEMENS: He gets his paycheck from EDS Nuclear.

VOICE: Once startup is accomplished, he departs and somebody else takes over running the plant?

MR. CLEMENS: After both units are started up, that's correct. The TUGCO employees on the startup group remain and bring that expertise to the plant staff.

VOICE: Go ahead.

MR. CLEMENS: Okay.

VOICE: May I pursue this a little bit? I reflect Dr. Kerr's concern. Here's a startup team of 30 people, and there was invaluable experience in that startup experience which is useful right on in the plant life in the course of maintenance and so on.

MR. CLEMENS: Yes, sir.

VOICE: And if this chart is literally correct, you're only going to have four people in that group of 30 who are going to carry that experience into your permanent staff. It seems to me you've got a small sample. Are there any other TUGCO personnel who are exposed to these experiences?

MR. CLEMENS: Yes, sir. All of our operations department, our maintenance department. Mr. Kuykendall will discuss that momentarily. But our people have been -- we've got over 200 people down there right now, and they are all obviously integrated into the startup of the plant.

VOICE: So what you're saying is that these 30 people that's enumerated in this chart by organization are lead people. There is staff under them who would be involved in the startup procedures and so on and working out the systems and so on, really, and they're common people under --

MR. CLEMENS: Yes, sir. My job relations would be the operations of the systems during the startup. The startup group will not operate those systems. We already have people standing shift watches down there now, and we'll beef that up as time goes on. So all the operating of the systems would be done by the operations department, which will give time to check out our operating procedures.

VOICE: Well, when you say operating experience, you mean during the startup.

MR. CLEMENS: Yes, sir.

VOICE: The experience of solving those problems is accumulating.

MR. CLEMENS: Yes, sir. Our operations people are there and will be there during the startup.

VOICE: So the four people who on this chart are labeled are really lead people?

MR. CLEMENS: Those are really just startup test engineers. And as the operations people, as I said before, will be operating the system, they'll be gaining that experience.

In summary, I'll relate the plant experience for the plant manager and his department heads. Mr. Kuykendall was selected as the plant manager back in 1973 and has been on board ever since. Later on that year he selected the department heads and, with one or two exceptions, those people have been on board since 1973.

We have gradually increased the staff over the period from '73 to the present time, to a little over 200 people. And we expect to have about -- how many people? 300? 335, plus about 80 on Mr. Kuykendall's staff, which will be well over 400 people for the operation of the first unit.

That's all I have for my presentation. If there are any questions?

VOICE: Yes, there are a few points I wanted to ask you. First, are you participating in the INPO program?

MR. CLEMENS: Yes, sir.

VOICE: What kind of contribution do they make to the plant?

MR. CLEMENS: The question is what --

VOICE: What contribution do they make? Do they evaluate your operations arrangements, do they give you any advice on how to organize, whether you have the right skills?

MR. CLEMENS: We have not had an INPO inspection team come in yet. They're doing the operating plants first. We get information from INPO on training programs. We are getting some information from INPO on the analysis for the different jobs in the plant. We get information from INPO on training of STA's, training programs in general.

But we have not had any information that I recall -- somebody in the audience with the group can correct that, but I don't believe we've had anything from INPO concerning the type of organization we should have.

VOICE: Have you discussed the matter with the different people at INPO?

MR. CLEMENS: I've discussed the matter with some of the individuals. I haven't discussed it with Admiral Wilkinson. I've discussed it with Pete Lyons, with his people.

VOICE: The industry and the NRC have both indicated (Inaudible) and since you have to rely upon it, I think it's important to know that there's been total conformance by people that are responsible.

MR. CLEMENS: Well, Mr. Kuykendall and I both have made trips back to Atlanta and discussed different issues with the staff. Mr. Turner, who is our director of nuclear training, has gone to look at the regional training center problem and several other questions of this sort. We receive information, for instance, from INPO once a month on the LER's, the LER review, plant experience input.

VOICE: Do you plan on having INPO evaluate your operating arrangement prior to startup?

MR. CLEMENS: Yes, sir, I sure hope they would.

VOICE: Isn't it an obligation to have them do that? Or is that an obligation?

MR. CLEMENS: A regulatory?

VOICE: If you're going to rely on them, I would think you would want to think about when you could take advantage of the advice concerning what they're offering. I'm concerned about --

MR. CLEMENS: I didn't mean to say it wasn't a requirement. We will have INPO come and take a look at our organization and review it.

VOICE: I think you ought to set a schedule for doing that.

MR. CLEMENS: Yes, sir, okay.

VOICE: A question on this chart, Mr. Clemens. this indicates that these men have had eight years of nuclear experience at Comanche Peak. Have these men also experienced, either as observers or students, in participating in currently operating nuclear power plants in other systems?

MR. CLEMENS: Yes, sir. Every one of these people except the administrative superintendent has been to the Zion training, Westinghouse training center, and they're certified as reactor operators. Since 1973 Mr. Kuykendall, who is not in this group, on this list, but he and other people have gone out to plants for startups, for refuelings, all sorts of plant operations during those years.

VOICE: Have any of them participated as members of an operating shift with hands-on responsibility in the plant?

MR. CLEMENS: I think several of them have. Jim, how many would you estimate have operated on a shift.

MR. KUYKENDALL: A few have really participated in on-shift operations, others have been involved in special service sort of activities in the education area or the engineering area.

VOICE: One other question before we move on.

MR. CLEMENS: Yes.

VOICE: I presume in developing your management approach you had some model in mind with this concept?

MR. CLEMENS: Well, we based it on several of the companies that we thought to be successful operators of nuclear power plants, and we looked at their organizations, spent time in their corporate offices talking to them. And then as a result of TMI, a preferred organization came out of the NRC. We modified that preferred organization somewhat for what we thought would work best for Texas Utilities and based on our information from talking with the other companies, we came up with this organization.

For instance, we decided to have most of the corporate staff under Mr. Kuykendall close to the plant site because Comanche Peak Units 1 and 2 are the only units that we have on line or about to go on line.

VOICE: We have reason, I think, to be concerned about whether the organizational plan has all of the thought behind it that it ought to have. I'm not sure any organization is very important once you get organized, in that sense.

But we would like to know how closely your arrangement here models after other successful plants. You might want to tell us, not today, because of the time -- you might want to tell us some time how this organization compares with other organizations that have been successful.

MR. CLEMENS: Yes, sir.

VOICE: I think that would be a good idea.

MR. CLEMENS: We'll do that, yes, sir.

VOICE: I'd like to make something clear: that TUGCO has no other responsibility than Comanche Peak, is that correct?

MR. CLEMENS: No, sir. I have no other responsibility than Comanche Peak. We have --

(Gap in recording.)

MR. KUYKENDALL: Good afternoon. I'm J.C. Kuykendall, Texas Utilities Generating Company, manager of nuclear operations.

One of the functions of my position is responsibility for ensuring that a training program is established to develop and maintain an organization that is fully qualified to operate the Comanche Peak Electric Station. This training program will encompass operations, maintenance, engineering, and other technical areas. The objective of the training program is to ensure that the personnel are fully trained and proficient in performing their normal duties and in performing special functions as part of them in response to emergencies.

The training program at Comanche Peak is designed to provide each individual with the information needed to perform his work safely and effectively. Three categories of training are defined:

The first of these is general employee training. All employees who will have unescorted access to the protected area of the station will receive training in the following areas to an extent commensurate with their responsibilities. These areas are: general description of the plant and facilities; a review of the corporate department and station procedures; the emergency plan and procedures; fire protection; security requirements and practices; plant safety program; quality assurance program; and the radiological health and safety program.

The second category of plant training is for those employees who will have unescorted access in the restricted areas of the plant, and these employees will receive in-depth instruction in all aspects of radiation protection. The subject material for this training will include, but not be limited to the following: handling of radioactive material; controls and access; the biological effects of ionizing radiation.

The general employee training and radiation workers training will be repeated or reviewed to an extent needed on an annual basis. This retraining will include as a minimum: familiarization with employment experience; modifications or changes within the employee's interest; review of any revisions in programs and procedures in the plant.

The third category of training is specialty training. Each employee at Comanche Peak will receive specific technical skill equipping him for the critical tasks required in the employee's responsibility. This specialty training will cover such items as training for licensed operators, training for auxiliary operators, training for engineers, for reactor engineers, for operations engineers, for instrument and control technicians, for chemistry technicians, for radiation protection technicians, for maintenance personnel, for administrative personnel, and of course training for the training specialists themselves.

The training staff at Comanche Peak presently consists of a director, a training supervisor, and seven training specialists. All members of the training staff have nuclear operations, maintenance, and/or training experience background in the Navy nuclear program.

In addition, the director of nuclear training has received the NRC senior reactor operator's license on a Westinghouse four-loop pressurized water reactor, namely the Zion plant. He also has held a senior reactor operator license from the Westinghouse nuclear training reactor and has been a program instructor for all phases of nuclear operations, including simulator instruction.

The training supervisor is experienced in all phases of operator training, including simulator instruction, and is experienced in maintenance training.

Three of our training specialists hold a license certification from the Westinghouse training at the senior reactor operator level.

The training staff is expected to have about 28 persons assigned, not including, of course, clerical support personnel that will be involved in the program.

We're in the process of soliciting bids for the purchase of a simulator. When delivered, the simulator will be housed at the nuclear operations support facility which will be constructed on company-owned property approximately an hour and a half from the reactor building.

The simulator will be a duplicate of the Unit 1 control board and will be programmed to respond in the same manner. The simulator will be used for requalification training of the operators, for training of the operators, and for general training and familiarization for members of the plant staff and for company management.

The next item on the agenda that I will cover is maintenance.

VOICE: Mr. Kuykendall.

MR. KUYKENDALL: Yes, sir.

VOICE: There is no mention in any of these lists of the training courses, subject-wise, of training in such things as the theory underlying, the technical theory underlying, fluid dynamics and thermal reactions and so on, as to what's going on in the reactor.

Does this specialist or specialty training include such courses?

MR. KUYKENDALL: Yes, sir. In the area of training for licensed operators, that's where they go heavily into nuclear theory, reactor theory, thermal dynamics, two-phased flow, all of the requirements, new requirements for training that resulted from TMI.

VOICE: What personnel will administer those courses? Will it be academics?

MR. KUYKENDALL: The operators that we have currently at Comanche Peak who are full license candidates will be taking the NRC examination for licensing. They've already had that training, part of it at the Westinghouse training centers and part of it at our own facilities by our own training people.

The requalification training will be done by our own training staff, who will utilize an offsite simulator for requalification training until such time as ours becomes operational.

VOICE: Who are the people on your training staff qualified to do the training in thermal hydraulics and nuclear characteristics?

MR. KUYKENDALL: Our director of nuclear training is the one who is currently qualified and who gave this training to our current group of operators.

VOICE: And his qualifications again were what?

MR. KUYKENDALL: He first had Navy nuclear background, was involved in the Westinghouse nuclear training program at their training station, their training facility, in all phases of plant license training, including simulators.

VOICE: Have you consulted with an organization that is developing such training programs?

MR. KUYKENDALL: We stay in full touch with other utilities and the training programs of those utilities. I'm a member of the EEI nuclear committee. We meet on a regular basis, exchange information on organizational plans, training plans.

Mr. Jones, the plant manager, is a member of a newly organized group called Western States Nuclear Plant Managers Association. That meets on a regular basis; some plants in operation, some plants planning for operation like us. And they have an information exchange.

Mr. Turner, our director of nuclear training, is a member of this Western States Association. The trainers get together and discuss training requirements. Also, Mr. Turner serves on the INPO ad hoc group to look at upgrading reactor operator training.

VOICE: Could you discuss the training approaches of other organizations that are recently coming up for operating licenses? For example, the people in southern California, for example?

MR. KUYKENDALL: We discussed with the Summer plant people a wholelot of things. Specifically in regard to of the training program, I'm sorry, I can't answer that.

VOICE: Is your program analogous to theirs?

MR. KUYKENDALL: I could not say.

VOICE: I think you ought to be able to tell us that. And I would hope that next time we hear from you you will know how it compares and show us why yours is at least as good.

MR. KUYKENDALL: The South Carolina Electric & Gas Company --

VOICE: I don't think that one is a shining example, either. But I think you know that we have reviewed some, and I think that it is at least incumbent upon you to see what those are like and see if yours are comparable to them.

MR. KUYKENDALL: We'll do that, sir.

VOICE: I would prefer that you talk to a couple of them, maybe more if you can find them.

MR. KUYKENDALL: Fine.

The next item on the agenda is maintenance. The maintenance department at Comanche Peak presently consists of 30 experienced mechanics and electricians, plus supervisors and technician personnel. When the plant becomes operational, we expect the maintenance department manpower to total 90 persons, not including an additional 35 instrument and control technicians.

During periods of outage for refueling or for any major modifications to the plant, the onsite maintenance staff will be supplemented with contract personnel.

In 1978 we began a systematic effort to find a method for increasing the reliability and availability of the Comanche Peak units. This effort resulted in the development of a managed maintenance program developed by Westinghouse and ourselves. The managed maintenance program is designed to provide the plant staff with the maintenance data and information systems necessary to support proper planning and management of the maintenance activities.

This is accomplished by systematic evaluation of each plant component in which all maintenance activities are identified and the resources for performing these activities are assessed. These resources are in manpower, the expected radiation exposure, special tools required, spare parts that are needed, procedure numbers involved in that maintenance activity, and the plant condition required for performing the activity.

Once all maintenance activities have been identified, then two sets of maintenance plans are generated. The first set is an on-line preventive maintenance plan which includes all those maintenance activities which can be performed with the plant at power. These activities are scheduled on the onsite computer, with various printouts and worksheets for staff and supervisory personnel.

The second set of plans includes the outage-related work which will be done concurrently with refueling. These activities, along with the refueling sequence, are plotted on the CPM computer network which is used for managing the outage.

A significant point to note is that because of in-service inspection requirements the outage plan is prepared on a ten-year cycle. The plant staff has completed the outage plan for the first ten-year cycle and because of the nature of the work there's a plan for each year of commercial operation throughout the life of the plant.

The managed maintenance program is designed to be an active program which will be updated in response to plant conditions and requirements changes.

I'll speak to the in-service inspection program.

VOICE: Before you go away from maintenance, there is a growing body of evidence that maintenance operations seem to be becoming a major source of problems at plants, in some cases safety problems. That is, the procedures not being followed precisely, valve alignments not being restored properly, failure to appreciate that taking one train out for maintenance can then cause failure of another train and lead to some sort of failure.

This suggests two things: One is that maintenance procedures be scrutinized about the same as operating procedures, to be sure that they don't present some additional risk to the plant. And I'd like to know whether that's part of your safety program.

And the other I think is almost obvious, that is that there should be written procedures for maintenance and that as part of your training the people that are doing your maintenance should be imbued with the idea that they must follow those procedures exactly and that any deviations from them be approved.

Now, I want you to address the training part of it, whether that's a part of your training program, and if it is, do you carry that philosophy of operation through to your contract maintenance people? So first the question is, are maintenance procedures carefully scrutinized by some group for their possible complications?

MR. KUYKENDALL: Yes, sir. Within the maintenance department there is what we refer to as a maintenance engineering group. These are skilled, experienced people, who review the maintenance procedures for accuracy, for safety, for efficiency. Then these procedures are passed along to the station operations review committee and they are approved by that body. That is, the safety-related maintenance procedures, all those involving the reactor side of the plant.

We have instituted in the operations department now a procedure that calls for verification -- it's got a computer name, but it's a procedure that calls for a double check and verification on valve alignment, where as one operator goes through the procedure and does the valve lineup and then someone else comes along then with the procedure to make that verification. And that's the way we address that safety factor following maintenance activities to assure proper valve alignment.

VOICE: You mentioned safety-related maintenance as that having to do with the reactor. Would changing over the resins be included within safety-related maintenance?

MR. KUYKENDALL: The resins in the demineralizer --

VOICE: The demineralizer, the treatment system, that sort of thing. As I recall, at TMI that's what started the whole thing. I'm not saying that's what caused the accident, but that's what started the plant episode or the turbine trip, opening those valves.

I really feel that people that are viewing the maintenance procedures should be very knowledgeable about systems and not just the system that's being maintained, but all the interactions among the systems. I know that's difficult because everything interacts with everything else.

MR. KUYKENDALL: Let me refer back to the engineering section in general maintenance who look at these procedures in our operations department, and who also keep that in mind. The only exception to the safety-related aspect is the review by the station operations review committee. That step is not required for non-safety-related procedures, but they are reviewed by others.

VOICE: You will have an independent safety analysis group that's supposed to review LER's?

MR. KUYKENDALL: Yes, sir, independent safety engineering group I believe is the terminology. Mr. Clemens touched on that briefly. That group will work under the direction of our superintendent of operations support. They will work directly for him. That superintendent is under me. They will be outside the line of operations.

VOICE: If you have any question about what I'm talking about, all you have to do is read the LER's and you'll know.

VOICE: Mr. Kuykendall, to follow up on a couple of points about the procedures you just made. We support the idea of having maintenance procedures, but . recognize that you can't write procedures for everything. How do you envision the operating people maintaining control of the maintenance and construction operations that might be going on at the plant after operation is initiated?

MR. KUYKENDALL: We have procedures for that. That is handled by a work permit. For any maintenance action to occur, a work permit must be completed. The final approving point for that work permit is the operations shift supervisor. Only he can give final life to that procedure. Only he can then see that, for instance a valve is out, verify that the valve is out, and in turn then verify that the valve is back in following the maintenance activity.

VOICE: What do you envision that the operating organization should know about the maintenance functions that are being performed, the maintenance services? How much do they have to know?

MR. KUYKENDALL: They have to know the potential for there being any pressure in the system behind a valve prior to opening piping or a valve, for instance. They have to be familiar with the electrical characteristics, for instance, and the automatic -- to deal with risk of an automatic action that would endanger a person or the equipment.

VOICE: I hesitate to use the term, but do you ever project the actions that might come about from a maintenance mistake?

MR. KUYKENDALL: I can't give you a specific on that.

MR. THOMPSON: You might want to think about how that would be addressed.

VOICE: I'm sorry, can you come to the mike, please. Identify yourself.

MR. THOMPSON: Tom Thompson, maintenance superintendent.

As a part of the review of each maintenance activity, systems interaction is one of the things that's looked out both by operations personnel and the maintenance personnel. We have licensed operators looking at it from an operations standpoint and we have maintenance personnel who have been trained in systems interaction and component interaction within the systems.

VOICE: If I were to look on your work permits, would I see something that said "systems interaction review"?

MR. THOMPSON: Not that terminology.

VOICE: What would be comparable?

MR. THOMPSON: I'm trying to visualize the work permit in my mind. There's a review by the shift supervisor that indicates no adverse safety-related aspects coincident with the maintenance activity. There is a checkpoint on the maintenance request for that.

VOICE: And that means systems interaction to you?

MR. THOMPSON: That includes systems interaction, yes.

VOICE: Fine.

VOICE: One question before you leave. Does this policy apply to both safety systems and non-safety systems, or does it exclusively apply to safety systems?

MR. THOMPSON: The same procedure and the same checksheet for a maintenance action is used for both safety and non-safety systems. The review for a non-safety system is not as precise, is not as deep as it might be, a non-safety system, is not as deep as a safety system.

The safety review of a non-safety system ends at the systems interaction between that system and the non-safety system.

VOICE: I'm a little vague about the term "not as deep." I suspect that there can't be any considered judgment about it. You're going to have to do a certain amount, and I would think -- as a matter of fact, we've all been concerned about whether we know what is safety-related and what isn't safety-related. And I would think you'd have to have something that's a little more concrete than making that the basis for judgment.

MR. THOMPSON: The shift supervisor and the other senior reactor licensed personnel are schooled in reactor safety throughout their operator training program, and I don't think they have the same problem discerning between either it's safety-related or it's not safety-related as engineering type people do. There isn't stamp that goes on it.

The operator has to answer that question, does this action to be performed on this particular component have any effect on the reactor, on the ability of the plant to keep from adversely affecting the environment. Those are the two questions that go through his mind in reviewing that activity.

Now, obviously something that happens out on the turbine end of the plant would not have as many interactions with the reactor safety as something that would happen say in the auxiliary system. So the need to check for additional backups or additional electrical feeds, DC power, those type things, are not as deeply required in the non-safety side of the plant as they would be in something that is, quote, "traditionally safety related."

VOICE: While you're up there at the podium and since you seem to be knowledgeable about the plant, tell us what you plan in terms of communications that might be provided at the point of maintenance and the communication points with the control center or control room, if that's the term.

MR. THOMPSON: Okay. Prior to the start of any maintenance activity, the shift supervisor, who is in the control room, or his designee must give permission to the person who is going to perform the maintenance activity to actually start the maintenance activity. Any operator actions that are required during the maintenance activity must be done by an operator, for instance system lineups, operation of the control circuits, operation of overload devices. Those always must be done by an operations person so that he can be involved in those phases.

Then when the maintenance activity is completed, the shift supervisor or his designee, again in the control room, must be notified. And it's the operations person, under the direction of the supervisor, that puts the system or component that has been maintained back into the configuration to perform its function at the plant.

VOICE: Suppose I sent a mechanic inside the containment to do something and he did the wrong thing. How easy would it be for the operating organization to know what he did and be able to tell him to go back and change whatever you did the last time, or to run or whatever it is you might want him to do?

IMAGE EVALUATION
TEST TARGET (MT-3)

6"

IMAGE EVALUATION
TEST TARGET (MT-3)

6″

MR. THOMPSON: That's a complex question, considering all the things that can happen inside containment.

VOICE: Well, I realize that. But we've had a few instances in which the maintenance people and the operating people have done the wrong thing and there was no good communications channel.

MR. THOMPSON: Okay.

VOICE: So we're beginning to be concerned about whether there shouldn't be one and what it is.

MR. THOMPSON: Okay. Let me describe what we would do. Before the maintenance guy goes in, the operations people know, one, that he's going into the containment, two, what he's going to do when he's in there.

In the event that -- the operations people would then have available to him any surveillance or alarm-type equipment that is not out of service during the maintenance activity. And one of the things that's reviewed prior to the maintenance activity is what surveillance equipment must be in place in order to safely perform the maintenance activity. So any that is deemed necessary will be available.

In the cases, in the event that the maintenance personnel would perform an activity that would misalign the system, that would be monitored and alarmed in the control room.

VOICE: Are there any telephone communications?

MR. THOMPSON: Yes, there are, telephone and electronics communicat. ns.

VOICE: How do you envision you would use those? Would the mechanic have a telephone with him and be in constant contact?

MR. THOMPSON: There's a paging system that's available, and the mechanic could pick up his end and page the control room and vice versa, the control room could page the mechanic.

VOICE: So it's one of those shouting and respond types.

MR. THOMPSON: Right.

VOICE: Well, I think we're in the early stages of trying to understand what ought to be provided. And most of it comes from the fact that it's not always been so good. Some of the LER's that have had the most significance have come out of maintenance done under the proper instructions, but not necessarily correctly applied. They have done things they shouldn't do and the operating people haven't known about it.

And I think we're interested in strengthening that communications link, and we'll be talking to you more about it.

VOICE: At the risk of putting words in your mouth, I'd like to tell you what my concepts are of your system. My impression from what you've said now to a series of questions is that you have procedures for both safety systems and non-safety, non-control systems, if you will, that have been approved by the proper corporate authorities. And in working and implementing -- in trying to implement your work procedures, adherence to these procedures -- for the maintenance now, I'm talking about -- regardless of whether it's a safety system or a non-safety system, adherence to the prescribed procedure is strongly and religiously enforced.

You don't shortchange the degree to which the procedure is implemented because it's a non-safety system. Am I correct in my understanding?

MR. THOMPSON: You're correct.

VOICE: I see.

MR. THOMPSON: Not following of any procedure is cause for disciplinary action.

VOICE: Other questions?

(No response.)

VOICE: Thank you for that ad hoc discussion.

VOICE: We'll go back to the question on training shortly. In connection with simulator you're planning to get, you said that it would duplicate the Unit 1 control room. Does that mean that the Unit 1 and Unit 2 control boards are not identical?

MR. KUYKENDALL: They are essentially identical. Let me clarify that. We have some common systems for Unit 1 and Unit 2. The simulator will include a simulation of Unit 1 and the common systems. Now, in order to simulate Unit 2, the common system would be on the other hand, if you will, so that the simulation's duplication is of the Unit 1 board.

VOICE: But for the manipulation of the controls, a man could control on your simulator and be adequate to operate Unit 2?

MR. KUYKENDALL: Yes, sir.

VOICE: Both normal operation and emergency?

MR. KUYKENDALL: Yes, sir.

VOICE: There are no differences there.

MR. KUYKENDALL: There are no differences in the operations of the boards.

VOICE: You can continue, Mr. Kuykendall.

MR. KUYKENDALL: I'll touch on the item of startup and preoperational testing. TUGCO is responsible for the overall administration and technical direction of the startup program for Comanche Peak. The startup program that Mr. Clemens described reports through the lead startup engineer and to myself, manager of nuclear operations.

The program is established as required by 10 CFR

Appendix B and is consistent with the guidance provided by regulatory guides applicable to the conduct of nuclear power plant test programs. The complete program description is provided in the final safety analysis report, chapter 14.3.

In general, the program is divided into three testing phases, those being prerequisite, preoperational, a initial startup. Prerequisite testing will be performed to verify the proper installation and functional operability of system components. Preoperational testing will be performed to demonstrate the capability of systems, structures and components to perform their design function when required. Initial startup testing will be performed to assure that the plant performance is in accordance with design criteria, that the plant is capable of withstanding transients and the possibility of accidents.

TUGCO began preparation for the startup program in August 1975. Administrative procedures and prerequisite test procedures have been issued for control and conduct of the startup testing, and these are presently in progress. Preoperational test procedure preparation is under way and expected to continue for the next year to 16 months. The conduct of system preoperational tests is expected to begin in January of next year. Preparation of the initial startup test program is expected to begin the first quarter of 1982.

That's a quick summary of our startup program. If there are questions on that, I'd be glad to try to answer. Okay.

MR. SCHMIDT: Mr. Bender, we'll call now on David Chapman, who is our manager of quality assurance. He'll address the quality assurance and quality control items on the agenda.

MR. CHAPMAN: I'm David Chapman, manager of quality assurance for Texas Utilities Generating Company. I'd like to go over our organization briefly.

First of all, the reporting function: as you can see, I report to (Inaudible), the vice president, nuclear. He reports to the vice president and general manager.

The corporate office.

The quality assurance organization is organized into four basic groups. The quality assurance services, out of Dallas, includes the vendor evaluations, audit and audit functions, the regulatory interface, field training, program review.

There's another plant construction office, that reports offsite to the Dallas office. And there's a startup and turnover surveillance function also, all coming out of the Dallas group. Also there's a QA engineering staff. There's a special projects, in Dallas again. And the (Inaudible) staff is responsible primarily for shop tests, release inspections, witnessing the various shop tests.

The fourth group, which is at the site, is the construction QA-QC group, and that's the next slide.

All these are done at the job site except right here. We have the site QA supervisor with his staff here, and it varies in number from time to time. As we need certain specialists we call on them, not only contract-type people. Then the site QA manager is also the site quality control supervisor.

At present there are some 143 QC inspector personnel on site. Quality engineering supervisor; there are, I think, nine in that group now; (Inaudible) supervisor and the records management supervisor. Those are the main groups associated with the site construction.

VOICE: Before you leave that chart, please.

MR. CHAPMAN: Okay.

VOICE: Your site QA manager, does he have responsibilities after the completion of construction for surveillance of operations, routine operations and so on?

MR. CHAPMAN: All right now, are you talking about the contractor --

VOICE: I'm talking about after the plant has been started up and it's on line and it's in routine operation, will there be a site QA agency?

MR. CHAPMAN: Yes. We will -- basically the function of the operations QA supervisor, he reports through plant management for the normal day to day QA-QC activity, the operations QA every day. He reports up through the plant management. And the independent verification is out of the Dallas office, reporting directly to me.

VOICE: That man is not on this chart?

MR. CHAPMAN: Not yet. He's on the next chart.

For operations, the manager of plant operations has the operations QA supervisor reporting directly to him, with direct communication from the plant to my office in Dallas. But the previous slide was just for construction.

Originally we had organized on the assumption that our Licensee's QA efforts would be more oversight efforts and that the general contractor, the AE and the various vendors would have their own QA programs, and we would verify their performance.

Some five years ago, early on in the project, we took over the vendor inspections, also the audits, did it with our personnel. Some three and a half years ago we evolved the same type management concept for the construction phase, so that as the Licensee we're directly involved in the management of the QA-QC effort.

Now, as I said, here in the operations phase the direct day to day surveillance activities going on at the plant will be under the direction of the operations QA supervisor, who reports to the plant management, with independent verification through Dallas.

Some of the things we've done. We have a feature of our QA effort that allows us to rate, put a quantified rating, more or less, on the performance of various vendors and contractors such that we can concentrate our audit and our inspection efforts where it would be most helpful to be. It allows us to heavy up our inspections and audits on problem areas, and that's been in effect for several years now.

Also, on site we have the construction site surveillance activity there, and we use that as a management tool to help us direct our audit effort to problem areas at the site.

The present QA manpower authorized, we have 24 authorized in Dallas, 33 authorized at Comanche Peak, and 8 authorized at Comanche Peak operations QA. And as I say, we have 143 QC inspectors.

Some significant problems -- I don't know exactly what specific problems. If you have any in mind, I'd be glad to address them. Or I can bring up some of these 55E reports or something like that.

VOICE: What do you think is the most serious problem you have at Comanche Peak?

MR. CHAPMAN: Well, if you count the severity or the seriousness based upon the magnitude of work involved it could be the piping minimum wall violations, wherein through a design change error there was some pipe shipped during a certain period of time that was fabricated to such tolerances so that the minimum wall, code minimum wall could have been violated.

And we had to go back and inspect all the pipe, and it was randomly distributed and it was a pretty big order just to track it on down.

VOICE: How was that done?

MR. CHAPMAN: I'll have to get that information for you. I don't recall exactly how we did it, but it was a 55E.

VOICE: Would you consider the problems you run into in locating the attachments for piping a quality problem?

MR. CHAPMAN: Locating attachments for piping? Hanging?

VOICE: And using the hanging --

MR. CHAPMAN: Oh, yes. That's a quality problem. I guess any problem you have in a nuclear plant is a quality problem. I'm having a hard time --

VOICE: Was the quality assurance involved in it?

MR. CHAPMAN: Yes, we've been involved in it.

VOICE: How did the quality assurance organization function in that case? What were they expected to do?

MR. CHAPMAN: The hanger program?

VOICE: Yes.

MR. CHAPMAN: Well, we're expected to inspect the hanger and verify that it's installed per the drawing.

VOICE: Have you got the record of where they are?

MR. CHAPMAN: Yes. And it presented us -- it was a rather large recordkeeping effort. It's not just construction records. It's engineering records also, and design changes also.

MR. SCHMIDT: Mr. Bender, also -- this is Homer Schmidt. Let me add something to that.

The pipe hanger program -- the preliminary hanger locations were established on the basis of some preliminary design. As the design progressed and we finalized sizes of the pipes, locations of the pipes, re-analysis has been done as we go along to make sure that we get the right hanger location. And the final analysis of the whole hanger support system will be done after the entire analysis is complete.

But obviously the QA role there is to perform audits of the design, the procedures that exist on the site for managing that pipe hanger program, and that is an ongoing kind of function that QA performs.

MR. CHAPMAN: That's really why I didn't consider that to be a quality problem, because we're expected to do the verification anyway. It's more of an -- as he said, an engineering evolution where the hangers go up, and then change them.

VOICE: Mr. Chapman, I presume that one of your responsibilities is to try to ensure that when the plant is constructed and once it goes into operation, that the quality of construction and operation is as high as is reasonably achievable.

MR. CHAPMAN: Right.

VOICE: There are two ways it seems to me one could do this. One is to try to make certain that mistakes don't occur, and the other is to find them if they have occurred. On which of these two do you think principal emphasis should be put?

MR. CHAPMAN: I think it should be put on prevention of errors. I also believe that one of the important things you should do is to have a strong enough corrective action such that when something does occur you learn from it and hopefully you don't keep doing the same thing over and over.

One of the things we do, incidentally, that I feel very strongly about is, on our nonconformance system when an inspector makes a finding or finds something that he feels is a nonconforming condition and he initiates a nonconformance report, if in fact it's studied by engineering and found to be not a nonconforming situation and its disposition is other than a nonconformance, the reason for the disposition is communicated back out through the reporting lines of the QC organization, so that the person knows why it was not -- it didn't turn out to be a problem.

VOICE: That sounds like a good approach.

What, if there's anything you can describe, do you do to try to persuade the people who are responsible for construction, and eventually the people who will be responsible for operation, that quality and design in construction is an important responsibility for them and not just the responsibility of the QA organization? Or do you have to do that? Maybe they already know that and you don't have to convince them of it.

MR. CHAPMAN: Well, there are things you can do, and I think one of the things that we've done that's really the most important is, as you well know, in quality assurance we have stop work authority on construction. Typically when a condition exists such that we deem that work should be stopped until the activity comes under control, we give the construction people the option if stopping it themselves, which virtually all the time they've done.

And I think this does several things for you. Number one, it gets the idea down to the crafts in their minds that, hey, we're stopping this ourselves because it's not right, we should be buildi̇ng the quality in the job. And it gets away from the cops and robbers idea of the inspector coming along and shutting somebody down.

It gives the construction people -- they appreciate that, because then they have a management -- I've seen evidence that it does work, it gets the idea of building it right down to the crafts. They do it themselves. Very seldom does QA have to stop work.

VOICE: Thank you.

One other point. Does the QA organization have any responsibility in preoperational testing?

MR. CHAPMAN: My group, we do surveillances and we do audits. We do a surveillance on that.

VOICE: Who decides whether the preoperational tests were performed in accordance with plant procedures?

MR. CHAPMAN: We only do the audit activity in this. We get copies of the procedures and do surveillances and audits and checks.

MR. SCHMIDT: Mr. Bender, our next speaker will be David Wade, who is a member of our onsite engineering staff. And he'll be followed by Ron Estes, who is also a member of our onsite engineering staff. They'll be talking about system interaction evaluation.

MR. WADE: Good afternoon, gentlemen. My name is David Wade --

VOICE: Would you try to talk a little bit closer to the mike, please. It doesn't carry too well.

MR. WADE: I'm sorry.

For the next few minutes we're going to be discussing system interaction evaluations as performed at Comanche Peak. Texas Utilities recognizes the interest of the ACRS, NRC staff and the industry in general regarding this subject. This generic issue remains unresolved. There is not a specific requirement --

VOICE: Excuse me. Does Texas Utilities share the concern or do you think it's just a lot of nonsense?

MR. WADE: Well, we share the concern with the questions that have come up and we certainly want to look at it in the detail that we can.

VOICE: Okay. One of the systems interactions I'd like you to watch out is for you to talk closer to the mike.

(Laughter.)

MR. WADE: Can you hear me now?

VOICE: Yes.

MR. WADE: At this point in time there is not a specific requirement for functional interaction evaluation to be performed or specific guidance as to how these evaluations should be approached. Because we're int[illegible]ested in that issue, we have addressed two categories of interactions which we will be discussing: physical interactions is the first category and control system interactions is the other. During the first part of this discussion I will be covering the physical interaction evaluation program and I will then turn the evaluation over to Mr. Estes to discuss control systems.

The purpose of the physical interaction evaluation is to ensure that all essential components will perform their intended functions following a high energy line break or a seismic event. The essential components are defined as those components required to bring the plant to safe shutdown and mitigate the consequences of accidents caused by physical interactions.

The first segment of the physical interaction evaluation examines the effects of pipe whip. Ruptures of high energy piping systems have been postulated and described in Section 3.6 of our FSAR and branch technical position MEB 3.1. Once these break locations are established, the zone of influence of the whipping pipe and its associated effects are determined.

All the essential components within that zone of influence are then identified. All interactions with essential components are evaluated and protection provided as required or action is taken to eliminate that interaction. Corrective actions could include providing pipe whip restraints, shields, or potential relocation of components.

The second segment of the physical interaction evaluation evaluates seismic interactions. In our original design effort numerous non-safety-related components were identified as potentially having interactions with safety-related components. These items included cable trays, electrical equipment, HVAC ductwork and equipment.

These components have been supported in a manner to resist the safe shutdown earthquake. Subsequent to that effort, we initiated a seismic interaction evaluation program to assure that the requirements of Reg Guide 1.29 had been met. The first step of this evaluation is to identify all non-seismic components and equipment in category one structures. Interactions with essential components are identified and evaluated for unacceptable consequences and corrective actions taken by either relocation of the component or providing seismic restraints as required.

The implementation of our interaction program is being done in two phases: The first phase is the physical drawing review to identify potential interactions. In order to account for field and design changes, the second phase of our evaluation consists of a field verification of interactions. Through this plant walk-through potential interactions from the first phase are verified or determined to not exist. Items are checked for possible interactions and as-built conditions in the plant are reviewed to ensure the validity of the first phase drawing in the effort. Any unacceptable consequences identified during this physical field verification will be reviewed and corrective actions will be taken.

This concludes my discussion of physical interaction review. We in conclusion feel that the program will ensure that the safety-related components will perform at the expected time.

VOICE: Could you say again who is on that team that looks?

MR. WADE: The field portion?

VOICE: Yes.

MR. WADE: We have a group on the job site. It's staffed by the various companies. We have EDS personnel, we have Texas Utilities Company personnel, we have some Black and Leech personnel. All make up this review team, directed by the Texas Utilities or the Comanche Peak engineering organization.

VOICE: Does Gibbs & Hill have anybody on it?

MR. WADE: Not on the physical walk-through portion.

VOICE: Is that because you don't want the architect-engineers around or what?

MR. WADE: Not at all. We'd be glad to have some of their representatives involved in the program.

VOICE: How do the people that go through know what the design premises are?

MR. WADE: We have sets of marked drawings which are reviewed, and the zones of influence of the pipe whip areas or the jet areas are marked out. Walking through the plant with these drawings, they're able to look at these interactions. If something has been relocated by design changes, it can be identified. Any field item components will also be reviewed at that time.

VOICE: Thank you.

MR. WADE: Questions?

VOICE: After corrective action has been taken, after we've gone through these procedures and corrective action has been -- the situation has been diagnosed and corrective action has been taken, is there then a walk-through to make sure that the changes that have been made haven't in turn created other hazards?

MR. WADE: As part of the corrective action we will review at the time that we make those design changes to assure that no further interactions occur.

VOICE: Mr. Wade, would you say -- I would guess that this involves a considerable investment in man-hours. Would you say that anything significant has come out of your review?

MR. WADE: We have found a few cases where interactions did occur. We had some non-seismic platforms which were identified that could have a potential impact on safety-related equipment. As a result, they will have to be upgraded.

There has also been identified as part of our verification a central conduit which could be affected by pipe whip.

VOICE: Do you look for things on a somewhat less sophisticated basis? Do you consider the possibility that somebody operating a forklift truck might run into a piece of equipment? Do you consider that a systems interaction?

MR. WADE: That is not part of our evaluation.

VOICE: Is it part of anybody's evaluation? Or do you keep forklift trucks, operating forklift trucks out of places where they might run into pieces of equipment that could have an influence?

MR. WADE: I would have to refer you to Mr. Kuykendall or Mr. Jones to respond to that.

MR. KUYKENDALL: Would you repeat the question, sir?

VOICE: I happen to be responsible for a much smaller reactor than yours, and we have a small forklift that we use around the facility. And if it isn't properly operated sometimes it bangs into things. That's a systems interaction of a rather unsophisticated kind, perhaps. It's not nearly as sophisticated as high energy line breaks, pipe whip and stuff like that.

But it could put equipment out of operation. I just wondered if anybody looked in a review of this kind and said -- and had a look to see whether that sort of thing was likely to occur, whether anything could be done to prevent it.

I'm trying to get an idea. I don't know how to do a systems interaction study either. I share your concern. I'm just trying to learn what it is that you look for.

MR. KUYKENDALL: We have been involved in accessibility studies since the first design of the plant was produced, and there's a part of that accessibility study wherein we do plan to use some vehicle equipment, wagons and forklifts. And that is taken into consideration.

Those high energy pipe systems, those areas are becoming congested with pipe hangers. It's going to be very difficult to get that --

VOICE: I guess I think the probability that an earthquake is going to cause much damage to this plant is very low, while not zero. But there are other kinds of systems interactions that it seems to me are more probable. I just wondered how extensively you were looking.

MR. KUYKENDALL: We have not undertaken to look into that specific question.

MR. SCHMIDT: May I add a comment there? I would think that as part of the normal maintenance planning effort that was described a while ago one of the things that the maintenance people would be looking at would be that kind of thing, just as Mr. Kuykendall said. I think it will be addressed as we get into the maintenance activity.

VOICE: Well, I was struck in going through the plant today by the fact that a lot of the equipment, particularly cable trays, are supported from the floor. And while those supports are massive, that's the kind of thing that becomes vulnerable to operating equipment. And I guess if I were looking for systems interactions, I would try to think what would happen if the cable trays fell down.

So just think about a few things like that, to add to the lack of knowledge that exists here.

VOICE: This of course may lead to a requirement that they be supported from both the floor and the ceiling, so --

(Laughter.)

(Gap in recording.)

MR. ESTES: -- and the outputs of the protections that have been input into the control group, and also the control grade instruments fed into that control group. This is duplicated four times.

Types of failures to be considered were sensor failures, failure high or low of a sensor, either in a protection set or in a control group; the loss of power to the protection set, the loss by the control group, the loss of power to both; breaks in instrument lines, that the instrument was a control system input or was shared.

Under the sensor failure analysis, we tabulated the inputs to each system, control system. We tabulated how they were used and we postulated the failure of each sensor separately to determine consequences.

A typical analysis of how we documented the sensor failure was, as you see here, we identified the sensor, identified the number of channels available, what channel was the failed channel, the control system affected, the assumed direction of the failure, and the effect of that failure, either high or low, and how the system responded.

And in this case, this was steam generator level. The failure caused the feedwater valve to open if you were in the automatic mode.

In summary, what we were trying to determine is what is the bounding event and to determine if that bounding event was in the FSAR accident analysis.

In power supply failures, we did very similar to what we did to system sensor failures. We tabulated the powers and the failure modes of the power supply and determined impact on the system. This is a typical example of how we documented the analysis: identified the control system, identified the signals, failure directions, effects, and then whether the effects were bounded by the FSAR or not.

In common instrument line taps, we identified the common taps, we identified what would happen if the tap broke and what the consequence of that would be.

VOICE: Before you take that off, this might be a good time to ask this question. That problem that might arise if you just had a sudden depressurization of the air system, have you looked at that system?

MR. ESTES: Would you repeat the question?

VOICE: A sudden depressurization of the air system.

MR. ESTES: Okay. The instrument air system that you're referring to could cause failure modes of these valves. What we were looking at was sensors and control groups and power supplies. And as part of this evaluation, we didn't look at the analysis of failure of the air system, although in the FSAR we have addressed failure of the instrument air system with the valve failed in the same direction. But there's no pneumatic instruments here.

Does that answer your question?

VOICE: Well, in part it does. I'm always skeptical of people that say they address it in the FSAR.

MR. SCHMIDT: Mr. Bender, let me -- this is Herman Schmidt.

Let me add that that loss of the control air system, as I understand it, was evaluated by the architect-engineer as part of the normal design process.

VOICE: I'll repeat again, that doesn't leave me with a very warm feeling.

MR. SCHMIDT: Okay.

VOICE: And I am looking at -- well, those circumstances have occurred a few times in plants and some of the reactions have been spectacular, if not of important safety significance in the end. And every valve that has an air supply to it has a fail-safe position. That's the way people design them.

But sometimes you can't tell what's fail-safe. So they react in one way or another. I would hope that the operating people have as much of an understanding of it as the architect-engineers do, and that's the thrust of my question at the moment, because the architect-engineers have a lot to look at, they are not infallible, and they need some overview.

That's why we raise questions about these interactions. They look at all of them, but they don't have the right overview sometimes.

Go ahead.

MR. ESTES: This is a typical tabulation of a common instrument line assumed break. And in this case we had steam flow and steam generator high-range shared taps; identified the channels, the control system affected, the effect and the bounding events.

In conclusion, I would like to say that as a result of this analysis we didn't find any interactions that weren't bounded by our FSAR analysis.

VOICE: Now let me ask you something there. One thing we've learned recently is that the operator is part of the system, and I think he has to be considered in the interactions. And when you trace one of these control system failures out and say now it's bounded by the analysis, do you also look to see that it's clear to the operator that he knows what has happened and that he knows what to do or what not to do under those circumstances?

MR. ESTES: Well, in most cases --

VOICE: The question is can he, by having a control failure, losing some indication having some consequence on the plant, misinterpret what has happened and do the wrong thing, which maybe isn't bounded by the FSAR analysis?

MR. ESTES: That wasn't a part of this study.

VOICE: Do you think it should be? We have an ample precedent of operators that have aggravated something that was bounded by an FSAR analysis and escalated it into something greater.

MR. ESTES: Well, this analysis that we did on the control systems, although my presentation is very short, is a quite lengthy study. And to go through and determine how the operator, a plant operator, could mess you up in every case there would be quite a task.

I might refer that to Westinghouse.

MR. SCHMIDT: Yes, let me call on Joe Rumancik, who perhaps can give us some additional insight on that. He's with Westinghouse. Joe?

MR. RUMANCIK: First I'd like to say, as a matter of clarifying --

VOICE: Use the mike.

MR. RUMANCIK: And that is that in the Westinghouse control system design all control systems that are non-regulating are designed such that it requires power to actuate that device. Those would be components like the steam dump system, the pressurizer spray valve, pressurizer PORV.

The other -- the only system that requires air that is of a regulating type really are the feedwater control valves, and we've chosen them to have a preferred position that on a loss of power or a loss of air those valves don't close. So that the event of a loss of instrument air that affects the NSSS control system is totally analogous to loss of electrical power.

In terms of interactions with the operator, I guess--

VOICE: Just to be sure I'm clear on that, I'm not sure that Westinghouse has responsible for all the air-operated valves at the plant, nor do I knw that Westinghouse accepts responsibility for all the safety-related valves. You're speaking only for Westinghouse equipment, I take it?

MR. RUMANCIK: I am speaking for the major NSSS control systems.

VOICE: All right. And I'm speaking to the plant in total, and I haven't changed my view much. Go ahead.

MR. RUMANCIK: Okay. In terms of every action that an operator might take, I wouldn't even pretend to be able to predict all of them. All I can say is a few words perhaps about our instrumentation philosophy, maybe, and that is, first of all, all instruments that are used in protection systems are displayed to the operator. So if we do lose one set of instruments, for example due to a loss of power failure, all the other instruments are still displayed.

Secondly, Westinghouse has a design philosophy that upon a loss of power instruments do not fail to a normal value, but go off scale, typically in a low direction.

I think those types of design philosophies that we've employed -- they're intended, at least, to minimize the potential for operator error.

VOICE: Let me put it slightly differently. I couldn't follow the viewgraphs that closely, but each of the failures that was postulated presumably leads to some off-normal condition of the plant. And when that condition occurs the operator must have somewhere some instructions or procedures to f low.

MR. RUMANCIK: There is typically in a plant --

VOICE: Am I correct?

MR. RUMANCIK: Yes, that's correct.

VOICE: For each of those interactions and each of those control sdystem failures that are indicated up there, they would lead to conditions where procedures are available?

MR. RUMANCIK: To the best of my knowledge, that's true.

VOICE: Don't be ambiguous.

MR. RUMANCIK: I would have to defer the question about procedures.

VOICE: Yes, we do have procedures. They are a form of our annunciator response procedures. Those procedures outline the possibility that exists of bringing a particular annunciator down and then, depending on what decision the operator makes as to what condition he thinks exists. So that would be our first line of defense, is to get annunciator response to that failure independently and to analyze those responses.

VOICE: Are there any further questions?

VOICE: Mr. Estes, what fraction of this study would you consider to be generic in the sense that it wouldn't be just specific to your plant, and what fraction do you think would be rather specific to your plant? I just ask out of curiosity.

MR. ESTES: I'm sure Joe can answer that.

MR. WADE: For the most part the study is generic in nature. There are a few options that can vary from plant to plant. For example, some plants may have 50 percent while other plants have 100 percent load rejection capability. There is --

VOICE: Are you answering for the whole plant or for the part the plant for which --

MR. WADE: I'm answering for which this study was performed.

VOICE: Major NSSS.

MR. WADE: Major NSSS control systems.

The largest difference from plant to plant is in the power distribution system. The design which Mr. Estes showed is that typically recommended by Westinghouse. However, that does vary from plant to plant.

VOICE: Thank you.

MR. BENDER: Furthr questions on systems interaction at this time?

(No response.)

MR. BENDER: I'm not sure you've heard the last of this.

(Laughter.)

MR. BENDER: I wouldn't say you're unique in your inability to express a total knowledge of how to address the problem, the problem being of general interest, that the ACRS is delving into. And while we may not be totally happy with your answers, they're comparable to a lot of others.1

MR. WADE: Thank you.

MR. BENDER: Why don't we take a ten-minute break and reconvene at 3:15.

(Recess.)

(Gap in recording.)

MR. TALLEY: Those activities are coordinated jointly and by system planning studies in coordination with Texas Utilities and through continuing participation in the ERCOT system reviews.

The Comanche Peak switchyard and the 138-KV transformers are tied to the 345 KV power system at present by three 345-KV transmission lines and one 138-KV line. The 345-KV ties extend to Parker switching station to the northwest, to another plant 345-KV switchyard just northeast of Comanche Peak, and to Venus substation, located just south of the Dallas-Fort Worth area.

As you saw on your visit to the plant this morning, these lines, particularly the ones in the 345-KV area, are widely separated as they leave the plant. They are additionally separated as they enter the plant from the 345-KV switchyard.

VOICE: Question. These are all switching substations, they're not sources. There's no generation at those locations.

MR. TALLEY: The Baker plant is located at one of the 345-KV terminals, generating facilities. The Venus and Parker stations, if I'm not mistaken, are both switching, both power switching stations.

VOICE: Is there any networking of 345-KV between these switching stations or beyond them?

MR. TALLEY: There is considerable networking between them, beyond them. So that these are not single ties to the system.

VOICE: These are not three radial lines?

MR. TALLEY: Absolutely not.

VOICE: There's feed in between these switching substations by way of the network?

MR. TALLEY: That's correct.

VOICE: And as these lines leave Comanche Peak they're on separate towers and the towers can't interfere with each other if they fall, I think you told us. Is that not correct?

MR. TALLEY: Yes, that's correct. As they leave, immediately going out of the plant, the towers are shorter than the spacing between the lines on the 345-KV line. The 138-KV line is well removed from those until they make the first separation.

VOICE: Your earlier slide said there was no power flow between the north and the south sections of ERCOT with the interated ties.

MR. TALLEY: That was the original intent of the ties, was to provide emergency power. However --

VOICE: Should there be a blackout in either area.

MR. TALLEY: That's correct.

VOICE: Is that still the case?

MR. TALLEY: There's some incremental increase in the normal load flow exchanged between the areas. However, it's nowhere near the capacity of the lines and a substantial margin of the lines remains for emergency service.

VOICE: So I am reading between the lines of what you say, apparently the policy in operating ERCOT is not to load those ties in order to gain economy of operation, but to keep the capacity of those ties available for backup should you have an emergency in generation or transmission in either area.

MR. TALLEY: That's essentially correct.

VOICE: Your philosophy in ERCOT, what kind of an extreme emergency does it consider in checking out the interconnection for stability? I'm going beyond to your own system now. Do they, for instance, consider the loss of a complete generating station?

MR. TALLEY: Yes.

VOICE: And how about transmission losses?

MR. TALLEY: Transmission losses of adjacent transmission lines in the same right of way are one of the criteria for evaluating the system.

VOICE: Did you test your system, that is your integrated system, the TU system, against the complete loss of one of these switching stations, switching substations?

MR. TALLEY: That is one of the criteria.

VOICE: Okay. Will you mention to us the kind of faults that you use in your stability analysis?

MR. TALLEY: Perhaps I could address that a little bit after I finish the topic of --

VOICE: When it's consistent with your own plans.

MR. TALLEY: Okay,

Next slide, please.

There are some additional switchyard features which it might be worthy to note: a dual relaying system which provides the 345-KV switchyard breakers with instructions for the dual trip coils; transmission lines are well separated as they approach the switchyard as well as being well separated from the switchyard to the plant.

Next slide, please.

The 138-KV line on the left is the line that provides a tie with the 138-KV switchyard at Baker plant. At that plant the 138-KV system is tied directly to the 345-KV system and has immediate access all over the system.

The three 345-KV lines tie to the bulk power systems as described previously. The unit and the auxiliary transformers and the 345-KV startup transformer are tied to the switchyard as shown.

You'll notice none of the lines cross coming in and out of the plant. There are no particular significant structures which cross them.

Let's go to the next one.

There are several sources for the 6.9-KV switchyard buses that are safeguard buses. They are the 138-KV startup transformer and the 345-KV startup transformer, and additionally the unit auxiliary transformers can be placed in service after approximately eight hours. In addition there are two seven-kilowatt -- 7,000-kilowatt diesels, one per train, which provide emergency AC power.

VOICE: This eight-hour restoration of service by way of a unit transformer, that's isolating that transformer from the generator, not isolating it from the system? You're not counting on the generator to back it and supply it?

MR. TALLEY: No.

The next two slides -- let me preempt the next two slides by saying that these two slides represent only one train of the electrical system or one division, I think is the common terminology. As for example, we saw the train A safeguards switch gear this morning. There's another one, practically identical, two floors up which we did not see.

This is a description of the train A system.

VOICE: If you can focus that a little better.

MR. TALLEY: Okay. If you recall in our tour this morning, the 6.9-KV switch gear, the last two towers on the right were feeding the four transformers, which fed the four for essential power. There's a bus tie breaker which allowed the feeding of that side of the bus from the 345-KV startup transformer and segregating it from the diesel generator and the 138-KV tie and the load switching signal by the signal channel.

The other feed is the 138-KV startup transformer which goes to the 6.9 -- the normal 6.9-KV buses, which is relayed to provide power from either the auxiliary or the startup transformer, as required.

Four safeguard buses provide power to the DC and UPS, uninterruptable power supply. This is again, I remind you, only one train. There are dual chargers, one of which is the preferred, the other is the backup. The DC 125-volt battery system is fed from either charger. The chargers are fed from separate motor control centers and separate transformers off the 40 volt system.

DC distribution to the distribution panels is seen on the left. There are two 125-KV NSSS inverters on each bus and one 10-KV VOP inverter.

VOICE: I'm having trouble reading that diagram.

How many batteries do you have in the station?

MR. TALLEY: There are two 1E battery systems. ere is an additional non-safety-related battery system. And I'm showing you only one of the safety-related battery systems.

VOICE: Does the non-safety-related battery system back up each of the others in turn?

MR. TALLEY: No.

VOICE: There's no interties whatever?

MR. TALLEY: No. In fact, there are no ties between the trains of the DC system. There are no bus ties. They are located in separate rooms, they are separately isolated, and so forth.

The principal features which lend to a highly reliable AC and DC power system are the independence of the 1E battery systems -- we have four 1E battery chargers, two for each division or train; one is active, one is backup. There are three non-1E battery chargers; two are active and one is backup. This is on the power system.

VOICE: The capacity of the chargers, is it such that it could carry the total DC load supplied by the battery that it charges?

MR. TALLEY: It will supply the total capacity of the DC batteries and recharge the batteries, yes.

Next slide.

In summary, then, the 345-KV bulk power system is reliable due to its record of reliability and the system design and the continuous reviews it undergoes. There are multiple ties between that reliable grid and Comanche Peak. The ties are well separated and independented. There are three offsite AC power supplies, two of which are immediately available. There are redundant onsite diesel generators for each unit. There are redundant and independent DC systems.

For these reasons, a high degree of AC and DC, onsite and offsite, system reliability and availability is established and maintained.

VOICE: I want to ask the maximum incredible question. What would happen to the plant if you had a complete blackout at the plant, now?

MR. TALLEY: Well, first of all, you're asking me to suppose the really incredible.

VOICE: Have you analyzed for that condition?

MR. TALLEY: I think there's been -- when the blackout scenario analysis became of interest to us, we of course looked at what was going on in the industry as far as answering that question. We are and will remain a principal in the Westinghouse owners group.

It's my understanding that from an AC blackout point of view that generic procedures and plant-specific procedures are being developed by that group, and Ron Sidell can speak to that specifically if he wants to. But I understand they're going to issue some sort of a procedural message in September.

VOICE: Is your answer, then, to the effect that this study hasn't been completed yet?

MR. TALLEY: Well, I would think that it would be completed in an appropriate fashion prior to loading of fuel, as you would probably insist. And I think we would want to know. However, I think also that I'd also have to insist that it's a very incredible circumstance. You're asking us effectively if we lose the grid.

VOICE: I grant that. But grids have been lost.

VOICE: Let me interject something, Mr. Talley. You said that there had never been a complete system blackout on ERCOT. But you don't have to get a system blackout to lose power, offsite power to this station. And it seems to me that, although it's important that the system be reliable, that's not the total issue.

MR. TALLEY: Well, okay.

VOICE: For example, have you made an estimate of the probability that you might lose offsite electrical power for two hours?

MR. TALLEY: There have been to my knowledge no probabilistic studies other than qualitative ones --

VOICE: Well, how can you say then that you think you have a very highly reliable system on something other than such a judgmental basis.

MR. TALLEY: Well, any probability analysis begins with the analysis of the system you're studying.

VOICE: That's quite true. But it has to go beyond that.

MR. TALLEY: I agree. The probability analysis of losing one line may be done. The probability analysis of losing another line may be. And there are other systems which have been judged as reliable --

VOICE: But you know, if you've looked at it, that there have been cases in which a tornado took out five separate lines to a nuclear power plant, one tornado. Tornadoes are not zero probabilities in this part of the country.

MR. TALLEY: I agree.

VOICE: And therefore it seems to me that if you really are trying to establish quantitatively what the probability of loss of offsite power is, you have to give it some consideration.

MR. TALLEY: I agree.

VOICE: Now, probability of loss of onsite power, considering the history of diesel generators, is far from zero.

MR. TALLEY: I agree. But that, in conjunction with the loss of the offsite power, remains a very, very small number.

VOICE: Well, it doesn't remain a very, very small number unless we know what the probability of the loss of offsite power is. It remains an undetermined number.

VOICE: Just to follow up for one minute on Dr. Kerr's discussion, we anticipate that you will provide some answer to the ability to survive the station blackout. And I for one think that it may be one of the most important safety issues to be addressed.

I think that the view which you've expressed, that the credibility of it is not high, is something that deserves more than passing attention by your management. They ought to put a high level of importance on resolving this issue.

MR. TALLEY: I agree.

VOICE: And it doesn't sound like they're putting much attention to it if the kinds of answers you're giving us are indicative of it.

MR. TALLEY: Perhaps I have misled you into believing that there has not been looks at the station blackout scenario. What I wanted to do was to display confidence in our bulk power system and the multiplicity of ties we have with that system. Beyond that, we have reliable diesel generators, which have procedures for testing to make sure that they work.

Now, once we've said that, you can sweep all that away and want to discuss the issue of now, in addition to all of that, in the face of all of that, now we discuss station blackout. I think it would be appropriate to say that the events, the mechanical events that go on in the plant are recognized. The reactions of some systems and the availability of the DC system is present to control and mitigate the circumstances in the plant. The operators have procedures to deal with manually operating those systems which have to be manually operated.

And I think we can speak in some detail about that if you'd like to hear from one of the operating people.

VOICE: I think we'll not do it today. But let me ask a couple of questions that are relevant.

What's the load growth of the system? How fast has it grown?

MR. TALLEY: Well, I think historically it's been about 4-1/2 or 5 percent per year, if I'm not mistaken.

VOICE: How much spinning reserve have you maintained?

MR. TALLEY: Well, we have well in excess of 20 percent this year, for example, roughly.

MR. PARKS: I'm Roy Parks of Texas Utilities.

MR. SCHMIDT: Roy, would you come to the mike, please.

(Pause.)

MR. PARKS: I'm Roy Parks. And the minimum spinning reserve that is maintained on the ERCOT system is the largest unit that we -- as Tom has said, there are two security areas, the north area and the south area. And each area maintains as spinning reserve the largest unit plus 100 megawatts.

VOICE: How much would that be when Comanche Peak comes on?

MR. PARKS: That would be, in the north area it would be 1250 megawatts, and in the south area, depending on what unit they have in then, I believe it would be about 850 megawatts at that time, in the south area.

VOICE: Are you committing to maintain that? Are you committed to maintaining that kind of spinning reserve?

MR. PARKS: Yes, sir. That is the minimum spinning reserve.

VOICE: If one station is out for reasons like, for example, correction of steam generator problems, which is not an uncommon thing, that would mean that the other station -- you still have the equivalent of the other station of spinning reserve? Is that what it means?

MR. PARKS: Yes, sir.

VOICE: Is that a commitment you're making?

VOICE: That's the largest on the line at the time?

MR. PARKS: That's correct.

VOICE: What is ERCOT's operating policy as to the distribution of that reserve?

MR. PARKS: Yes, sir --

VOICE: Is it spread around the system?

MR. PARKS: Yes, sir, it's spread around geographically among as many units as possible.

VOICE: There's an area allocation?

MR. PARKS: There's allocation among the areas, among the systems involved.

VOICE: What is ERCOT's policy, and do you subscribe to it, as to the installed reserve requirement?

MR. PARKS: As to the installed reserve requirements, the criteria as it stands right now is 15 percent, a minimum of 15 percent above the forecast peak hour demand of the system.

VOICE: Does ERCOT as an entire interconnection have a summer peak?

MR. PARKS: Yes, sir.

VOICE: How about scheduling? Is this considered in that scheduling?

MR. PARKS: Yes, sir. Normally maintenance is not scheduled in the summer time.

VOICE: In the busy season. So this 15 percent is in case of load error or extreme weather, rather than any -- and forced outages, but it does not include any scheduled maintenance?

MR. PARKS: That's correct.

VOICE: Now, I presume you've done the stability studies that show you can survive --

MR. TALLEY: Yes, sir.

VOICE: -- shutdown of one large unit. How long has TUGCO been in existence?

MR. TALLEY: TUGCO?

VOICE: Yes.

MR. TALLEY: TUGCO has been in existence as an operating entity for about six years, seven years.

VOICE: How long has this big system that you're operating here been in existence?

MR. TALLEY: ERCOT itself is 30 years or approximately 30 years old. The name ERCOT was adopted for reliability reporting purposes. Prior to that it was operated as another line.

VOICE: You've been having four percent growth per year? I suspect it's been faster than that at times.

MR. TALLEY: Yes, it has. It's been much faster, on the order of seven to eight percent prior to 1973.

VOICE: Was most of the plant installed since 1960, most of the generation facilities? 1960, I just picked that number. I'm just backing out the generating capacity.

MR. TALLEY: A large majority has been installed since 1960.

VOICE: So there's probably a history of reliability of like 20 years. That's probably the really significant period of time that you're working from.

MR. TALLEY: Of course, we, like everybody else, sir, went through the fuel change period.

VOICE: Sure.

MR. TALLEY: So then we added on-line capacity, when we added, constructed capacity, as a result of that.

VOICE: Are there other questions on this?

VOICE: Yes, just one more. Are there any bulk power ties at an EHV level between ERCOT and adjacent reliability council areas?

MR. TALLEY: There are none.

VOICE: There are none. ERCOT is an island itself?

MR. TALLEY: Yes.

VOICE: I'd like to combine a little bit of the questions of the Chairman, Mr. Bender, of a few moments ago, and admit that there is a very, very low probability of an extreme, incredible act, if you will, as epitomized by your policies, planning, operating, design, and similarly ERCOT as a bac to you.

But I think it is highly reliable. But you assume such happens and examine your plant to see how long it would survive, and then consider from a planning viewpoint, if you will, what you must do to your system to ensure that you will restore offsite power to Comanche Peak before that interval expires. You've got to have that in your hip pocket.

MR. TALLEY: I agree.

VOICE: No matter how accurate or how reliable your protective systems or safety systems are, they're only as reliable as your power supply. That's your life preserver. And people have had to abandon ship. Some day it will happen. That's one thing I would bet on.

MR. BENDER: I suspect that's about as far as we're going to go with this particular session today. We may want to address it again at some future time. But in the meantime, probably the most important thing to establish for the blackout question is how long you can survive a blackout. Sometime you're going to have to. Everybody recognizes you need power. I think we're more interested in how much time there is and what kind of actions can be taken.

MR. SCHMIDT: Mr. Bender, this is Homer Schmidt.

Let me call on Dan Call for one oth-r comment here.

MR. CALL: Mr. Bender, I think Tom referred to the fact that Westinghouse is preparing procedures, emergency procedures on a hypothetical loss of all AC event. I don't know whether that went by you or not. But in any case, we are doing it and Comanche Peak, as a member of the Westinghouse owners group, will have those procedures and will have them incorporated as part of their plant emergency procedures when they go into operation.

And to give you a preview, we've found so far that there can be -- there probably will be on the order of days available to restore power to the plant prior to the situation of core uncovery.

MR. BENDER: Well, that's the kind of answer we want, of course. And most of us have felt like the answer is going to be of that sort. But we want to see the logic and be able to agree with it.

MR. KERR: Mr. Call, has the study gone far enough that you have some feel for the influence on the result or the influence on one's being able to handle the problem of say two versus three station batteries, for example? And I'm talking about the safety-grade Class 1E batteries.

MR. CALL: Well, I'm not sure --

MR. KERR: Does the availability of DC influence the length of time one can survive?

MR. CALL: I don't believe it does in this study. I believe the study surely looks at the system assuming that there's no means of restoring inventory to the primary system as it leaves off, none whatsoever. It does presume that there are ways of finding alternate water sup\`ies for the steam-driven auxiliary feedwater.

MR. KERR: But there isn't any valving or any control which requires DC power on which your approach depends?

MR. CALL: Not that I'm aware of, Dr. Kerr.

MR. SCHMIDT: This is Tim Vardaro of Gibbs instrument Hill.

MR. VARDARO: In answer to that question, we do not require any DC power for that auxiliary feedwater pump. Okay, so it does not require any electrics in fact, AC or DC.

MR. KERR: Are you talking about the Westinghouse study or the Gibbs instrument Hill study, or are they both the same?

MR. VANDARO: I'm talking about the auxiliary feedwater system that Dan just referenced, the turbine-driven pump. And I think the question was does that depend on any DC power to sustain that system, and the answer is no.

VOICE: Do you have to close any breakers?

MR. VANDARO: No, sir.

MR. BENDER: Another point on the power -- gentlemen, I suspect we're not going to be able to get through this whole agenda, and rather than trying to do it in a rushed manner, I'm going to suggest that we limit the remaining discussion to hearing a little bit about the secondary side water chemistry control and plan on covering the rest when we meet in Washington.

Can we hear that quickly?

MR. SCHMIDT: Yes, sir. We'll call on Dwight Braswell, who is the engineering superintendent for TUGCO in the operating organization.

MR. BRASWELL: I am Dwight Braswell, the engineering superintendent for plant operations at Comanche Peak.

As we're all aware, secondary side chemistry at pressurized water reactor facilities is a subject of much discussion and study and quite a bit of research by our industry. The interest in the subject resulted from many steam generator problems that began to show up during the 1970's.

The basis for developing our secondary side chemistry control has been influenced significantly by the experiences and studies and the research of the past five to six years. This has resulted in changes and additions to our secondary side system. Full flow polishers were added to further purify condensate water by ion exchange and also by filtration. The steam generator blowdown capacity was increased to provide us with another tool for controlling the secondary side chemistry.

304 stainless steel feedwater heaters, heater tubes, were chosen to reduce potential for corrosion. Also, integrally grooved condenser tube sheets were chosen as a measure for eliminating ingress of contaminants from the cooling water system.

Also, improved steam generator designs were chosen to help us better control our secondary side chemistry. And then we moved from the phosphate type chemical treatment to all chemical treatment.

Next slide, please.

With these items in place, being influenced by the experiences of the industry in research, our secondary side control program begins with the making of the high quality makeup water. We take light water and pretreat that water, direct it through a reverse osmosis unit, then we demineralize the water, we de-aerate it, and then sample it in the process, but prior to using it as makeup water we take a final sample to make sure that it meets the parameters of condensate makeup.

These specifications that we go by are based on our experience and also the recommendations of our vendors.

The condensate from the hotwells, as we get into that system, is directed through the full flow condensate polishers, where any contaminants that may be in this system are removed through ion exchange and also by filtration through the full flow polishers.

The next step in our secondary chemistry program is the all volatile treatment. Right after the polishers we use marpolene for pH control and hydrazine as an oxygen scavenger.

Also, we have continuous steam generator blowdown capability to also maintain our secondary chemistry. Initially, steam generators in the past have been designed to blow down in the neighborhood of 30 gpm in each steam generator. We increased that capacity when we went to all volatile treatment to be able to blow down 155 gallons per minute from each steam generator, giving us a total of 620 gpm total blowdown capability. And this is very dependent on the secondary chemistry analysis.

To ensure the chemistry is within the recommended levels that will be established, there are several points that the system is sampled, both on a continuous basis and also grab samples are taken and taken to the lab to look at other things. Continuously we're looking at pH and cat-ion conductivity, which would be an indicator of some type of secondary chemistry problem.

VOICE: What do you mean by continuous steam generator blowdown?

MR. BRASWELL: Sir?

VOICE: What is meant by continuous steam generator blowdown?

MR. BRASWELL: All the time.

VOICE: What is, with water as pure as that would appear to be from Roman numerals I, II and II, what is there to blow down?

MR. BRASWELL: Well, there'll be -- in the steam in the steam generator, even the very minutest particles and stuff in the water are going to tend to -- they're not going to go off with the steam. So even those are going to tend to concentrate in the steam generator. Therefore, that's what we blow down, is that concentrating effect over a period of time.

Normally we'd expect a minimal amount of blowdown because of the pure water. But there would have to be some. And any that, as you got into your chemistry program and there was some contaminants that got past you, that means that there would be additional buildup. So we could increase that to a point.

MR. BENDER: Is that a recommended procedure by Westinghouse?

MR. BRASWELL: Yes, it is, following the change from phosphate treatment to all-volatile treatment. You don't have the buffer situation that you initially had during phosphate treatment, so it really means that you have more blowdown or the capability of that.

Let me have that other slide.

This is just an indication of where we will be taking our samples. We have a double hotwell inner condenser and we'll be sampling each one of those. And again, I've talked earlier about our -- I've indicated on our graph here the sampling points by the asterisks. The makeup water again is our first point that would be sampled, and then each of our hotwells would be sampled.

And as the water comes from the hotwell, the condensate pump discharge would be sampled. After the water has flowed through the polishers and the all volatile treatment has been injected, it is sampled again to see what the chemistry was. And then we sample each of the four feedwater lines and also sample each of the four steam lines going back to the turbine generator.

And the key sample, where we expect to see our major changes in chemistry, is going to be the steam generator blowdown, because that's where the concentration is going to take place. We're looking at the other things before the polisher so that we know that we've got a problem prior to going to the steam generator. But the steam generators are what we're trying to protect. So that is a key sample point. These show the major ones.

If you will, put the specifications for the steam generato_ blowdown up.

This is the vendor recommendation for steam generator blowdowns. And the key indicator here is cat-ion conductivity, which we sample continuously as well as analyzing grab samples in our laboratories. Also, we're analyzing sodium continuously and will alarm that in the control room when these are out of spec. All of these sample points are alarmed in the control room, where we have the continuous monitoring of cat-ion conductivity, which would be an indicator of ingress either from our lake water, our cooling water, or someplace else.

VOICE: Is there some reason you expect one can achieve those conditions in an operating plant?

MR. BRASWELL: Sir?

VOICE: Is there some reason to expect that one can achieve those conditions in an operating plant?

MR. BRASWELL: Yes. Through the cleanup systems and -- I can't reference any --

VOICE: I mean, have you talked to people who are operating plants according to Westinghouse recommendations and are they achieving this?

MR. BRASWELL: We've reviewed some of the operating histories of them and some are and some are not. And what we're going to be doing in our program is using the manufacturer's recommendations and experiences in industry to set levels whereby we'll maintain them or go into an action of shutting down to stop it, either by finding the condenser tube leak or air in-leakage, whatever the source of contaminants will be.

MR. BENDER: What plants do you know of have comparable conditions to yours?

MR. BRASWELL: That are in operation? I guess one plant that I am fairly familiar with is Prairie Island, except they don't have the full flow polishers. They had the deep bed demineralizers in their system, which they have taken out. And they are maintaining at this time the manufacture-recommended chemistry. They have not at all times.

MR. BENDER: Do they maintain the composition?

MR. BRASWELL: Yes, the cat-ion conductivity less than 2 microns during operation. But it takes a program of looking at it.

MR. BENDER: (Inaudible).

MR. BRASWELL: Right. They, I believe, at one time were on phosphate treatment.

MR. BENDER: Well, this topic's not for right now, but we will probably want to hear what to do if their guesses are wrong.

MR. BRASWELL: Okay.

MR. BENDER: Because they were wrong before, and we'll hear about that when we meet again in July.

What I'd like to do now with the Committee is to see if we can't set up some kind of planning for the next meeting.

MR. SCHMIDT: Mr. Bender, there was one question that was raised during the QA presentation that we're prepared to answer now, and that was how did we identify the thin wall pipe problem. Would you like to hear an answer to that?

MR. BENDER: Yes.

MR. SCHMIDT: David Chapman.

MR. CHAPMAN: It was identified by the engineering people as a result of their normal stress analysis being done in accordance with Section 3 of the ASME code.

MR. BENDER: They just looked at the pipe and found out it wasn't --

MR. CHAPMAN: They found out that some of it was less than the minimal wall and it was in an overstressed condition. And therefore they looked further into the cause of it and found out what happened.

MR. BENDER: Does that mean Gibbs instrument Hill found it?

MR. CHAPMAN: Well, it was on the site and a lot of --

MR. BENDER: There are no stress analysts on the site, are there?

MR. CHAPMAN: Yes, there are.

VOICE: You mean a stress analyst can look at a pipe and tell how thick it is?

MR. CHAPMAN: Again, if you like we can get you a copy of our final report.

VOICE: I've never been a stress analyst.

MR. CHAPMAN: Well, I haven't either.

(Laughter.)

MR. BENDER: Thank you. That's enough on that subject.

We will undoubtedly want to hear the material that was omitted for this session. We'll certainly want to have a brief presentation of your security system, which needs to be presented in a closed session. We probably would like to hear a little bit more response in terms of your operator training program and such from the standpoint of concern of what others are doing, so that we have a little bit better feeling for how it stacks up.

It would be nice if you had something from INPO that you could use. I suppose you're not unique in finding that INPO is not moving as fast as you might like.

VOICE: Well, I think that they're trying to get to the operating plants before they get to those of us who are going to be downstream.

MR. BENDER: Sure.

VOICE: In connection with operator training, I'd also be interested in how you as a company, in contrast to NRC, select those people that you consider qualified to operate.

MR. BENDER: We haven't received the staff SER yet, and there are other post-TMI issues that need to be looked at. And so we'll have to defer our plans for those matters until we see just what has been resolved. I'm hopeful that the number will be a lot less. I'm hopeful that many of these things will have been resolved in some way before the Committee meets again.

And that doesn't mean that we won't hear about them, but knowing that there's some common position makes it easier to hear it. If the Applicant is looking in one direction and the staff is looking in another, then it becomes very hard to figure out what the answer is going to be in terms of public safety.

We will be in touch with you through Mr. Duraiswamy to outline future discussions that we might want to be covered. And we welcome any thoughts that you may have on matters that you would want to present.

I believe we shouldn't ignore the emergency planning question. That's one of the TMI issues that I know will come up, and we have to hear how that thing develops. So you should be prepared to discuss that.

Do you have any thoughts? Does the Committee have any matters that it wants to add right now?

(No response.)

MR. BENDER: If not, are there other matters that you'd like to bring up, Mr. Schmidt?

MR. SCHMIDT: No, sir, we have no other items at this point.

MR. BENDER: Well, in that case, in the interest of time, not to cut our time too close, we ought to close the meeting.

(Whereupon, the meeting was adjourned.)

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NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

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in the matter of: ACRS/Subcommittee on Commanche Peak Steam Electric Station Units 1 & 2

Date of Proceeding: June 29, 1981

Docket Number: ________________

Place of Proceeding: Dallas-Fort Worth, Texas

were held as herein appears, and that this is the original transcript thereof for the file of the Commission.

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