NOV 1 1984

Docket Nos.: 50-445
and 50-446

APPLICANT: Texas Utilities Electric Company (TUEC)

FACILITY: Comanche Peak Steam Electric Station, Units 1 and 2

SUBJECT: SUMMARY OF MEETING TO DISCUSS THE APPLICANT'S PLAN FOR RESOLUTION OF REQUESTS FOR ADDITIONAL INFORMATION FROM THE COMANCHE PEAK TECHNICAL REVIEW TEAM (TRT) EFFORT DESCRIBED IN LETTER DATED SEPTEMBER 18, 1984.

On Tuesday, October 23, 1984, the staff and applicant representatives met to discuss the applicant's plan, submitted by letter dated October 8, 1984 (Mr. Spence to Mr. Eisenhut), for resolution of requests for additional information from the Comanche Peak Technical Review Team effort described in a September 18, 1984 letter and meeting relating to:

(1) Electrical and Instrumentation

(2) Civil/Structural, and

(3) Test Programs.

In an October 19, 1984 meeting on the same subject, the applicant was only able to complete the presentation of their program in the electrical and instrumentation area. This meeting was a continuation of the meeting, held October 19, 1984, to discuss the applicants plan on the Civil/Structural and Test Programs areas. The staff will be providing a letter to Texas Utilities with specific comments on the applicant's program.

A copy of the meeting notice and a list of persons present are enclosed (Enclosure 1 and 2, respectively). The meeting was transcribed and a copy of the slides used at the meeting is bound into the transcript (Enclosure 3). The meeting lasted approximately two hours.

Annette Vietti, Project Manager
Division of Licensing
Technical Review Team

Enclosures:
As stated

cc: See next page

CONCURRENCES:

DL:LB#1	D:CP:DL
AVietti:es	VNooman
11/1/84	11/1/84

Meeting Summary Distribution

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Project Manager AVietti
M. Rushbrook
R. Hartfield*
OPA*

NRC PARTICIPANTS:

RWessman
VNoonan
HLivermore
DJeng
REPhilleo
LShao
RKeimig
CHofmayer

OTHERS

bcc: Applicant & Service List

*Caseload Forecast Panel Visits

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

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Annette Vietti, Project Manager
Division of Licensing
Technical Review Team

Enclosures:
As stated

cc: See next page

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

Enclosure 1

OCT 2 2 1984

Docket No.: 50-445

MEMORANDUM FOR: Vincent S. Noonan, Project Director
for Comanche Peak
Division of Licensing

FROM: Annette L. Vietti, Project Manager
Comanche Peak Technical Review Team
Division of Licensing

SUBJECT: TEXAS UTILITIES GENERATING COMPANY MEETING

DATE AND TIME: Tuesday, October 23, 1984
10:00 a.m. - 2:00 p.m.

LOCATION: Phillips Building, Room P-412
7920 Norfolk Avenue
Bethesda, Maryland

PURPOSE: To discuss the applicant's program plan for resolution of open items from the Comanche Peak Technical Review Team effort described in a September 18, 1984 letter relating to (1) test program, and (2) civil/structural areas.

PARTICIPANTS: NRC Staff

V. Noonan
A. Vietti, R. Wessman, R. Tang, T. Novak, B. J. Youngblood, S. Burwell, R. Keimig, W. Smith, L. Shao, D. Jeng, et. al.

Licensee/Applicant Staff: J. Redding, et. al.

Annette L. Vietti, Project Manager
Comanche Peak Review Team
Division of Licensing

NOTE: This meeting will be transcribed

cc: See next page

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Enclosure 2

MEETING WITH TUGCO & NRC TRT OCTOBER 23, 1984

NRC

R. Wessman
Vincent S. Noonan
H. Livermore
David C. Jeng
R. E. Philleo
Larry Shao
R. R. Keimig
Charles Hofmayer

GAP/CASE

Billie Garde

Dallas Morning News

Jim Landers

Dallas Times Herald

Susan Bremmer

TUGCO

C. R. Hooton
Re Camp
John Beck
Joe B. George
Mike McBay
John Merritt

TERA Corporation (for TUGCO)

Frank Dougherty

ORIGINAL

ORIGINAL

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of:

MEETING WITH TUGCO AND NRC/TRT

Location: BETHESDA, MD.

Pages: 1 - 99

Date: October 23, 1984

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

MEETING WITH TUGCO AND NRC/TRT

Nuclear Regulatory Commission
1717 H Street, N.W.
Washington, D. C.

October 23, 1984

The panel met, pursuant to notice.

NRC STAFF MEMBERS PRESENT:

R. H. WESSMAN
VINCENT S. NOONAN
HERB LIVERMORE
DAVID C. JENG
R. E. PHILLEO
LARRY SHAO
R. R. KEIMIG
CHARLES HOFMAYER
JOSE CALVO

PRESENTERS AND STAFF SEATED AT THE TABLE:

B. GARDE
C. HOOTEN
R. CAMP
J. BECK
J. GEORGE
M. McBAY
F. DOUGHERTY
J. MERRITT
J. LANDERS

DISCLAIMER

This is an unofficial transcript of a meeting of the United States Nuclear Regulatory Commission held on October 23, 1984 in the Commission's office at 1717 H Street, N.W., Washington, D. C. The meeting was open to public attendance and observation. This transcript has not been reviewed, corrected, or edited, and it may contain inaccuracies.

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

P R O C E E D I N G S

MR. NOONAN: I'll go ahead and we'll start this meeting today. It's the... My name is Vince Noonan, the Project Director on Comanche Peak. We're basically continuing the meeting that we had last Friday. We didn't quite get done.

I would like to ask... Maybe to get start this off before we get started we will ask people to go around the room and identify themselves so the court reporter can... Go ahead, Dick.

MR. WESSMAN: Okay, I'm Dick Wessman from the TRT Staff of the NRC.

MR. BECK: John Beck, Manager of Licensing, TUGCO.

MR. GEORGE: I'm Joe George, TUGCO Vice President and General Manager of Comanche Peak.

MR. SHAO: Larry Shao, Technical Review Team.

MR. KEIMIG: Rick Keimig, Technical Review Team.

MS. GARDE: Billie Garde representing both GAP and CASE.

MR. LIVERMORE: Herb Livermore, QATC.

MS. COSELL: Adele Cosell.

MR. JENG: David Jeng.

MR. HOOTEN: Randy Hooten, Structural League, TUGCO.

MR. FOYO: Bob Foyo, TRT.

MR. CAMP: Dick Camp.

MR. McBAY: Mike McBay, TUGCO.

MR. DOUGHERTY: Frank Doughterty.

MR. MERRITT: John Merritt TUGCO.

MR. HOFMAYER: Charlie Hofmayer, TRT.

MR. LANDERS: Jim Landers, The Dallas Morning News.

MR. NOONAN: We have the meeting basically set up this morning. Mr. Eisenhut is not here yet. I think I'll go ahead and start without him. He'll probably come in a little bit later.

We'd like to start out with basically Larry Shao having the section on the (inaudible) engineering part, and we'll start with that part of it first in his area.

I guess I don't have any real specific comments other than those were made the other morning, the other day I mean at the meeting we had in downstairs here.

I would like to say for the record right now the time that we are planning to come down to Texas. We'll be down there on, probably come down Wednesday evening, Dick Wessman and myself and a few other Staff people.

We are planning to meet with the region on, on Thursday morning and we will be out at the site on Friday morning.

MR. GEORGE: This Friday or...

MR. NOONAN: Yeah, we'll be out at the site this Friday. I guess maybe this is basically a meeting to talk about the program. Why don't you go ahead and start off, Mr. George?

MR. GEORGE: Okay. We're prepared to present our action plan in the civil structural area, as well as the start-up area. We're prepared to move right into that with the team leaders, Mike McBay.

MR. NOONAN: Okay, why don't we go ahead and start out. Maybe when we start this thing out, the people better, making their presentation, give us some background, particularly for my benefit, so we know what they have done previous within this Comanche Peak organization.

MR. MERRITT: Can you all see that in the back of the room?

MR. NOONAN: Are we effectively looking at the same handouts we had on Friday?

MR. MERRITT: Yes, this is included in the handout you had Friday.

MR. GEORGE: We will be speaking to the same

handouts but we really propose to deal with the action plan specifically.

MR. NOONAN: There are no new handouts for anything (inaudible) this morning?

MR. GEORGE: No.

MR. HOOTEN: Okay, my name's Randy Hooten. I'm a structural (inaudible) with TUGCO. First item...

MR. BECK: Randy, if you'd go into your background on the project for Mr. Noonan's benefit, it would be helpful.

MR. HOOTEN: Okay. Is this better. I have been on the project approximately 9½ years. I have a B.S. C.E. I have been involved with the civil structural area of construction engineering at the site with TUGCO. First item...

UNIDENTIFIED SPEAKER: Excuse me. What is the role now that you're involved in?

MR. HOOTEN: Right now I'm the discipline lead for Civil Engineering Department at the site for Comanche Peak Project Engineering. First item, II,A concerning the omission of rebars in the reactor cavity wall in Unit 1 containment building.

TUC, Texac Utilities Action Plan will include an as-built analysis of the reactor cavity wall. This analysis will be performed to determine whether the

structural integrity of the wall is compromised. Gibbs and Hill is going to perform the analysis and the design review.

An external organization, IBASCO (ph) to be specific, will perform additional design review of these calculations. As an expanded review of this issue, we will review all omissions of rebar that took place at Comanche Peak to verify that we have appropriate engineering evaluations and documentations on these items.

MR. SHAO: That part is new.

MR. HOOTEN: Well, it's not... We have indicated in this third bullet here that an external organization will do a design review. We had that in the action plan. We have named a party on that.

MR. JENG: Comment. My name is David Jeng. It's impossible to (inaudible) independent review if there is anything to do with the possible construction or design. (inaudible)

MR. HOOTEN: No. I don't...

MR. JENG: Randy, (inaudible)

MR. HOOTEN: Can you elaborate on that a second? Maybe I misunderstood you.

MR. JENG: Yeah. Third item...

MR. HOOTEN: Right.

MR. JENG: ... you are (inaudible) IBASCO

people to perform an additional design review. My question to you is are these people to be involved in such a review (inaudible) involved in the Comanche Peak activities of (inaudible)?

MR. SHAO: (inaudible) before it (inaudible)

MR. HOOTEN: Okay. Well, in the, in the civil structural area, yes, they would be new. We have an IBASCO involvement in other...

MR. MERRITT: We have used IBASCO from a consulting sense in some mechanical issues, but they have never been involved with us from a civil structural standpoint at Comanche Peak.

But even in mechanical, they have been strictly in a consulting role.

MR. GEORGE: Gibbs and Hill has had total scope in the design of Comanche Peak so that would be independent.

MR. NOONAN: Did IBASCO work through Gibbs and Hill all the time or do you put directly to utility?

MR. GEORGE: Directly to the utility.

MR. SHAO: Is that IBASCO in New York?

MR. GEORGE: Yes, IBASCO in New York, Dr. Iotti's group in particular is the advanced engineering group there.

MR. SHAO: I saw his name in some of the

electrical work. He was...

MR. GEORGE: We're going to be using IBASCO in quite a bit of independent reviews as far as expertise is concerned. We think they have as good a credibility as we can find.

MR. HOOTEN: Move on to the second item, which is action item II,B concerning the concrete compressive strengths and the alleged falsification thereof. To follow up, as recommended by the TRT, we will perform Schmidt Hammer-Rebound Hammer tests on concrete placed at Comanche Peak during the time frame in question.

A review of our records indicates there were 327 safety related concrete placements in this time frame. We will perform 50 tests. Also, we will include 50 tests that were outside this time frame and we will compare the test results of these two data sets.

MR. SHAO: There's a letter by CASE that has been concerned about Schmidt Hammer Test. Can you discuss their concern and your response?

MR. HOOTEN: Well, we are handling that question as a separate issue, but the complete concrete issues, as dealing with ASLB, will be enveloped into this test. We didn't plan to specifically discuss it in this response, although that will be covered in other arenas with essentially the same information.

MR. HOFMAYER: The concrete that you're testing, I understand you have two design strengths of concrete, 4,000 and 2500 psi. Will you be addressing both of these in this study and do you intend to hopefully separate these data sets?

MR. HOOTEN: Yes, they would definitely have to be separated from the standpoint you can't compare one to another there because you do have a different design strength and would receive different test results when you performed the Rebound Hammer Test.

MR. HOFMAYER: Do you know approximately out of these 327 placements the split between 4,000 and 2500?

MR. HOOTEN: No, I don't have that number available with me right now.

MR. HOFMAYER: But you have built that into your program to separate them totally?

MR. HOOTEN: Yeah.

MR. PHILLEO: Well, I assume that the 50 which came out of the military standard was selected on the assumption that all 327 were similar. If there are in fact, I'm Bob Philleo, by the way.

If there are in fact two different strengths involved, you'd probably have to select two numbers based on the, on the two populations (inaudible)

MR. HOOTEN: We can review that and take that

into account in our action plan revision.

MR. SHAO: You imply you will (inaudible) the rebound numbers of the hammer test into (inaudible) calibration curve. Do you intend to do that?

MR. HOOTEN: Well, in comparison, when you run a Rebound Hammer Test, you just have an arbitrary number based on test apparatus. The testing apparatus has, will be calibrated to the, to a calibration block that's furnished with the apparatus by the manufacturer.

From the calibration block you can, or they furnish a graph that relates the arbitrary numbers received off the apparatus to an equivalent concrete compressive strength.

MR. SHAO: I think we have some concerns in this area. I don't think we should use Schmidt Hammer Test to find out the extra strength, but use it only for comparative purpose.

MR. HOOTEN: Well, that is true. It will not give you the actual strength of the concrete, no, but it will give you a basis for comparison.

MR. SHAO: Yeah, but somehow the action plan implies you can use it for getting the actual strength of the concrete. (inaudible) use the calibration curve established by the manufacturer and then do a conversion.

MR. HOOTEN: Well, that... The intent of the

action plan was to use it for a comparison only.

MR. SHAO: Only for comparative purposes?

MR. HOOTEN: Right.

MR. HOFMAYER: Will converting to the calibration curve in any way distort the raw data? In other words, you could compare the uniform strength of the concrete, okay, on a statistical basis with the raw data as opposed to converting it to an absolute number of what you believe to be the compressive strength in comparing that.

If it's only one multiplier throughout, the data set that you used would not matter, but do you... You know, by adding the extra step of converting it to an absolute strength, okay, which could have some uncertainty in it in that the calibration curve that you're using, you know, is not for the specific concrete that you have at the site, are you introducing an extra uncertainty that's not necessary?

MR. HOOTEN: Well, no, the calibration curve is the standard curve and I don't feel like we're introducing any other variables into the test by using that curve.

MR. MERRITT: But, Randy, will we not be able to have some degree of comparison with concrete test cylinders? Now, there's concrete test cyclinders poured or placed four or five years ago. We'll be a little bit

off in age, but at least we'll be able to validate that against concrete (inaudible) and make many tasks from there...

MR. SHAO: Maybe... I would like to have Bob Philleo talk to that. He also is the co-author of the handbook that CASE letter quotes. Maybe let Bob Philleo say something about the test.

MR. PHILLEO: Well, no, I think as long as you're going to make a statistical comparison, you might as well use the raw data. You're just making more work for yourself if you convert every number to a strength value and you won't have gained anything and will have, be using some questionable values.

The data themselves are all you need, so I think it's by far more defensible and also easier just to take the raw data and compare Rebound numbers of the concrete in question with the Rebound numbers of the concrete that's not in question.

And you get just as good a statistical comparison that way. You have a more defensible procedure and you've done less work.

MR. HOOTEN: We can take that into consideration.

MR. SHAO: Also, if we didn't compare it (inaudible) with concrete about the same age. You don't want to compare concrete with (inaudible) one age with

another age.

MR. HOOTEN: Correct, right.

MR. HOFMAYER: So then do I take it that the 50 placements that we're using outside the time frame we've giver you will be as close to that time frame as possible? Is that your intent?

MR. HOOTEN: Yes.

MR. SHAO: Okay, we have some concerns about your procedure (inaudible)

MR. WESSMAN: Well, I notice in your program plan of October 8th that you said you were going to submit a program to us prior to starting the tests. Have you seen anything other than the program plan about your actual Schmidt Hammer procedures?

MR. HOOTEN: No. The Schmidt Hammer procedure is basically as it's described in ASTM. There's no deviation from that.

MR. PHILLEO: But I think they would like to see a little more detail. For instance, you'll give them the number of blocks to be tested. You have not told how many tests will be run on each one. That's a rather important factor so we know how many degrees of (inaudible) we're working with. So we'd like to have that sort of detail.

MR. HOFMAYER: Dick, there was a little bit of

confusion on our part the last week or two. To make contact, we were attempting to establish some communication there. So now that we're on course, I'm sure this follow up either the end of this week, you all's visit down there, or else then at the site next week. We're ready to sit and discuss the details as requested in the TRT report.

MR. JENG: Our main course of action (inaudible) do you propose to compute one mean number for the whole 50 (inaudible) and we are concerned that maybe the right way or more proper way is to compute a mean number for each (inaudible) so it would be 50 mean numbers (inaudible)

The detail of that would be, like Larry mentioned to you (inaudible)

MR. MERRITT: The data, in whatever form you want, is there for full review and however we wish, you all would like to see it we'll be prepared to submit it in whatever format there.

That'll be part of the permanent record files that'll be there with us and we'll be happy to share that any way you wish.

MR. SHAO: The question is how to evaluate the data.

MR. MERRITT: Yes, sir.

MR. SHAO: How to...

MR. PHILLEO: Well, there's a more immediate question. The method of comparing the data later will determine how many tests to run now, so this will have to be decided in advance.

MR. HOFMAYER: Yeah, I think that's an important distinction that, you know, how many tests do you run on each individual placement to develop enough statistics about that particular placement.

So your plan, the way I interpret it, will prepare, will basically get a mean for all 50 of each and compare it, and in no way, it doesn't tell you anything about the individual placements which we're questioning.

MR. JENG: Do you know (inaudible) how many tests you will perform on each placement (inaudible)

MR. HOOTEN: Well, there's a recommended number of tests in ASTM for each placement, and that's what we will be following.

MR. PHILLEO: Well, that recommendation is 10 shots to get a single number. Our question is how many groups of 10 shots do you plan?

MR. HOOTEN: For each placement?

MR. PHILLEO: Yeah.

MR. HOOTEN: Okay, we can discuss those details, you know, when we present the test plan, you know, when

we review it.

MR. SHAO: Are you going to have any consultants in this area or are you going to handle it by yourself?

MR. MERRITT: From the standpoint of handling overall statistics, not only this but across the board, we will be having a consultant helping us in the statistical area of how to put this thing together from a statistics standpoint.

MR. SHAO: Not in the concrete area? Not in the con...

MR. MERRITT: We hadn't planned on it.

MR. JENG: One question. This converting you were talking about, would he be the guy who earlier involved in a similar test which I understand you people performed some time ago. But you'll be talking different person.

MR. HOOTEN: No, these are different personnel

MR. NOONAN: I think in this area of statistics I'd like to make a general comment we made earlier. I still don't see the basis for the statistical sample. Someplace in here you've got to have a criteria and tell us what that is, what's the basis for it, what is going to be the confidence level you're looking for.

And again, I would like to emphasize the independence of the people that are going to do this.

They shouldn't really be people that have been doing this for you in the past. It should be somebody that you bring in from the, from the company that is, has independence and can demonstrate that.

MR. HOOTEN: Shall we move on to the next item? It's Item II,C concerning the seismic air gap and separation between the Category I structures. Our action plan will be to perform, reperform and document a QC inspection of the gap between Category I structures and between Category I and non-Category I structures.

Any debris that may be encountered will be removed after documentation. We will perform the engineering evaluation to determine the effects on any seismic or dynamic responses of the structures, and if appropriate, further engineering action will be determined to evaluate the impact on components and piping.

A review of the procedures for the establishment of requirements for maintenance air gap will be performed to assure that no trash or debris gets in the gap from this date forward.

And we will evaluate the need for any FSAR updates based on our as-built conditions. Also, we will furnish analyses, as requested by the plan, for any permanently installed elastic joint filler that's currently indicated on the drawings.

MR. SHAO: Who are going to do all these (inaudible)?

MR. HOOTEN: This will be done by Gibbs and Hill.

MR. SHAO: And they did original?

MR. HOOTEN: Yes, they did the original analysis.

MR. SHAO: They don't know independent of (inaudible)?

MR. HOOTEN: We hadn't planned that at this time, no.

MR. HOFMAYER: Or, as in the case of the reactor cavity, you had a design review at least being done by IBASCO. You don't plan to do such a design review for (inaudible)?

MR. HOOTEN: No, we hadn't.

MR. JENG: Let me call your attention to a earlier statement on page 10 in your proposal. You indicate that the desirability of obtaining a standard perspective is one of your program planning objectives.

I'd like to know how (inaudible) in the context of this Item II,C, and particularly you are talking still (inaudible) of Gibbs and Hill (inaudible) analysis. Who did the similar analysis before? We are a bit concerned.

MR. MERRITT: Okay. We hear what you're saying.

We need to get together and we'll take a look at that. We hear what your point is.

MR. NOONAN: I think, I think for a general comment, everything I heard the other day and I'm hearing again today and talking to the Staff, it's the same concern we had.

You're not demonstrating to us that you're putting people in here to do this kind of work that really can show independence from not having done it before. I really think you ought to go back and re-evaluate your position on that.

MR. MERRITT: Of course, the main thing we were interested in was to try to validate the gap as being open and adequate, that there wasn't construction to bring in the gap, and that's where we started the basis from and that's what we were addressing the program around, so...

MR. NOONAN: The program plan is a set up to, you know, address all the concerns. You can't have people addressing concerns that have already, were maybe part of the concern in the originals.

MR. MERRITT: Yes.

MR. WESSMAN: You all may be aware we've looked at another issue relating to the gap between the reactor pressure vessel insulation and I think the surrounding

cavity. And again, the issue of possible debris occurred in this one.

Now, this to me means possible generic aspects and it means that whatever evaluation and look that you do concerning debris in tight spaces has to be looked at from a wider standpoint than perhaps what you've just looked at here under Item II,C.

You might give that some thought as you go forward with this particular action plan.

MR. MERRITT: All right, sir.

MR. HOFMAYER: Randy, another question. Your first item talked about you'll be inspecting the air gap between Category I structures and Category I and non-Category I. I assume that covers all Category I structures?

MR. HOOTEN: Yes, they would...

MR. HOFMAYER: You're not taking a sampling basis? You'll be looking...

MR. HOOTEN: No, it will be 100%.

MR. JENG: And a comment to give you a proposal. You indicated after having done the analysis, you're going to evaluate interaction effect between structures, and our concern is the (inaudible) should not stop at the interaction effect in the structures.

It should encompass the change in the structure

response, looks and the frequency and (inaudible) into the system's component equipment, a profile so the comments (inaudible) you should look into the overall impact, not limited only to the reaction (inaudible) structures.

MR. HOOTEN: Yes, it's a step-by-step approach. First, we're going to review the structural aspects, and then, if necessary, we're going to go into, you know, based on what our findings are go into other areas.

MR. JENG: In the connected comments we see quite a few occasions that so-called best effort judgment criteria and so on, and we would like to see if we can (inaudible) more. What do you really mean by best effort.

And when you mention something that's more conservative, then we'd like to know what the basis of such a statement for review of the proposal. We stress articulate response, make it more clear and, well, easy to understand.

MR. HOOTEN: Okay.

MR. SHAO: I too want to mention the great difficulties concerned in this area because the responses have a frequency. It may be conservative at one frequency and may not be conservative at another frequency. The best way to make sure they have air gap (inaudible) that

don't have an air gap great difficulty (inaudible)

MR. LIVERMORE: I have one more question. Herb Livermore, QAQC. You said you were going to do a re-inspection of all Category 1 structures. Are you talking Unit 1?

MR. HOOTEN: No, we're talking Hope Lamp (inaudible).

MR. LIVERMORE: Okay, the second question. I didn't hear anything about doing an investigation into the management aspects of this. Why did management allow this to happen? Why was this breakdown? Why was QC not inspected in the first place?

MR. HOOTEN: We are covering that as we get into the plan. We have already looked at the future concrete placement that took place after the rotofone (ph) useage was stopped in late 1977 and subsequently cleaned out all the debris that could possibly be taken out.

And from that date forward, we changed our forming techniques, and we do have valid documented QC inspection based on the air gap for a free concrete placement inspection.

MR. LIVERMORE: From '77 on then QC did inspect it?

MR. HOOTEN: Yes, they did inspect them prior to concrete placements. The documentation that is not

available is the maintenance of the air gap after the concrete placements. So we're essentially talking about trash, wooden chips, debris, you know, anything that may have been discarded into the gap.

MR. HOFMAYER: Randy, we've discussed this before. You know, I asked you a number of questions about this in this review, and I really think it's important to understand fully the perspective of who did what when, okay.

When you were using rotofone, when you stopped using rotofone, when you switched to steel forms, why you feel that from that point on then an inspection was no longer needed, the inspections that were conducted, how they were fully resolved.

I think you need a perspective here to fully characterize the answer, particularly the question Herb raised on terms of, you know, what were your procedures and why were they valid.

MR. HOOTEN: We will include all those items in the final report.

MR. BECK: I think it might be appropriate here, Vince, to indicate we frequently in our discussions so far have talked about root causes, and from our standpoint, in preparing our program plan and the action plan, certainly that's paramount in our mind.

We want to get to the bottom line root cause of any generic consideration that may be involved across the board or on issue-specific actions. What we have not done is to do that evaluation since we're really just at the beginning of formulating our response to you.

So if the program plan or the action plans are silent on the issue of root causes, it's not because it isn't paramount in our mind; it's just because we haven't gone through that evolution yet.

But certainly, that is a very key critical issue, and one that we have constantly in mind, although we may not have anything in print on that, in that regard at this point in time.

But I want to assure everyone that that's, that's a critical matter and one that we're paying very close attention to throughout the whole effort.

MR. NOONAN: I think that's, I think that's necessary, and I do agree that sometimes it's hard to put it into a program plan, but, like Larry's indicated, we are going to make formal response back to you on this whole plan.

MR. BECK: Yes.

MR. NOONAN: We are going to talk about what I call the lack of independence being shown in this, in this procedure here right now and we are going to be

talking about determining root causes (inaudible).

MR. BECK: And I can certainly state today that the question of independence or a third-party verification, ratification, whatever, the point was very well taken last week.

We've spent considerable time since our meeting Friday internally discussing that question. We're looking forward to getting your written comments, but even before then, we've done considerable deliberation and we're going to be modifying our plan to be responsive to that concern when we come back with Rev. 1, I guess it would be called, and I think you'll find that it's going to be a comprehensive response.

MR. HOOTEN: Item II,E concerns the possible cutting of reinforcement steel in the fuel handling building. The Texax Utilities Action Plan will include performing of design calculation to determine the structural adequacy of the slab even if a Number 18 rebar in the first layer and the third layer were cut.

We will also, as an expanded review, take a look at our programs controlling rebar cutting to determine any changes that may be required in that area to assure that we have an adequate program.

MR. GEORGE: We have no comment on this.

MR. HOOTEN: Okay, I'd like to... The two

other structural issues will be covered by Mike McBay. I'll turn it over to him at this time.

MR. McBAY: I'm Mike McBay. I have been on the project approximately 10 years. I presently, the last three months, have been the Reactor Building Construction Manager for Unit 2.

Prior to that I was Engineering Manager for Comanche Peak, engineering for four years and procurement manager prior to that, and then civil (inaudible) prior to that.

I hold a B.S. Degree in civil engineering and I'm a registered professional engineer in Texas. Pretty much my background. Two issues that I'm going to be addressing is Items I,C and II,D.

Both issues address the proper design considerations, assurance that proper design consideration was given to nonseismic installations in Category I structures and their potential impact on safety related systems if the integrity of the nonseismic systems failed.

On Item I,C is the first one. You all have it in your handout. Item I,C, the first one, deals with nonsafety related conduit supports. During the TRT visit to the site in selected areas they observed that there were some nonseismic supports on nonsafety related conduits.

And the, this is for conduits greater than two inches. Now, at Comanche Peak we have nonsafety related conduits greater than two inches, nonseismically supported in selected areas.

In resolving another problem at the project, basic congestion in some of these highly congested areas and resolving this congestion for maintenance concerns, we did select nonseismically supported non-safety-related conduit in select areas.

The areas selected for areas where safety-related systems were not predominant, for example, all the conduit, non-safety-related conduit in the reactor building and the safeguard building is seismically supported or restrained.

In the Aux building, the fuel building and ENC building there are rooms in there that we did not a seismic support conduit, and in that case we evaluated each conduit in regard to its ability if it failed to impact a safety-related system.

This evaluation was done by our Damage Study Group and it was done through a walk-down of each individual conduit in these areas. We identified each conduit that would be a source, source being an item that could fall onto a Class 1, 2 or 3 system, and also we identified each party in the room.

During the walk-down we identified the

interactions that could result from SSE, and of, on a case-by-case basis we resolved each interaction. In this program we found there was 500 non-safety-related conduits that had to be considered.

Two hundred and fifty of them had interactions, so we resolved each one. The typical means of resolving, the majority was resolved by adding seismic restraint tables.

The second means of resolving them was adding seismic supports, and the third means is we moved the conduit to a location where it could not be in danger of a safety-related target.

What we propose to do and provide is we want to provide a summary documents which delineates the philosophy and implementation of our Damage Study evaluation for non-safety-related conduits.

This evaluation will give you all the criteria we used, the methods of disposition and basically summarize this study that has been going on for the last two years.

This program was initially... The walk-downs were initially done in 1983 and then per set of instructions per QA program, this program was continued through a maintenance program which we have defined by issuing instructions to the present date.

We feel like as far as interactions with non-safety-related conduit greater than two inches, this program has covered it well, and we need to get that information to you.

MR. JENG: I'd like to ask a question.

MR. McBAY: Yes?

MR. JENG: This program you mentioned, has any evaluation of, by TUGCO or Gibbs and Hill, had a chance to fully evaluate this (inaudible)?

MR. McBAY: We've had some review, Dave.

MR. JENG: For whom?

MR. McBAY: EBASCO looked at it a couple years back, '83 time frame.

MR. JENG: EBASCO is the (inaudible)

MR. McBAY: More of a consultant, Dave. As far as a formal independent review, we haven't had that, other than our QA audits and so forth.

MR. SHAO: I think I mentioned it a couple weeks ago. I don't think we have a problem with your criteria and (inaudible). They're very good. (inaudible) so how do we know the prominent control is not happening somewhere else?

MR. McBAY: Well, as you're aware, Larry, both these issues fit together. Let me go on through, then I'll come back to that if I can. The second issue we

have is the observation that our two-inch conduit was not seismically supported. This is true. The design philosophy for the plant was that it was not required to seismically support or put the two-inch and under conduit into our seismic support program for a few reasons.

One is we're at low mast. The interface criteria or interaction criteria we use with intervening members, larger or smaller, the situation we get into where the small issues could be an impact to safety-related system is very small.

Secondly, the way we've had to do our typicals in providing design for these small conduits, small conduits go in basically last. They give to any other larger member.

In other words, the small conduits snake their way through and to their destination. Being smaller, they have to get through a large pipe, large conduit, whatever.

The pressure we give the instructor requires that our typical support design had to be installed at certain locations in regard to bends, junction boxes. I guess that's the main two, bends and junction boxes.

With that criteria and the way these small conduits ran, we're now finding that our conduits, small conduits gradually expand every six feet and the...

We revisited this question back in the summer of '83 and we did a seismic analysis to view with using our design of what was acceptable as planned criteria.

The span criteria memory that we have is 14 feet, so with the small mask, the Damage Study interaction with the typical design we used, with the minimum span we're using, minimum weight we're using, the two-inch and under conduit was not put into our seismic support program.

Now, what we have proposed to do is we're going to provide a seismic analysis which verifies the stability during an SSC of the two-inch and under diameter conduit with the present support system.

We feel confident our present support system, disregarding conduit falling and doing no harm because of (inaudible) and so forth. We think our present support system will verify that the seismic, the conduit will not come down, but we will have to do this... We'll have to do a field verification on a sampling program and we feel like that our sample size will be around 315 conduit runs.

We're looking somewhere in the range of 15,000 conduit runs, somewhere in there. Feel like doing a sampling program of the 315, 315 conduit runs, we'll analyze those, assure that we do not have a structural concern, and close this issue on that conclusion.

This evaluation will be done by Engineering.

MR. SHAO: Who are going to do the inspection? (inaudible) group or the same group as before?

MR. McBAY: We have planned the evaluation be done by Engineering. We are mobilizing, plan to mobilize some of our structural engineers that handle conduit all the time and have them do the, do the evaluation.

MR. SHAO: Are they the same group or the new group looking at it?

MR. McBAY: Well, the same group. Larry D. The people that actually go out and take the measurements will be the field engineers at the site, the same group.

MR. SHAO: My point is some people have done it before, even though some people may overlook it again. We'll have a new group (inaudible).

MR. McBAY: Well, Larry, you know, we could use almost anybody to take those type measurements if they were engineering savvy because you need to know what you're looking at on that, with this type of system.

The consideration, though, gathering the information... The largest problem we're having is representative sample.

MR. SHAO: Yes. And who will make the evaluation of it?

MR. McBAY: Once we determine the representative

sample, we want it to be realistic. Do you go for the most congested rooms or (inaudible)?

MR. SHAO: You didn't answer my question. Who is going to do the evaluation after you make the sample?

MR. McBAY: Okay, after we make the sample, the details, we determine the sample, the details are taken by the field engineers. It will be turned over to Gibbs and Hill to do the evaluation.

MR. SHAO: (inaudible)

MR. McBAY: Yes, that's right.

MR. SHAO: (inaudible) very difficult for two people looking at their own work. They like (inaudible) everything's okay.

MR. McBAY: Well, we can go the independent route, I assume, but I guess the way I was looking at this thing is we're not in this particular case questioning a design bust. We're not questioning validity of design.

We're just reconfirming this design. We're just proving or showing that the system we have up is seismically supported. The evaluation could be done by any, any competent structural group in this country, I guess.

MR. NOONAN: Well, why couldn't that be done better by an independent group compared to people that

are already there? Why wouldn't it be a better job?

MR. GEORGE: Let me respond to that. Joe George here. John Beck said subsequent to last Friday certainly TUGCO's taken into account all that was said at the last Friday meeting dealing with independence.

And certainly, we're not going to do any activities that does not satisfy NRR. Now, if you're saying an independent, obviously we're not going to go counter to that if that's what it's going to take to satisfy you.

SO I understood you that you were going to respond to our draft 1 in writing, the subsequent drafts to just corrective action, to TRT. It's certainly got to satisfy you people, obviously.

We're not going to go out on our own and redo the same thing again if it's not acceptable. And that's to do with the people doing the work, this guy standing up there, or this one over here, any of them.

And that seems to be the problem, and certainly we're going to be dealing with that. We're taking this thing very, very, very seriously and intend to put a plan together to satisfy you.

MR. McBAY: So the analysis can be done (inaudible).

MR. GEORGE: In any of these subsequent

speakers, I can save you some time if that's your question on independence. Just give it to us and the revisions that will be dealt with.

MR. BECK: I might add here that it was not in any way our concept that, that the results of investigations or inspections or whatever that were part of these various issues, specific action plans, would be impugned at all by the fact that the people most knowledgeable about the systems themselves were actually doing the work.

The results of these programs will be maintained in an auditable form, subject in some instances to QA verification, subject, as always, to witnessing or questioning during the process or afterward by NRC Staff.

It was simply what we viewed to be the most expeditious way to achieve closure on the issues, namely to have people involved who are knowledgeable about, in some instances, fairly complicated aspects of the design and construction of the facility.

It's clear that we may need to go further on that issue and we're certainly not...

MR. GEORGE: One other words on damage study. We feel that Comanche Peak has done damage studies second to none in the industry. We have had this reviewed with EBASCO as a second look-see, and if I'm not mistaken, we had Bechtel look at our ...

MR. McBAY: We had a discussion with Bechtel, Joe, but they...

MR. GEORGE: We had a discussion, but they didn't go into depth on it, so we were very serious about the program and we think it's a good program and we think we can show you gentleman it's adequate, and we will do the same thing on this issue that he's speaking of.

MR. NOONAN: It keeps surfacing because it is an overall concern from all the technical groups. It's one of the main concerns and I've heard it from everybody, and that's why this thing on independence, root causes and on a statistical sample...

I keep hearing you mention you've done a sample. What is the basis for that sample? Is that that kind of thing that rises out of the special (inaudible)?

MR. GEORGE: I guess our, my concern at least, personally, is what is independence. And, you know, you can get into quite a lengthy discussion on just what independence.

You know, it's difficult and we've gone through some of the independents aside from this program. So certainly we're, we're receptive to working with you and considering what would be acceptable.

MR. McBAY: On this place that we've proposed, this I,C, you're right, Larry. We did have... This is

one of them that we had EBASCO named in. What we had planned to do is have Gibbs and Hill do the evaluation and to have EBASCO review it. That's how we have set it up.

MR. SHAO: Will EBASCO report to (inaudible)?

MR. McBAY: Yes, that's right. EBASCO is in the work plan for this I,C.

MR. GEORGE: AE's normally don't like to report to each other and we are not in any great...

MR. SHAO: The Gibbs and Hill payroll (inaudible) I mean subcontract to the EBASCO (inaudible) they got the contract for a year.

MR. GEORGE: We run an integrated operation and the owner runs the whole thing, and any AE will be reporting directly to the owner, as they always have.

MR. McBAY: Is there anything else?

MR. NOONAN: Yeah. For the reporter, we have Jose Calvo back. He's just entered the room. He's (inaudible). I don't think you have his name down there on your sheet. Jose Calvo.

MR. CALVO: The question that I have is you want (inaudible) sample in that you're looking to concentrating in that area (inaudible) greatest safety significance.

MR. McBAY: For example, control room ceiling

is going to be totally done in our program.

MR. CALVO: That's correct. (inaudible) Category I area, pick up those areas where the failure of the systems (inaudible). I think you're doing the same thing with your (inaudible).

MR. McBAY: That's a good point because there's several ways you can approach a sample. You know, you take a list of 15,000 conduit numbers that are picked through (inaudible) teams, but we've done looked at that aspect.

We get a lot of very simple stuff that's not very meaningful to you. It's just a gimick, so we won't get into the heart of where, what...

MR. CALVO: And if you found problems that were very significant (inaudible) the root cause of why you had that problem. And based on that root cause...

REPORTER: I'm sorry, I can't hear you.

MR. CALVO: Let me repeat it. When you do this...

REPORTER: Louder.

MR. CALVO: ...this sampling and...

MR. NOONAN: Jose, come up to the table.

MR. CALVO: When you do this sampling, if you found some problems, it will be advantageous to everybody if you determine where the root cause of that problem is. So maybe by doing a sample, maybe you find out some

problems from that sample which could be under the rejection criteria, the acceptable criteria.

Then you're saying yes, but this indicates a decided deficiency or something there that may require me to do something else to correct the situation.

MR. McBAY: Your point's well taken because one thing, see, is we feel very confident unless we run into a unique situation out there that structurally we're going to show that the installation will withstand an earthquake because of the short span.

However, if it did not show to being structurally sound, then the first thing we'd do is do a damage study and evaluation if it fails what would be the impact of it. And if it were not in the areas that you're discussing that were very concerning, our damage study would really be, would not give us the total picture because we wouldn't be evaluating just any important facts (inaudible).

MR. CALVO: Right, okay. Let me see if I understand what you're saying. If you're doing a sampling and you found something wrong with a particular installation there and you concluded that this is generic to all the installlations on the plant, then you don't do no more sampling anymore.

From that point on, you're committing yourself

to correct all the other installations on the plant. Also, you have missed the acceptance criteria for that sample.

You see, I'm, (inaudible) sampling of 500 conduits and my acceptance criteria, if I found 22 of those or 21 of those, according to the 95% competence level, okay, they both are okay but among those 21 you found out that 10 of them are not okay, if the root source of those 10 are such that it brings into a case of a generic problem, then you are in the ballpark of the sampling.

You must attack all the other areas from the point and correct that situation. Now, your action plan should reflect that. It should reflect that (inaudible) what happens, you are committed to do the rest.

END OF TAPE 1

MR. McBAY: If there's nothing else on that, we'll go into 2D. Okay, on 2D, in the hand outs we gave to you Friday, this plant is in that hand out. We'd like to go over it a little bit because control room ceiling, that drawing is a little hard to get proper perspective on what we're talking about.

We'll do the best we can with this.

This drawing here is a isometric of the control room ceiling. This is the control board and this goes in a horseshoe configuration this way in here to the center. This control room ceiling is really based, comprised of three ceilings, suspended ceilings.

One being the last, the lighting structures for over the control boards, which is a grid system with lighting fixtures underneath. The second ceiling system being a dry-wall or gyp rock slanted slope ceiling, which is attached to a structural frame, the dry wall is attached to a structural frame. The third ceiling is another lighting ceiling system out in the center of the control room with a U-strut grid frame with the lights underneath.

The three key elements of this is the U-strut and lights and the support structure for the dry wall ceiling are all seismically restrained by air craft cable. Underneath these, about a foot underneath each of these structural members is the undercarriage of ceiling like this. It's like

this, Larry, our engineering group issued them correspondence that told them that this design, in our philosophy, meant the intent of Reg Guide 1.29.

And for them not, a design review of this configuration was not required. Now, before we..

MR. NOONAN: Can I ask the question.

MR. McBAY: Yes, sir, I'm sorry.

MR. NOONAN: You said, meant the intent of that regulation. What do you mean by that?

MR. McBAY: Well, Reg Guide forces to not permit nonseismic insulations that would be harmful to the performance of centralized systems, or in the control room, injuries to the operator.

And we felt like, I guess our philosophy was that if this panel here fell out, that it wouldn't injure an operator. Because, you've lifted those up, they're very light. That was the philosophy we went to.

Now, what we're proposing...

MR. SHAO: It's this kind of judgement I would look at, worry about, maybe you have judgment, so forth in the plane, we think our judgement maybe we don't agree.

MR. McBAY: Yeah.

MR. SHAO; Do you think you meet Reg Guide 1.29, maybe somebody else don't need Reg Guide 1.29.

MR. McBAY: That's right, Larry. Let me tell you

this plus we have egg crate types ceilings you've all seen in power plants. Ceilings very similar to most power plants in the country.

Except I imagine our dry wall is a little bit unique. I don't know how many have dry walls like this.

Now, this undercarriage system under here is basically tied back in, wired in, to this structural system. Now the concerns that have been raised is one, these, the force we use, if we took all larger masses and that we thought were being the structural members, the lighting fixtures, any large, the, pardon me, the gypsum and air frame, we took all large masses and seismically constrained them off these air craft cables so they wouldn't fall.

Our philosophy was that localized failure of the undercarriage system of this ceiling here would not be detrimental to the operation of the plant or the operator. That's why the design is the way it is.

The concerns we have are, Larry and them pointed out, that the movement during earthquake of these structure, of these tubes moving into each other, would give localized or give impact loading, which could cause localized failure, or failure of these undercarriage systems.

Also, human factors-wise, was it a consideration that who makes the decision of how small is acceptable to follow. Our engineering group would then study, looked at

what we're proposing as far as action. It's debatable, it is judgement, just like you say. What we think's best in this area, is for us to take the most timely and direct resolution to this thing. Actions will be taken to keep any item from falling out of the ceiling.

We're just gonna make it proof positive everything will be seismically hung from each one of these individual panels to anything that could fall. So, we want to take that action. We feel that we can take that action and much more in a shorter time frame, direct approach, than we can the continued debate what faults.

Now, what we would do on this, is we're gonna provide you a seismic analysis, which demonstrates compliance with Reg Guide 1.29, SAR section 37B28. We're going to have to go in and add horizontal seismic restraints. We're going to install those to prevent interaction between the ceiling systems. The concern about the ceilings moving in at each other, we're presently designing some horizontal restraints to stop that interaction so we cannot move the two ceilings together.

Because that was much more direct for us than trying to review impact loading and then what would fall, how hard it would hit, that kind of stuff. So, we're just going to stabilize the three ceilings.

The other thing we want to do is the dry wall

ceiling will be replaced to expedite resolution in lieu of verification testing. The dry wall ceiling that we have, the question is we've got the structural members seismically supported by air craft cables. We've put the dry wall in, we've put a special configuration of screws in that carry about 60 pounds pull out strength, to convince that the dry wall would not separate from structural members.

Well, we were getting the questions, well, if it separates, will it come down in little pieces, big pieces, what would it do. Well, we decided that the best thing for us to do is to take the dry wall ceiling out and come up with a ceiling of inverted side, a cork type ceiling where there's no question. Where the composition of the ceiling is not subject like dry wall.

Now, we had the option, we looked into, actually, our first plan was to test this. We feel confident that if we can put this on shaker test with our configurations, that our dry wall would stay up. But we could see what the impact of committing to take this ceiling out was, we took a look, or we took a Unit 2 ceiling out this weekend.

It took us only three hours to do it. So, the amount of work is very small compared to what the testing a program, waiting to get in line, why to get a test window. So, taking the dry wall ceiling out is the best approach for us.

Now, we haven't done Unit 1. We're gonna wait until our testing, hot functional testing, thermal measurement testing is complete and then we'll come in and address Unit 1 after a testing program going into ours is complete. But we're organizing such that we can do this in a very short order.

The next issue, we're gonna perform an evaluation on each individual components of acoustical and louvered ceilings and provide positive attachment if failure is a concern. All we're saying there is all these T-bars and these louvered sections, we'll probably air craft cable every one of them back up to the lighting grid and then probably loop in every one of these panels to T-bars. So if the thing shakes and falls, nothing can hit the floor, it's all tied together. And, that's not a very big effort for us.

That is to make sure we can get lights in, change out lights real quickly.

Okay, that pretty much covers it. The last issue on any of these installations regard a horizontal restraints. holding the louvers down. All that installation will be verified with QC. Larry, you had asked me about that before. We'll have QC verify further instruction procedures, regular QE, category 2 type installation. We'll have QC verify all this.

MR. SHAO: Need that appendix B, right?

MR. McBAY: Yeah, that's right. Now, the last issue that NRC brought back to Larry's question, the last issue NRC asked was with this occurrence, how do you have confidence and assume our condition doesn't exist throughout the plant. And I think that's where you're going to, what you're talking about, right.

What Joe stated, we have a long conference in our daily study evaluation program. We always put a tremendous amount of effort into it. Very explicit regards details for interactions of alot of evaluations done. Very documented approach. We think what we need to do here to get the confidence of you all into our program, is we need to provide you an summary document of the daily study program we've done that would encompass not only just conduits like in Item 1C, but our entire daily study program.

We do feel like, though, that for us to be convinced ourselves that we haven't let something, interaction go unresolved or unlooked at, we think that since the ceiling area is a architectural feature that had to, that raised this question, and there was a difference in judgement between us and NRC, we feel like the architectural probably needs to be reviewed.

We're gonna go back and re-review all the architectural specs and drawings to confirm that the architectural features are properly considered in our damage study program.

This is a pretty good sized review that will take us some time. We do plan to use the same walk down teams, the damage study teams that we've used prior. We feel like it's a continuation with that program. Now...

MR. SHAO: Let me understand your statement here. You say you think there's some problem with the control room. You also may have some problem with your architectural features. Why do you say you are very, a lot of confidence in the damage study?

MR. McBAY: The damage study program, take conduits, for example, every conduit was individually walked down and viewed as a source against a target.

MR. SHAO; But what I'm worried about is alot of time you use alot of judgement, just like in the ceiling there. Some people doing the damage study suggesting it met Reg Guide 1.29. Some people else, some other people think you do need the Reg Guide 1.29.

MR. McBAY: Okay, I guess the judgement areas, Larry, are much more predominant, are only predominant in regard to architecture, because architecture has these features that people are accustomed to seeing daily, that is just part of your daily life and may not view them in regard to dam study or ...

MR. GEORGE: Mike, let me interrupt you there. Joe George here. I think in all of this design philosophy, we

can't avoid the possibility that the engineers, when they're working in an area where it's the lowest vault that we know of in the country, and they think there will never be an earthquake there, if they had a judgment on how big is allowed to fall, is it ever going to fall, they might be biased a little bit by that.

And I for one don't think we will ever have a earthquake there. Obviously, we can't prove that. So we have to take all of this into account and so we're proposing, we're not debating this with you, by the way, if you were interpreting this as a debate on whether we meet 1.29 or not, it's not a debate.

We're going to convince you people that we meet it. That's our objective here. And if we don't meet it, then we're gonna...

MR. SHAO; Okay, my general comment is, I think you proved it on the control room itself very good. Okay. But I think you prove it in other parts of the plant, I think it's a big vague. I don't know what you're doing here. If I were to approach it, I would approach it a different way. And I would do a little bit independent audit, outside consultant to look at it, measure your judgement, yes, it was right.

But I don't see that in the plan.

MR. GEORGE: Well, as I said earlier, we're receptive to modifying. You need to just tell us what you,

it's gonna take to satisfy you ...

MR. McBAY: We take that into consideration.

MR. SHAO: Talk about earthquake, earthquake can happen everywhere, like a week ago it happened in Missouri. And nobody ever think of ...

MR. GEORGE: Yeah, well, surely I'm not here to discuss whether we're gonna have an earthquake or not. But I do point out that we're on the lowest vault level that we know of.

MR. SHAO: Yes.

MR. GEORGE: And I would point out that we're on the seismic owners group that's dealing with these earthquakes east of the Rockies and of the test plants, it does turn out that when you take probability into consideration, that the SSE's are decreased.

MR. SHAO: Instead of pointing to lower.

MR. GEORGE: Yes, sir. And there are some cases, unfortunately that's not the case.

MR. JENG: Mike, I'd like to augment Larry's comments, two comments.

MR. McBAY: Okay.

MR. JENG: In regard to the analysis of the control room elements, we feel that the way you have presented, by merely referring to 3.7 129 Reg Guide, is not legally now, I suggest that you, in your Reg 2, Reg 1, indicate what other

specific acceptance criteria in monitoring for seizures and what judgement of adequacy insofar as the remodeling, analysis and productivity obtained in such analysis.

To activate the whole about the deeper aspects, so that we can understand what you are going to do and how, based on what judgement that we make.

MR. McBAY: Okay, are you going to put that in the write up you're gonna send me?

MR. SHAO: Yeah, we will send it.

MR. McBAY: Okay.

MR. JENG: Okay, and the second comment, I think Larry mentioned but I'd like to make sure you keep the comments clear. As to why are you only concerned in the architectural features in your investigation. Whereas there may be architectural features, however, they are still non-seismic items.

So I think since you abrasions or the non-seismic items in your irradiation on the items elsewhere in the pack..

MR. McBAY: That really goes to some type of independent system of our damage study program, because we've already looked at them and I guess, and I guess we need, that's the solution to that, I guess.

MR. JENG: Because in your report, you state architectural reaches are the ones to look at.

MR. SHAO: But you, based on your judgments that the previous work was good, then it can be, you say you have alot of confidence in your previous work. Which we're not familiar..

MR. JENG: And my other point, outside, you have done so called independent reviews, Larry saw this one. He named one to do, audit of our own, outside people has done.. reserved the hard one. So that may be one of the items...

MR. SHAO: Okay, you current done seismic. Are you going to discuss something related to category 2 structures that insist on conformance, what's your approach?

MR. McBAY: On category 2?

MR. SHAO: There are two basic questions. One question is, how do you treat your damage study related to non-seismic ...

The other major comment that we had was we're not happy with your naciful category 2 structures different components. Because you do alot of equivalent status level, you didn't take up conduit interacting because of the two masses.

MR. McBAY: You're talking about specific on the air craft cables?

MR. SHAO: I'm talking about this category 2 systems component in general.

MR. JENG: You do some equivalent status in the control room. We have problem with this. Our question is,

do you have any possible problem related to masses, flow of category 2 structure system come from elsewhere in the plant, what you've told us from that.

MR. McBAY: Larry, the control room ceiling, the three ceiling configurations is a very unique situation for us in the plant. We don't think we have a problem in the other category 2 designs. We have done some reviews into those.

MR. SHAO: Have you been to, did you do the original analysis? How do you do the category 2 analysis, can you describe to us, how do you do a category 2 analysis also in the plant, or the approach.

MR. McBAY: Okay, need to get clear of the definition of category 2, just to make sure. Because ours is a little bit different than other plants.

Category 1 is basically seismic design...

MR. SHAO: I understand the definition. I just want to know how you do analysis, what the analysis approach for category ..

MR. McBAY: Okay, the Category 2 analysis was done in the same manner Category 1 is.

MR. SHAO: What's the difference?

MR. McBAY; Okay, as I was explaining, category 1 is seismic design that's required for safe shut down of the plant. Category 2 is seismic design that's not required for

the safe shut down of the plant. A platform would be a, a stairway could be a category 2 design.

And non-seismic is something that does not have a seismic design to it.

MR. SHAO: Okay, in to analysis, what would be the difference?

MR. McBAY: Analysis would be the same.

MR. SHAO: Yeah, but the reason we sought the difference in the control room, your category 1 analysis and your category 2 analysis were not the same.

Category 1 you did a dynam analysis, category 2 you used a chromostatic analysis. My question is before you made the statement that everywhere else was okay, you look into the category 2 analysis and they ...

MR. McBAY: We can do that. We had not planned to do it. We felt like..

MR. SHAO: That wasn't the question we turned to you. What your action planned for looking into the nonaccessible category 2 structure system and component. But, you see the distinct difference between category 1 and category 2 analysis, and you just told me that there shouldn't be any difference.

MR. McBAY: I think what we were looking there, was the air craft cable design, though.

MR. SHAO: In the control room seating, you used

the current status analysis. And also you didn't take the interaction, taken into account.

MR. McBAY: I know, that's right.

MR. SHAO: So, we have a lot of trouble with that analysis. So my question is, you say this very unique control room, it doesn't happen somewhere else. Can you give me some proof to back up your statement with?

MR. McBAY: Okay, we can do that.

MR. SHAO: You have already, this investigation before you made such a statement?

MR. McBAY: Well, we've done some investigation into it.

MR. SHAO: You mean the last couple weeks?

MR. McBAY: Not in the last couple weeks.

MR. SHAO: How can you say then...

MR. McBAY: Well, when you're going back in, for example, we were re-looking at the control room ceiling regard to the impact loading? We reviewed in regard to the philosophy that was used on our seismic design. We use peak response spectrum on all of our seismic design, which is very conservative.

MR. SHAO: It's a new method.

MR. McBAY; Well..

MR. SHAO: Your dilemma in prescating tried to make a difference.

MR. McBAY: Yeah, well, it depends on which application factor you use. Like, we're on the, one for this for example, case factor 1.5 on verberating.

I guess, Larry, the best way to close this is me to go ahead and include in our plan a action for us to go back and re-review some category 2 designs. And if we see any significant difference between category 1 designs, then be able to explain it.

MR. SHAO: Yeah, I think you should audit this on the category 2 analysis. I think TUGCo should audit this in category 2 analysis to make sure the category analysis was properly performed.

MR. McBAY: Okay.

MR. SHAO: Yeah, I think you want to do some auditing too.

MR. GEORGE: We hear what you're saying, and we will expand it beyond the control room ceiling issue and architectural issues, going back to other category ...

MR. SHAO: Yeah, I would not except the statement that this is very unique. The problem is only here and nowhere else.

MR. GEORGE: I understand. We hear you.

MR. McBAY: That is really all I have to present. There any questions?

MR. MERRITT: All right, next we've got start of

testing program.

MR. WESSMAN: Joe, let me ask a digression, before we start with the test program discussions. I know you are all planning to do what's been referred to a mini-hot functional testing. I wondered if you could take a couple of minutes and summarize to use the test activities that you've got coming up in the next couple of weeks, or the next month or so that concern a hot functional testing activity and heat up and cool down. And what sort of time frames you expect these things to happen.

MR. GEORGE: We'd be happy to do that and Mr. Camp...

MR. CAMP: I planned to do that during my presentation.

MR. WESSMAN: All right. Why don't we go off the record for a couple of minutes and let everybody get a stretch or, no more than five minutes, because I think we want to get on with things, don't you all?

(Off the record.)

MR. NOONAN: I think we'll go ahead and continue on with the rest of the meeting here. We're talking about the start of testing area. And with that, why don't the utility go ahead and start?

MR. CAMP: My name is Dick Camp. I am currently the start up manager at Commanche Peak. I've been on the

project for just a little over nine years now. I came in in '75 to assist in the preparation of the test program.

Prior to that, I worked for Burns and Row on the WMP2 project. And the early stages of construction, assisting the utility in setting up test program there and construction as well as preoperational testing.

Prior to that, I participated in the start up at Cooper Nuclear Station in Nebraska. And prior to that, approximately three years in the Newport News shipbuilding and dry dock in the Navy nuclear program there.

Graduate engineer with a mechanical engineering degree. That's pretty much my background.

MR. KEIMIG: Dick, for the record, who do you work for now?

MR. CAMP: I work for Amtel Corporation. The first issue is 381, deals with the review of hot functional test data packages performed by the TRT. Basically, the TRT reviewed several test data packages and identified three where there were concerns expressed, where certain test objectives may not have been met on those completed tests.

Our action plan to resolve this issue is to review each of the, each of the three tests expressed as a concern by the TRT and provide justifications for the actions taken, or perform retests for those tests.

In addition to that review, we will be reviewing

the seven remaining completed hot functional tests that were not reviewed by the TRT to determine whether or not those tests met the test objectives.

As a result of this review, if any retest is required to demonstrate a test objective, that will be considered as a recheck and require further review on a sampling basis of the remaining 136 non-hot functional preoperational tests.

The first sample review of 20 procedures, one reject will require the additional review of another 20. If, in the second sample, if one reject is identified, all of the remaining approved preoperational tests will be reviewed.

Are there any questions on this issue?

MR. KEIMIG: Yeah, Rick Keimig, TRT. For the record, I would like to make note that TRT did not ascertain the acceptability of the test results. That is, they did not validate any test results. That statement is made in the background section of this item.

MR. CAMP: Essentially what we did is we reviewed the test procedures and resultant data to determine conformance with your FSAR and Regulatory Guide 1.68. Validation of the test results, I understand, is being done on a sampling basis by Region 4.

That was a misunderstanding on our part relative to the degree of your review.

MR. KEIMIG: I have a question with regard to why you're restricting your initial review to the remaining 7 hot functional tests that we did not review.

MR. CAMP: Well, basically, we considered, you know, reviewing all of them. Since the concern was expressed on three, we assumed that, our belief that we had done an adequate review on all of them in the first place and that there was no problem expressed by the TRT on the procedures that were reviewed by the TRT would not indicate any reason to go back and re-review them again.

If you will, took credit for your..

MR. KEIMIG: Except that in the case of the containment integrated leak rate test, we also found the same problem, where test objectives in accordance with Regulatory Guide 1.68, in our estimation, our opinion, were not met.

There are 136 some additional preoperational tests that I think need to be included in the sample that you people do originally. So, I would ask that you reconsider and do a statistical sampling on those seven plus the 136 preoperational tests that haven't been looked at.

MR. CAMP: If I understand you correctly, are you suggesting that we go ahead and proceed with the sample, regardless of any reject status on the three that you've identified as a problem?

MR. KEIMIG: That's correct.

MR. CAMP: Or the seven?

MR. KEIMIG: That's correct.

MR. CAMP: We'll go ahead and proceed with that in parallel.

MR. KEIMIG: And again, I would like to know the basis for your selection of which preoperational tests that you decide to select for review.

I have another question and I hope we're not going to waste anymore time on this. But, I would like to hear your opinion, Dick, on the pros and cons of having this review done by the JPG, which is not an independent group of this activity.

MR. CAMP: Okay, our plans were that the joint test group is made up of representatives from engineering, Westinghouse, from Start Up, plant operations, and is chaired by the manager of Nuclear Operations. Our plan on this additional review, was to have that group responsible for the review and the review actually performed by the joint test group members themselves, or individuals designated by them within their organization that were not previously involved in any previous reviews, to obtain some independence in terms of the actual review process.

It was, has been our understanding that there was not a concern over the qualifications or independence or

objectivity of the joint test group, but there was a concern relative to the amount of involvement by the joint test group on a daily basis during the conduct of the testing.

MR. KEIMIG: That's correct.

MR. CAMP; So, we kind of felt that the joint test group's responsibility to perform these reviews and to make sure that they understood all aspects of testing relative to test efficiencies, test deviations, that would be more beneficial to have that group remain responsible for that activity.

MR. KEIMIG: That's why I asked the question. Because in this particular case, Vince, I'm not sure if it would be of any advantage to get an independent group to do the review of these preoperational test procedures, because of the knowledge of the individuals on the joint test group with the procedures themselves and the workings of deviations and so on and so forth.

I think in the revision to your action plan, we might want to see what you have to say about having the joint test group do it and weigh the pros and cons.

Another concern that surfaced with respect to the joint test group's review of the hot functional tests, which may not come out of our findings very loudly, it's kind of like a silent alarm, though, and that's their interpretation, that is the interpretation of the JPG, with regard to Reg

Guide 1.68.

Apparently, they think that it's perfectly alright to not have certain equipment installed during a hot functional test, conducting the test and then and installing that equipment when a test is completed. I would like to know how that meets Regulatory Position 3 of Reg Guide 1.68.

Now, you needn't address that now, but we won't be asking you that when we give you our comments. It's a concern that I have, it's a concern that the rest of the team had, and I think it needs to be addressed.

In addition, we need to take that into consideration when you propose, whomever you decide to propose, to do this review. How can we have assurance that they will be properly interpreting Reg Guide 1.68?

MR. CAMP: You want us to address that in our revision, our plans?

MR. KEIMIG: Yes.

MR. CAMP: I'd like to say one thing about that, and that is certain tests that were pointed out in this review, for example, the steam generator level instrumentation concern, that dealt with the three temporary instruments being installed for the purpose of doing the test.

That was a conscious decision to do that. It was not a conscious decision to deviate from any Regulatory Guides or commitments. In essence, we had, each steam

generator has four level channels. We have three that were defective with a long lead time for replacement of the PC cards. The Unit 2 instrumentation is not of the same type that Unit 1 is so we could not transfer those instruments.

And we elected to proceed with temporary instruments in place, based on the knowledge that 13 of the 16 are permanent plan instruments, they would demonstrate, during the conduct of hot functionals, they would demonstrate the adequacy of the loan instrumentation system, and the adequacy of the calibration procedures and scaling documents used for calibration.

So, I, you know, it sounds almost like a flagrant misinterpretation of Reg Guide 168 the way you described it, Mr. Keimig, and I don't think that's the case.

MR. KEIMIG: No, as a matter of fact, I recognized that it was a conscious decision and that's what bothers me. Because Regulatory Position 3 of that Reg Guide says that to the extent practical, duration of the test should be sufficient to permit equipment to reach its normal equilibrium conditions.

And thus decrease the probability of failures, including run in type failures from occurring during plant operations. And I don't see how you can accomplish that if indeed you do not have instrumentation installed at the time you run a test. That's my problem. Plainly, that needs to

be addressed.

MR. CAMP: Okay, we will attempt to do that in our revision.

I said earlier I would get into a description of the new decision to perform another heat up prior to fuel load. Approximately two weeks ago, two and a half weeks ago, the decision was made to re-perform, do another heat up for the purposes of conserving time after fuel load and take advantage of some of the time that we perceive as far as a delay in operating license.

What will be performed during that heat up, most of the plant systems have been turned over to the operating group for final acceptance now. The operating group will be responsible for the conduct of that heat up, using normal plant procedures. During the process of that heat up, certain deferred preoperational tests, resulting from the last, from the first hot functional test, will be performed prior to fuel load.

Included in that next heat up will be the thermal expansion test of the deficiencies found the last time. The current status is we have the head on, in the process of putting the CRDM vent fan system on and filling and venting of systems in preparation for ambient measurements for the deficient supports found during hot functional testing.

We expect to begin heat up sometime next week. Of

course, that's contingent upon getting one of the diesel generators operable. As you know, we've disassembled diesel generators for the second time, to perform bearing oil hole inspections. Both trains are getting back together now. One train is complete with preoperational testing in progress on train A.

And we hope to finish that and have that diesel generator operable next week.

MR. KEIMIG: Why is the operating staff being made responsible for this mini-test?

MR. CAMP: Basically, Mr. Keimig, the reasoning for that all of these tests have been deferred over into the operations program that would be implemented post-fuel load, under the auspices of the initial start up test program.

All of the plant systems that will be involved have been turned over and finally accepted by operations. It basically comes under the auspices of their normal operating procedures and programs. We felt that by doing that would certainly exercise their procedures and operating procedures more fully and place the responsibility where the responsibility will be at the time of fuel load.

MR. KEIMIG: Okay, I understand that now. Will you be making a transit FSAR to reflect who's responsible for these tests?

MR. CAMP: An FSAR change has been in the process

of being submitted.

The second issue, issue 382, will certainly be revised to reflect this new decision to perform another heat up prior to fuel load. Basically, our feeling was, and I certainly hope we didn't get caught up in words here, is that the TUEC has currently a commitment for the station operating review committee to review all initial start up tests, which would include deferred preoperational tests.

The qualifications of this group are described in the FSAR and we feel they are similarly qualified to the joint test group. Our previous plan was to complete all the four preoperational test prior to initial criticality, with the exception of those portions of thermal expansion associated with feed water system, which could not be performed prior to initial criticality.

The results of those tests would be reviewed and approved prior to initial criticality. The remaining portion of the thermal expansion test, which is expected to be completed at the 30% power plateau, would be reviewed and approved prior to escalating to the 50% power plateau.

However, due to this new decision, this action plan will be revised to reflect our current schedule on the project. Are there any questions on that issue?

The third issue, issue 383, deals with TUGCo specifications for deferred tests in that the observation was that

certain plant conditions could not be, could not accommodate the performance of deferred preoperational test in that technical specifications could not be met.

The example was given for snubber operability, in that some snubbers would not have been tested.

This action plan will also be revised as a result of this heat up. However, I would like to point out a couple of things. We, the utility had evaluated several incomplete preoperational tests for deferral after fuel load. During that evaluation process, required plant conditions and technical specifications, limited conditions for operation, were evaluated and a request was submitted to NRR for deferral of these tests.

Approval for that deferral was received and during that process, we did not request any deviation from the technical specifications.

At the current time, we plan on finishing these incomplete preoperational tests prior to fuel load, in which case they will be reviewed and approved prior to fuel load. Any kind of technical specification deviations that may be associated with thermal expansion, we don't know the scope or extent of those at this time, and we won't know until we finish the re-tests associated with thermal expansion.

So, that will be evaluated and tech-spec exceptions will be requested where appropriate.

MR. KEIMIG: Snubbers actually would be major items that we were addressing.

MR. CAMP: Are there any questions on this issue?

MR. WESSMAN: Dick, let me offer a little bit of a comment on this. Obviously, we'll have to kind of revisit this area after you finish the mini-hot functional testing that you're about to do.

A little bit related to all of this, of course, is the staff evaluation of the motion that you still have pending before the Board pursuant to 5057 (C), because obviously to do any hot testing after the core is loaded, there is constraints for operability of various systems imposed by the tech-specs.

You may recall that to get yourself up to hot levels after the core is loaded, that you have to meet the operability requirements for these various systems.

MR. CAMP: That's right.

MR. WESSMAN: And sometimes the difficulty in meeting operability means that you seek an exemption to the tech-specs. That requires a fair amount of advance planning and review by the staff.

And as long as that motion is on the books, it means that we have to consider the impact of that just as you must.

MR. CAMP: Well, the only exceptions that we had

planned to have were related to snubbers.

MR. WESSMAN: My memory fails me but my recollection is when CATAWBA did some similar hot testing after the core was loaded, I believe pursuant to similar motion, that there were a number of tech-spec exemptions or revisions that they had to make to their technical specifications to accommodate this unique operation of the facility.

So, at first blush, it may be more difficult that appears. That's the only reason I bring the subject up.

MR. CAMP: I'm aware of that.

MR. BECK: We're looking at CATAWBA's licensing documentation in that regard, primarily as associated with diesel generator availability, as I recall.

MR. CAMP: As I recall, that was the largest amount of deviations associated with that docket.

MR. WESSMAN: That's all I have on this area.

MR. CAMP; Okay, the fourth issue is issue 384, deals with the traceability of test equipment. It was found by the TRT that included in the thermal expansion test package, which is under final review, that adequate documentation did not exist for the traceability of temperature measuring devices used during that test, from the calibration of the instrument to the location that they were used.

It was also pointed out by the TRT that this information was available in a personal log held in the

engineering department.

The traceability of that instrumentation was, in fact, not included in the test data package. We have reviewed the information available from the personnel log. It is adequate to provide traceability from the calibration of the instruments to the location used and that documentation has been included in the test data package.

We have administrative requirements for the traceability of test instrumentation. We feel that this is an isolated case where we used, or had, engineering personnel temporarily assigned to start up, for the purpose of doing thermal expansion test only. They were indoctrinated in the administrative requirements, however, they failed to comply with them.

To prevent...

MR. KEIMIG: Could you expand upon that a little bit, Dick? I tell you why I ask that. If the procedure had been left in its previous revision, the recording of the test instrumentation would have been on the data sheet that the temperature was recorded on. When the procedure was revised, and I don't know for what other reason it may have been revised, but when it was revised, somebody revised the requirement as to where to record the serial numbers of the testing instruments.

It was now on a separate portion of the results

package. I really don't understand how you can attribute this to engineering personnel temporarily assigned to do the thermal expansion tests. Someone who revised the procedure, and those that approved that revision, missed the fact that when the test instrument serial numbers were recorded elsewhere in the procedure, that there would be no traceability to the data which was being recorded on the data sheets.

MR. CAMP: I haven't personally looked at that package, Mr. Keimig, but I will. Do you recall if the requirement to record that information was in a different location in the procedure as a result of the revision?

MR. KEIMIG: Yes, it was, definitely was. Now, the start up administrative procedure recognizes the need to maintain traceability, and it provides several options for doing it.

In this particular case, the wrong option was chosen when the procedure was revised.

MR. CAMP: Well, I'll just have to look at that, I don't have the answer right now.

MR. KEIMIG: In addition, I think that your action plan should also include a review of the Unit 2 preoperational test procedures and the Unit 1 and 2 ISU and plant operating procedures to insure that where instrument traceability for calibration purposes is required, that the format is such that it indeed does get recorded where it should.

Again, because I think that somebody did not know why the instrument serial numbers were being recorded on the data sheets in the previous revision to that procedure. I think that your action plan needs to be broadened somewhat.

MR. CAMP: To address other programs?

MR. KEIMIG: Yes. It may be a generic weakness with people who are preparing procedures.

(End of tape)

MR. CAMP: Any other questions? The fifth issue deals with containment of integrated leak rate testing, issue III-B. TRT identified that during the time of the test we isolated three electrical penetrations to complete successful, for successful completion of the test as well as the leak rate calculation method was in accordance with ANSI 56.8, not 45.4 which we were committed to in the FSAR.

Since identification of this item we received a letter from NRR requesting additional information on this subject. It is our understanding this has been turned over to the appropriate review branch and is counted as, carried as an open SER item.

We intend to compare the test procedure to the FSAR and ANSI 45.4, 1972 version to identify any other deviations and provide justification for any other deviations in response to the NRC letter dated August twenty-seventh.

MR. KEIMIG: Did that NRC letter address the three electrical penetrations?

MR. CAMP: Yes, it did.

MR. KEIMIG: Could you briefly tell me what it said about the three electrical penetrations?

MR. CAMP: It said -

MR. KEIMIG: It's not mentioned in your background here.

MR. CAMP: In essence the retest results for

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the electrical penetrations were provided in our summary, in our report supplement that provided the data for the retest leakage rate. A comparison was made for the retest leakage rate to the overall containment integrated leak rate and determined that it would be insignificant.

MR. KEIMIG: Thank you. I have some more questions on this item and the kind of generic type. You mentioned in the background here that the fact that the FSAR was not amended was due to an oversight. Can you explain to me how that oversight occurred?

MR. CAMP: Well, it obviously occurred during the review and approval of the procedures in the first place. Whether the criteria used for review of procedures is to insure that it complies with the FSAR commitments for testing. So it was an inadequate review of the procedure in the first place.

MR. KEIMIG: What is your normal process for recording or documenting and processing identified deviations from the FSAR?

MR. CAMP: I don't understand your question. What is the normal process? We identify deviation, the necessity or -

MR. KEIMIG: Yeah, how would you -

MR. CAMP: We would process -

MR. KEIMIG: As in this case here where you

apparently elected to go another route to calculate the leakage rate. Perhaps you thought it was a better way to go, but it's a deviation from what you committed to in the FSAR. How would you normally have processed that through the NRC or through your own system to get to the NRC as an amendment to the FSAR?

MR. CAMP: Start up or whoever identified the problem, we would have ended up I think amending the test commitment, processing FSAR change request through engineering, from there to licensing, from licensing to the Commission.

MR. KEIMIG: My concern is that since we know of one oversight, how do we know that there haven't been other similar oversights? Have you considered reviewing your process to see if there possibly are some others that may have been overlooked?

MR. CAMP: Well, we had already discussed and I didn't include in the background section or description of either III-Alor III-B. We had planned to include that into our acceptance criteria for review of these additional procedures that we were being required to review. Plus to see that we did meet the test objectives as stated in the FSAR as well as any other standard commitments we've made.

MR. WESSMAN: Joe, this is back to one of these root cause issues. Again, I think we're dealing with a case where a test varied from the FSAR got by you. When we wrote

our September eighteenth letter to you we asked that you identify other deviations from FSAR commitments. Your action plan focused very narrowly on the containment integrated leak rate test.

I think what we're trying to tell you is root cause, generic approach means look at the tests versus the FSAR and see whether you've got any others that slipped through. I think the action plan that you've provided is too narrow and you've got to look broader.

MR. CAMP: The reason this specific one looked narrower was because we knew that we were going to be looking for this aspect in the review of the test as described by Issue III-A1 and the fact that it was our understanding that this had been taken out of the technical team and that we only wanted, that we were only required to respond to the request for information provided by, requested by the review branch.

MR. KEIMIG: That particular aspect of it, yes, was turned over to the technical review branch. However, the generic aspects of it were not and -

MR. CAMP: And I understand that and what we had planned to do was address that in the review with III-A1.

MR. WESSMAN: You need to clarify how you're going to handle III-A -

MR. CAMP: Okay.

MR. WESSMAN: Because obviously the story isn't there. It didn't fail into place with those of us looking at it.

MR. CAMP: Any further questions of III-B? The sixth issue deals with prerequisite testing, Issue III-C. TRT finding was that sort of management had an issue they, an interoffice memo that conflicted with approved administrative procedure requirements for verification of initial conditions for prerequisite or construction testing.

The subject memorandum has been recinded. The start up craft, support craft as well as test engineers have been reinstructed on their scope of responsibilities and all additional interoffice memoranda are being reviewed for, to determine if additional conflicts have been issued in the past.

MR. KEIMIG: Let me make a comment about this particular item. Somehow or other in the September eighteenth letter a line got dropped or a word got dropped or something happened. Because here again you haven't addressed the generic aspects of this particular problem as we saw them.

Our September eighteenth letter says that the review of test records revealed that craft personnel assigned to verify initial conditions of test in violation of start up administrative procedure 21 entitled conduct of testing. This procedure requires this function to be performed by

system test engineers, STE's.

Now, after that sentence something happened. The prerequisite tests that we identify that involve the start up memorandum were not the only prerequisite tests where craft personnel had signed off on. There were also others. So I think you need to look at which others and what kind of impact that may have had on your preoperational tests.

I think I agree with the statement that you make in your action plan here that the consequences associated with the improper validation of prerequisites for prerequisite testing are insignificant.

MR. CAMP: Well, that was in relation to those two specific prerequisites.

MR. KEIMIG: That's right. And I think that probably will be your conclusion when you go and look at the others that were also signed off by craft personnel, but I think you do need to look at them and come to that conclusion yourself. I didn't look at all the prerequisite tests. I just looked at a sampling.

MR. CAMP: Okay. Was this, you say this was something that was found and was not pointed out in the letter or we misinterpreted?

MR. KEIMIG: Well, something was dropped from that particular paragraph in the letter.

MR. CAMP: Okay. So it's something we're not

aware of.

MR. WESSMAN: That's correct.

MR. CAMP: Okay.

MR. KEIMIG: Well, again, you took a very narrow view since we mentioned the start up management's memorandum. I can see how you just easily have don that.

MR. CAMP: Another question? III-D , preoperational testing, Issue III-D, basically the observation made by the TRT was that test engineers were not provided the latest design information on a continuous controlled basis and that's true.

We've tried several methods of document control on the project as well as within start up and what we ended up doing was providing a document control satellite center in the start up complex to make access to controlled documents easier without any significant burden. The current program requires that prior to performing tests that the start up engineer verifies that he is using the latest design drawing as well as design change documents to perform that testing.

Other drawings used by start up is for reference or for general information which we do not maintain on control basis. In general we feel that the requirements for the start up engineer to maintain the number of drawings that he uses and may in fact use on a one time basis in a controlled condition would be an undue burden.

At any rate, a satellite center is established in the start up complex for ease of access to control documents and to further, to further reduce the impact on the start up engineer for reviewing test procedures and assuring that the test procedures reflect the as built condition of the plant, administrative procedures will be revised to require him to begin that process several weeks in advance of the scheduled test date to relieve any last minute burdens for updating procedures. And we plan to instruct the test engineers only to new administrative procedure requirements.

I would like to make one note. This item as I see it doesn't relate to the discussion held last Friday on complex documentation systems or drawings with numerous design changes outstanding against them. For the most part drawings used by start up from termination drawings to flow diagrams are in good shape in terms of the number of design changes outstanding against them.

The are in fact not like hangar packages or conduit layout drawings or those type of drawings. So we're not talking about a large number of design changes against any one drawing used by start up test personnel.

MR. KEIMIG: You're not talking about it on Unit 1 any more, but are you sure you'll not be talking about it on Unit 2? Or are you sure that we will not be concerned with that same problem on Unit 2? Based on the discussions at

that meeting last Friday and your statement with regard to this issue of large number of design documents are utilized by start up, I would request that you reassess your action plan with regard to this item.

MR. CAMP: On Unit 2?

MR. KEIMIG: And Unit 1, also.

MR. CAMP: I'm not sure I understand, Mr. Keimig, what the concern is.

MR. KEIMIG: Well, there were statements made by senior utility personnel at our meeting last Friday to the effect that the records retrieval systems were very complex, I believe the words were. I would like to be assured that those people who subscribe to that don't have any problems with that complexity with regard to the start up engineers and how they may get design documents.

MR. CAMP: Well, I was trying to point out a different thing, the discussion was held last Friday.

MR. KEIMIG: I think it got a little deeper than what you -

MR. CAMP: Well, it led one to believe that not only is the drawing system and associated design changes, not only the inspection documentation complex but also the design drawings and design changes associated with those drawings as complex and that's not the case. The document retrieval system may be complex and cumbersome to deal with.

That may be the case. I'm not familiar with that because I don't retrieve records from the vault, construction records from the vault on that much frequency. But I do know for a fact that the drawing system is not complex. We have drawings and design changes against those drawings and it's readily available to anyone that wants them.

MR. KEIMIG: However, without going very deeply into it, I'm not sure how often a system test engineer may need to refer to construction drawings and I'm not sure that if he does need to refer to a construction drawing that he'll get the right one after what was said at the meeting last Friday. My experience is that systems test engineers frequently have to refer to construction drawings.

MR. CAMP: That's for sure.

MR. KEIMIG: Now you admit yourself just now or you admitted yourself just now that you don't have that much occasion to test the system for retrieving those types of documents.

MR. CAMP: No, I did not say that.

MR. KEIMIG: I thought that's what you said.

MR. CAMP: Not construction, inspection records.

MR. KEIMIG: Nevertheless, I think this entire area needs to be reassessed. I think you probably should get together with Mr. Vega to insure yourself that there are no problems.

MR. CAMP: Well, I'd like to understand now before I leave here what we're talking about. I'm not talking about construction inspection records. I'm talking about drawings, design documents and that in my mind is not a complex system and no challenge has been made on that.

As it was discussed last Friday there was a bit of confusion as to what kind of documentation people were talking about. Inspection documentation, I won't talk about that. I don't know about it. Drawings I do know about.

MR. GEORGE: If I can interrupt here.

MR. KEIMIG: Go ahead.

MR. GEORGE: We're going to be giving drawings and documentation and root causes one considerable lot of attention. Now, as far as design drawings and flow diagrams and test diagrams that Mr. Camp requires, we have a system whereby any change modifications are at the very minimum on any drawing.

What is it? Three or four at the very most would be outstanding. And of course on Unit 2 we have stabilized the design on Comanche Peak. We know what we're going to be doing over there. The evolving design on 1 has caused some complications that are certainly manageable in working change papers to drawings.

What Dick is referring to is if you take a construction inspection program where they're inspecting a component

in the plant such as an AMSE hanger, you may have several pieces of change paper to a drawing. But once the verification of the as built condition of the support is there, that hanger will be there for forty years so there's not really much dynamic need for having that change paper to that particular drawing. Mr. Camp, is that what you're referring to?

MR. CAMP: I'm trying to allude to the fact that design documents that are used on start up which are flow diagrams, -- logic diagrams, termination drawings, circuit drawings, one line diagrams are not of the same magnitude in terms of design changes against them that other types of drawings are like piping isometrics or hanger isometrics or conduit layout drawings or those type of drawings and also that the drawing control system should not be confused or be construed to be complex as the document, inspection document retrieval system is. We're talking about two different things.

MR. GEORGE: But we as a program will be giving a lot of attention to that if that's what you're requesting and I can assure you that.

MR. KEIMIG: I just want some assurance that the complexity that was mentioned or discussed at the meeting last Friday does not involve the kind of documents -

MR. GEORGE: We have a 160 man engineering group on

site. Texas Utilities Generating Company Nuclear Engineering will be on site for four years of the operations of that plant. Their role in life is to work and post every piece of change paper, examine, rigorously analyze what impact there is and keep those updated on a continuing basis.

Beyond that,on Unit 2 we're not going to employ a system of change paper that we've had to do on the system in 1 where we've been on a evolving, unstabilized design and by unstabilized design, that's not negative. We have enhanced the quality and reliability of Comanche Peak through all these years with TMI and all the chnages that have been made have made that plant safer and safer and safer.

However, we're forever criticized with all the change paper that's against it and that's very unfair. And we're certainly putting it to the drawing. Mr. Eisenhut said in the meeting last week and I heard him very clearly, you may be asking inspectors and you're asking this man to interpret drawings that are overcomplicated due to the fact that the change paper is not posted to the drawing.

I can assure you as the general manager that won't be the case. It has not really been the case as far as, it's being overstated as how complicated it is. But we will satisfy NRR's requirements on that, Mr. Nam, and your point.

MR. CAMP: Well, with that I'm not sure which way to go. You know, but I personally don't perceive the

document or design drawing process a complex system and I thought, still think that this action plan will address your concerns. If that has expanded as a result of last Friday, then -

MR. KEIMIG: I very simply stated I think the discussion that was had last Friday at the meeting led me to wonder whether or not the system test engineers may have a problem with getting correct design information prior to conducting a preoperational or prerequisite test. Now, I think that's a logical thought that comes to anyone's mind and I just would like you to take another look at it and make sure that it does not involve design documents. Very simply stated.

MR. CAMP: Okay.

MR. MERRITT: We can handle it.

MR. CAMP: That's all I have if there are no other questions.

MR. NOONAN: I don't have any further questions.

MR. WESSMAN: Is that all that you all specifically wanted to cover?

MR. GEORGE: Yes, sir. That concludes what we propose to present and I guess I would say -

MR. NOONAN: I have a couple items. First of all, I'd like to invite any members of the public to feel free to participate and give us comments on this thing. Ms. Garde,

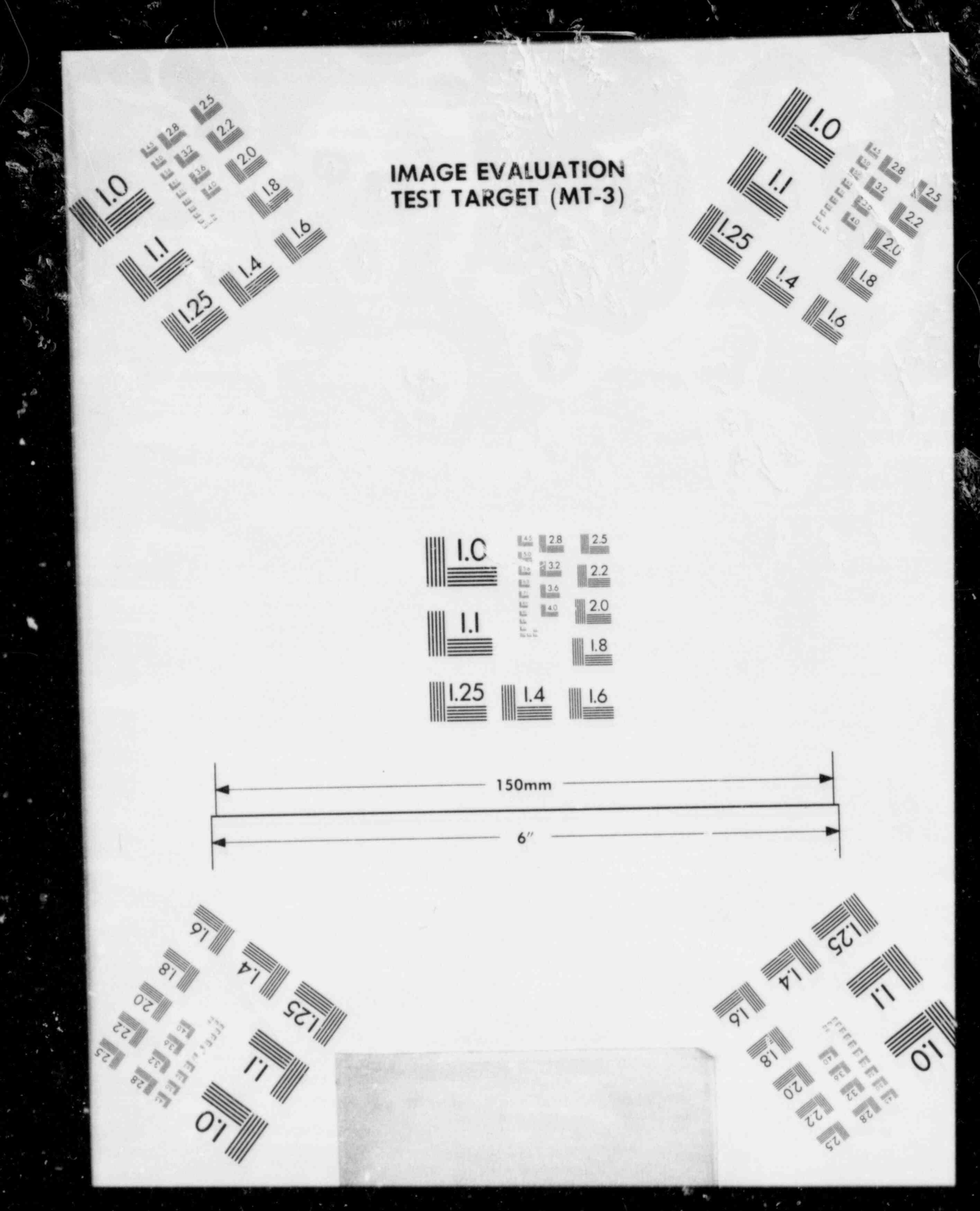
IMAGE EVALUATION
TEST TARGET (MT-3)
1.0
1.1
1.25
1.4
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1.8
2.0
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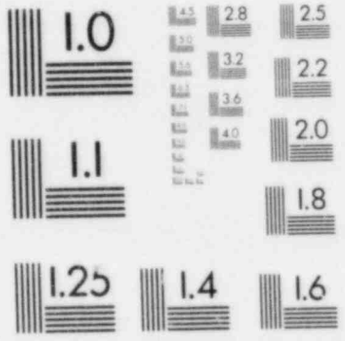
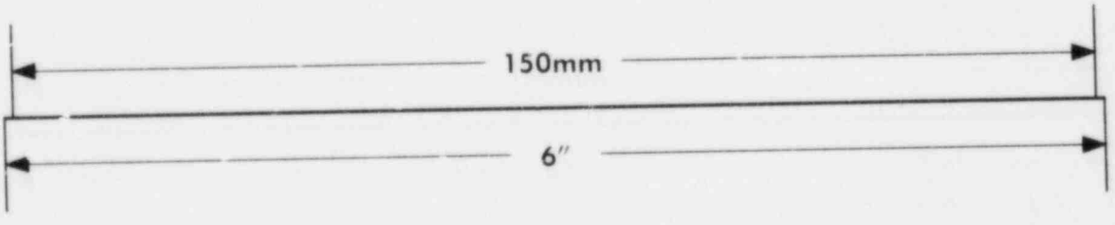
3.2
3.6
4.0
150mm
6"

IMAGE EVALUATION
TEST TARGET (MT-3)





since you are there maybe you can go ahead and lead off and represent both CASE and GAP. You may have the floor.

MS. GARDE: I think I'll go through my list backwards so we can pick up where we left off on the discussion on documentation. Mr. George, I think and I may be incorrect on this, that you have incorrectly interpreted Mr. Eisenhut's comments at last Friday's meeting to only apply to inspection documentation and the requirement that document retrievability is necessary in order to complete an accurate inspection.

My understanding of your documentation system is that it's a dynamic system and that design documents, change paper and utilimately inspections are pretty much dependent on the successful implementation of your document control system and that that system was reorganized to incorporate the start up satellite as well as other satellites which Mr. Camp has made reference to and I think it's the overall system and the complications of the overall system as opposed to one particular part of that, that is inspection documents, which is of concern. I think frankly that the system as designed has no margin for error.

That is, if the documentation system itself is, has an inherent problem or there is a piece of paper that is not posted along the way that all things beyond that mistake are subsequently affected by it and that includes design, includes inspection, includes construction. And so what my

understand of the flaws in your documentation program is that where there is mistakes and ultimately in any construction propject of this magnitude and dealing with the kinds of incorporation of TMI and design changes, et cetera, there are going to me, there is no margin for error.

And there is not an adequate QAQC check on the design program that catches those errors in a timely manner and that just complicates it and I think that's what he meant. Now, I'm maybe misstating his concern, but that's certainly what my understanding both of his concern is and of the flaws in the documentation program.

Let me go back now to the beginning. I think that there's been a great deal of discussion today about a couple main flaws and what I refer to as fundamental flaws in your program plan. One, that it is not in fact an independent review which is something that obviously you can see there isn't any question that it's an independent review and frankly in fairness to you I don't think that your request for information, Mr. Noonan, clarified that that's what you wanted.

I mean, in the past where independent reviews have been required of utility companies, NRR has said that. You come back and tell us what the elements of the independent review program are and there is a vast amount of difference between requiring utility company to develope a point by

point specific get well program for individual deficiencies and a comprehensive independent review program.

There was some question raised about what the criteria is for independent and although I know that some people know this, let me refer you to a February first, 1982 letter from Chairman Palladino explaining to Congress what the criteria for independence was. In an overall way that criteria is divided into three categories.

Independence, first of all, which as stated in the letter means that individuals or companies selected must be able to provide an objective, dispassionate, technical judgment provided solely on the basis of technical merit. It also means that design verification programs must be conducted by companies or individuals not previously involved with the activities they will now be reviewing.

There is an additional delineation of this which goes into the specific individuals involved. Usually NRR requires them to sign a statement of independence, notarizing that they don't own any stock in the company, their relatives aren't employed in the company and they've never worked for the project previously before.

Those, that independence criteria has been applied most vividly if you will at both Zimmer and Midland although other projects in the country, particular Diablo Canyon, have also been subjected to those kind of independent reviews.

That is a big step from the type of thing that NRR suggested in its request for information.

However, if that's the criteria which Comanche Peak and TUGCO must be engaged in, I think you'll find a great deal of precedent about what are the next steps to take. Clearly EBASCO does not fall under that category. There's not way that EBASCO, given any stretch of the imagination will qualify under the Commission's independence policy.

Essentially you're talking about someone, John's former employer, Tera Corporation, Tory Pines, Stone and Webster was used at Midland, Bechtel reviewed Zimmer. Completely different, totally separate operation. I know that you mentioned here that you had Bechtal look at some things but not go into any depth into a particular problem that you had.

I don't know if that disqualifies them or not. But certainly there are a lot of people out there that could do that type of thing and which would satisfy I'm sure NRR's normal requirements. Second, I don't think that the program is comprehensive and that comment incorporates a kind of overall thread that we've heard that it does not deal with root cause evaluation.

Frankly, we think that the only way to deal with root cause evaluation is in a methodology program format

ahead of time. It's inappropriate to get half way into an inspection and then define how far your root cause evaluation will go.

Those kinds of guidelines, just like statistical decisions on how much you will look at and what is the margin for error and what is the confidence level are best most prudently decided upon ahead of time so that you know when you come back to this table at the end of your conclusion that their going to accept the confidence level that you in fact have employed. It doesn't work to the advantage of your company.

It only delays the project for NRR to say that, you know, we reject that. It's far better, more prudent, to have that kind of approval ahead of time from whether it's Mr. Eisenhut or Mr. Noonan or whatever combination of review the NRC provides.

There was another generic problem that I view in your program as outlined and discussed today in which you say that the data will be made available in any way in which the NRC wishes it to be provided and in some cases you're providing summaries of particular systems or information. I think that in this case that's entirely inappropriate.

The summaries aren't going to tell anybody anything in terms of the kind of detail that the TRT requires or certainly that public confidence is going to require in

order to agree with your assessment data being available on site is a far cry from data being provided on a regular public basis to the NRC so that the public can also evaluate what those findings are.

In several projects we've been involved in data has been, the NRC has required that essentially reports are provided weekly, that copies of the report are provided simultaneously to the NRC and therefore they are docketed as well as to the company from the independent contractor. I would think that that would be appropriate in this case.

We certainly would object strenously to any kind of conclusion that the NRC would draw based on data not available for our own review. Let's see, another category was in this area was that there was some comment made about discussing when you get down there on Friday the TRT report and certainly there are facilities on the plant site, particularly the administration building, that if you're going to continue this meeting I would expect that that would be held at a place that we could have someone there if it got into detail.

I understand that we're not going to have somebody trucking round the site, you know, looking at everything with you, but if as I think Mr. Merritt indicated that you're going to discuss in detail the TRT report at the site, that that be done in a public forum.

There's been two instances in the last two meetings in which reviews or audits if you were have been conducted in which I have no personal knowledge although I certainly don't maintain that I have intimate knowledge of the entire public record in this case. I don't believe that the self-initiated evluation using INPO methodology which was discussed on Friday has ever been docketed or provided to NRR and that report at other projects has provided a wealth of information because SIE is using INPO methodologies do by their methodology require some kind of root cause determination, overall review of the problems and I think that would be very helpful particularly if you don't have it yet that you would get that and if you would get that,that that would be docketed because those types of things are required, that type of review is usually in, well, it's in every SIE that I've ever reviewed.

Second, the Bechtal kind of review I know was not offered into either evidence of the case or is in the public record at any point. I think that there was some very comments that provided a lot of insight by a number of the people presenting presentations this morning in which, specifically I'm using two quotes I jotted down, that our purpose, TUGCO's purpose, was to prove, improving the existing design and construction was adequate and another comment that our belief is that we did it all right in the

first case.

I think those two comments kind of summarize the reason that it's imprudent and frankly impossible for you to review your own work and that is why independent audits are required. If you come to this project with the already decided position that there aren't any problems and you're justifying what is found, then you're not going to get anywhere in terms of my understanding of what NRR's approach is and I was real concerned that that was the type of attitude that was displayed this morning.

There was another comment made in discussing one of the specific programs that you're proceeding on that you realize that you were proceeding without NRR approval. That type of at your own risk procession I think includes in it the full knowledge that if that is later rejected that because a particular project is already completed, let's say you do a review program based only on the request for information, you could end up in a situation that was just discussed about the start up procedure, the preprequisite testing.

Some, a line or a word was deleted and that entirely changes the focus of what you spent several weeks looking at. I don't think that, taking action on that information would be particularly appropriate.

I think that's all, although I would, as you know,

Mr. Eisenhut, put me on a tight time table here to get my own written letter done and I think just for your own purposes and discussion I'll read again, John, for you, the kind of five areas that we're proceeding with our analysis and I won't do that if you don't want me to do that. That's not necessary. I'll put it in a letter later. Would you like me to do that or not?

MR. BECK: It's your speech.

MS. GARDE: Okay. Inherent conflict of interest and no organizational independence of personnel involved. I discussed that last time. Two, fundamentally incorrect program objectives and principles. Three, inadequate and unacceptable program processes, methodology and lack of quality assurance and by that I mean the quality assurance specifically for the program plan.

Insufficient program record plans, overlly narrow and restricted inspection scope. Okay.

MR. NOONAN: Just a few comments here. Basically I guess Mr. Eisenhut asked you for your comments by the end of this week. I'd also like to make that same request. Any additional comments you have as a result of this meetings I would also like to have them by the end of the week, if possible.

I do agree, I do agree with one thing. I think we do owe the utility what we mean by independence and I will

plan to make that, make that availbe. I would like to make one thing here. Most people do not know me in this room now. They don't know the way I operate. I do everything by public meeting.

MS. GARDE: Pardon?

MR. NOONAN: I do everything by a public meeting. Anything I may have a meeting with the utility and we're discussing anything in the general area we're talking about will be done by a public meeting. Number two, all information I receive from the utility is docketed.

If it's handed to me I will put it in the docket myself. I ask the utility to always put everything in a docket, but if that's not done I will make sure it appears in the docket. I don't know that EBASCO will meet the test for independence or not. That's something for me to determine and I'll be talking about that to the utility.

One other thing I do not do, I do not ask the utility to bring me another rock. I will make, will make all our letters going to the utility, any concern we have in this TRT review, we'll have it done basically by the end of November. We have put together a schedule that we're going to present to Mr. Eisenhut this afternoon.

It's mainly to keep things moving along the track that we've been trying to move along. I think Darrell said the other day that we will have all the TRT concerns -- to

by November and we plan to meet then. I am not in favor of requests for information. I don't particularly like that particular vehicle because I think that's just strictly asking the utility to bring another rock and we go back with more information, that kind of thing.

I would like to basically state position on how we see it. We will, like I said, we will be down in Region 4 on Thursday. On Friday we're going to the site. It is strictly for me, I have not been to Comanche Peak. I've been to -- but not Comanche Peak.

I will basically be meeting with the resident inspector down there and we will just be walking around doing what we have to do. We will not spend more than about four hours at the site on Friday. Other than that, is there any other comments to be made by the public? Mr. George, do you have any additional comments?

MR. GEORGE: We'll be waiting.

MR. NOONAN: All right. I guess with that I'll bring the meeting to a close. Thank you gentlemen. Thank you.

(Whereupon, at 1:50 p.m. the meeting was adjourned.)

CERTIFICATE OF PROCEEDINGS

This is to certify that the attached proceedings before the NRC.

In the matter of: MEETING OF TUGCO AND NRC/TRT, COMANCHE PEAK

Date of Prcceeding: October 23, 1984

Place of Proceeding: BETHESDA, MD.

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

Georgia Pinkard
Official Reporter - Typed

Georgia Pinkard, SK
Official Reporter - Signature

Shirley Keefner
Transcriber

HOT FUNCTIONAL TESTING DATA PACKAGES
Issue III.a.1

DESCRIPTION OF CONCERN

	Test	Deficiency
*	1CP-PT-02-12 "Bus Voltage and Load Survey"	Acceptable voltages could not be achieved with specified transformer taps, they were changed. Subsequent Engineering Evaluation required return to original tap setting, but no retest was performed.

BACKGROUND

* 1CP-PT-02-12 "Bus Voltage and Load Survey"
  - Assure proper transformations
  - Assure presence of optimum current and voltage at buses

HOT FUNCTIONAL TESTING DATA PACKAGES
Issue III.a.1

DESCRIPTION OF CONCERN

	Test	Deficiency
*	1CP-PT-34-05 "Steam Generator Narrow Range Level Verification"	Three level detectors were replaced with temporary equipment of a design that was different from that which was to be eventually installed

BACKGROUND

* 1CP-PT-34-05 "Steam Generator Narrow Range Level Verification"
  - Setpoints for alarms/channel trips at required values
  - Proper comparison between level channels
  - Proper indication of each channel at upper and lower instrument taps

HOT FUNCTIONAL TESTING DATA PACKAGES
Issue III.a.1

DESCRIPTION OF CONCERN

	Test	Deficiency
*	1CP-PT-55-05 "Pressurizer Level Control"	A level detector appeared to be out of calibration during the test and was replaced after the test. The approved retest was a cold calibration rather than a test consistent with the original test objective, which was to obtain satisfactory data under hot conditions

BACKGROUND

* 1CP-PT-55-05 "Pressurizer Level Control"
  - Pressurizer level control maintain level in manual and automatic code

HOT FUNCTIONAL TESTING DATA PACKAGES
Issue III.A.1

TUEC ACTION PLAN

* Review each test identified by TRT concern

* Review the seven remaining Hot Functional Preoperational Tests

* Retests to meet test objectives will constitute a reject

* One reject will require sample review of remaining 136

* Review of first sample of 20 reveals one reject, review additional sample of 20

* Review of second sample reveals one reject, all remaining approved tests will be reviewed

HOT FUNCTIONAL TESTING DATA PACKAGES

Issue III.a.1

TUEC ACTION PLAN

* Test Deficiency Reports (TDRs) initiated for each of the three tests identified by TRT
* Review each test identified by TRT and associated TDRs to justify acceptability of actions taken or establish additional retests
* Review the seven remaining preoperational tests, conducted during hot function testing, not previously reviewed by the TRT, to verify compliance with test objectives
* If review of seven remaining hot functional tests reveal test objectives not met, or inadequate justification is provided for three specific concerns, review sample of 20 of 136 remaining
* If review of first sample of 20 reveal test objectives not met, review additional sample of 20
* If review of second sample reveal test objectives not met, all remaining approved tests will be reviewed

JTG APPROVAL OF TEST DATA

Issue III.a.2

DESCRIPTION OF CONCERN

* To complete the Preoperational Tests proposed for deferral after fuel load, the JTG, or similarly qualified group, must approve the test results prior to proceeding to initial criticality. The TRT did not find any document providing that TUEC is committed to do this

ACTIONS REQUIRED BY TUEC

* TUEC shall commit to having a JTG, or similarly qualified group, review and approve Post-Fueling Preoperational Test Results prior to declaring the system operable in accordance with Technical Specifications

JTG APPROVAL OF TEST DATA

Issue III.a.2

BACKGROUND

* TUEC is committed to Station Operating Review Committee (SORC) approval of deferred Pre-operational Test Results
* SORC Qualifications
* Deferred Preoperational Tests Results reviewed in same manner as Initial Startup Tests

TUEC ACTION PLAN

* All deferred Preoperational Tests, except Thermal Expansion, will be completed prior to Initial Criticality
* Results of Completed Tests and completed portions of Thermal Expansion Tests will be approved by SORC prior to Initial Criticality
* Thermal Expansion Test completed at 30% power plateau
* Thermal Expansion Test Results approved by SORC prior to escalating to 50% power plateau

TECHNICAL SPECIFICATIONS FOR DEFERRED TESTS
Issue III.A.3

DESCRIPTION OF CONCERN

* In order to conduct Preoperational Tests after fuel load, certain technical specification requirements cannot be met, e.g., all snubbers will not be operable since some will not have been tested

ACTIONS REQUIRED BY TUEC

* Evaluate the required plant conditions for deferred Preoperational Tests against the proposed Technical Specification requirements and obtain NRC approval where deviations from the Technical Specifications are necessary

TECHNICAL SPECIFICATION FOR DEFERRED TESTS
Issue III.A.3

BACKGROUND

* Previously evaluated seven incomplete Preoperational Tests for deferral after fuel load
  - Required plant conditions
  - Impact of Incomplete Preoperational Testing on equipment operability
  - Technical specification limiting conditions
  - Determine required exceptions to Technical Specification

* TUEC requested and received approval to defer seven incomplete Preoperational Tests

TUEC ACTION PLAN

* Proposed action plan to be revised

* Submit request for Special Test Exception to Technical Specification for snubber operability, if required

TRACEABILITY OF TEST EQUIPMENT
Issue III.A.4

DESCRIPTION OF CONCERN

* Test data for Thermal Expansion Test did not provide for traceability of temperature measuring instruments in the manner specified by Startup Procedure -7

ACTIONS REQUIRED BY TUEC

* Incorporate the necessary information into test data package

* Establish controls to assure appropriate traceability during future testing

CONTAINMENT INTEGRATED LEAK RATE TESTING
Issue III.B

DESCRIPTION OF CONCERN

- Electrical penetrations isolated during test
- Methodology for calculation of test results not in compliance with FSAR Commitments

ACTIONS REQUIRED BY TUEC

- Identify and justify any other differences as a result of applying ANSI/ANS 56.8 in lieu of ANSI N45.4-1972

  (Required action clarified by NRC letter dated August 27, 1984)

ITEM I.D.1

QC INSPECTOR QUALIFICATIONS

DESCRIPTION OF NRC ISSUE

- LACK OF SUPPORTIVE DOCUMENTATION REGARDING PERSONNEL QUALIFICATIONS IN THE TRAINING AND CERTIFICATION FILES FOR ELECTRICAL QC INSPECTORS
- LACK OF DOCUMENTATION FOR ASSURING THAT REQUIREMENTS FOR ELECTRICAL QC INSPECTOR RECERTIFICATION WERE BEING MET
- 5 SPECIFIC EXAMPLES CITED

TRACEABILITY OF TEST EQUIPMENT

ISSUE III.A.4

BACKGROUND

* REQUIRED INFORMATION NOT INCLUDED IN TEST DATA PACKAGE
* INFORMATION WAS AVAILABLE FROM ENGINEERING LOG
* ADMINISTRATIVE CONTROLS FOR TEST EQUIPMENT TRACEABILITY ARE ESTABLISHED
* CAUSE OF DISCREPANCY

TUEC ACTION PLAN

* INCLUDE TRACEABILITY DOCUMENTATION IN THE TEST DATA PACKAGE
* REINSTRUCT TEST ENGINEERS ON EXISTING REQUIREMENTS FOR TRACEABILITY OF TEST EQUIPMENT

PREOPERATIONAL TESTING
Issue III.D

DESCRIPTION OF CONCERN

- Current design information not provided to test engineers on a routine, controlled basis

ACTIONS REQUIRED BY TUEC

- Establish measures to provide greater assurance that test engineers are provided with current controlled design information

PREREQUISITE TESTING
Issue III.c

DESCRIPTION OF CONCERN

- Initial conditions for Prerequisite Tests verified by craft personnel
- Activity improperly authorized by Startup Management memorandum

ACTIONS REQUIRED BY TUEC

- Rescind Memorandum
- Assure no other memorandum issued in conflict with approved procedures

PREREQUISITE TESTING

Issue III.c

BACKGROUND

- Conflicting requirements not reconciled by followup procedure revision
- Affected Prerequisite Test Procedures
  - Megger Testing
  - Molded Case Circuit Breaker testing

TUEC ACTION PLAN

- Memorandum rescinded
- Test engineers instructed
- Craft personnel instructed
- Review all Startup interoffice memoranda

CONTAINMENT INTEGRATED LEAK RATE TESTING
Issue III.B

BACKGROUND

* FSAR Commitment to ANSI N45.4 - 1972
* Industry Practice ANSI/ANS 56.8 - 1981
* Failed to amend FSAR prior to test
* Known actions acceptable
* Open SER item

TUEC ACTION PLAN

* Compare test procedure to FSAR and ANSI N45.4 - 1972 to identify other deviations
* Provide justification for other deviations
* Respond to NRC letter dated August 27, 1984

ITEM I.c

ELECTRICAL CONDUIT SUPPORTS

DESCRIPTION OF NRC ISSUE

* NON-SAFETY-RELATED CONDUITS OF ALL SIZES WERE OBSERVED IN SELECTED SEISMIC CATEGORY I AREAS WHICH DID NOT APPEAR TO BE SEISMICALLY SUPPORTED

* SUPPORT INSTALLATION FOR NON-SAFETY-RELATED CONDUITS LESS THAN OR EQUAL TO 2 INCHES IN DIAMETER APPEARED INCONSISTENT WITH SEISMIC REQUIREMENTS

* COMPLIANCE WITH REG. GUIDE 1.29 AND FSAR SECTION 3.7B.2.8 IS REQUIRED WHICH DEFINES THAT NON-SEISMIC ITEMS SHOULD BE DESIGNED SUCH THAT THEIR FAILURE WILL NOT ADVERSELY AFFECT THE FUNCTION OF SAFETY-RELATED COMPONENTS

ITEM I.c

TUEC ACTION REQUIRED

* PROVIDE THE RESULTS OF SEISMIC ANALYSIS WHICH DEMONSTRATE THAT ALL NON-SAFETY-RELATED CONDUITS AND THEIR SUPPORT SYSTEMS, SATISFY THE PROVISIONS OF REG. GUIDE 1.29 AND FSAR SECTION 3.7B.2.8.

* VERIFY THAT NON-SAFETY-RELATED CONDUITS LESS THAN OR EQUAL TO 2 INCHES IN DIAMETER, NOT INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF REG. GUIDE 1.29, SATISFY APPLICABLE DESIGN REQUIREMENTS.

ITEM I.c

BACKGROUND

* SEISMIC SUPPORT WAS PROVIDED FOR NON-SAFETY-RELATED CONDUIT GREATER THAN 2 INCHES IN DIAMETER FOR AREAS OF CATEGORY I STRUCTURES WHICH CONTAINED SAFETY-RELATED EQUIPMENT

* IN AREAS OF CATEGORY I STRUCTURES WHICH CONTAINED PIPE AND CONDUIT OF SAFETY-RELATED SYSTEMS, ALL NON-SAFETY-RELATED CONDUIT, GREATER THAN 2 INCHES IN DIAMETER, WAS NON-SEISMICALLY SUPPORTED AND WAS EVALUATED BY THE DAMAGE STUDY GROUP AND SEISMIC RESTRAINT PROVIDED IF IT WAS DETERMINED THAT THEIR FAILURE WOULD BE DETRIMENTAL TO SAFET - RELATED SYSTEMS

* NON-SAFETY-RELATED CONDUIT 2 INCHES OR LESS IN DIAMETER WAS NOT INCLUDED IN OUR SEISMIC SUPPORT PROGRAM OR DAMAGE STUDY EVALUATION BECAUSE OF THE FOLLOWING:

  - SMALL MASS
  - LIMITED SPANS BETWEEN SUPPORTS
  - TYPICAL SUPPORT DESIGN
  - INTERVENING MEMBERS
  - INTERACTION CRITERIA

ITEM I.c

TUEC ACTION PLAN

* PROVIDE SUMMARY DOCUMENT WHICH DELINEATES THE PHILOSOPHY AND IMPLEMENTATION OF THE DAMAGE STUDY EVALUATION OF NON-SAFETY-RELATED CONDUIT

* PROVIDE SEISMIC ANALYSIS WHICH VERIFIES THE STABILITY DURING AN SSE OF THE 2 INCH AND UNDER DIAMETER CONDUIT WITH THE PRESENT SUPPORT SYSTEM

* FIELD VERIFICATION THROUGH A SAMPLING PROGRAM OF THE INSTALLED CONDUIT SYSTEM TO VERIFY AS-BUILT CONFORMANCE TO ANALYTICAL ASSUMPTIONS

ITEM II.D

SEISMIC DESIGN OF CONTROL ROOM CEILING ELEMENTS

NRC DESCRIPTION OF ISSUE

* Review of the control room ceiling revealed that architectural installations existed that were not seismically supported.
* Non-safety conduit 2 inches and under in diameter was above the ceiling.
* In accordance with Reg. Guide 1.29 and FSAR section 3.7B.2.8 the non-seismic items should be designed in such a way that their failure would not adversely affect the functions for safety-related components or cause injury to operators.
* Review of calculations for seismically restrained lighting fixtures and sloped suspended ceilings did not account for potential loadings from rotational interaction between ceiling elements, nor were specific seismic response conditions reviewed for the ceiling elements.

ITEM II.D

TUEC ACTION REQUIRED

* PROVIDE RESULTS OF SEISMIC ANALYSIS WHICH DEMONSTRATES THAT THE NON-SEISMIC ITEMS IN THE CONTROL ROOM (OTHER THAN THE SLOPING SUSPENDED DRYWALL CEILING) SATISFY THE PROVISIONS OF REG. GUIDE 1.29 AND FSAR SECTION 3.7B.2.8.

* PROVIDE AN EVALUATION OF SEISMIC DESIGN ADEQUACY OF SUPPORT SYSTEM FOR LIGHTING FIXTURES AND DRYWALL CEILING WHICH ACCOUNTS FOR PERTINENT FLOOR RESPONSE CHARACTERISTICS.

* PROVIDE VERIFICATION THAT ITEMS NOT INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF REG. GUIDE 1.29 SATISFY APPLICABLE DESIGN REQUIREMENTS.

* PROVIDE RESULTS OF AN ANALYSIS THAT JUSTIFY ADEQUACY OF THE NON-SAFETY CONDUIT WHOSE DIAMETER IS 2 INCHES OR LESS.

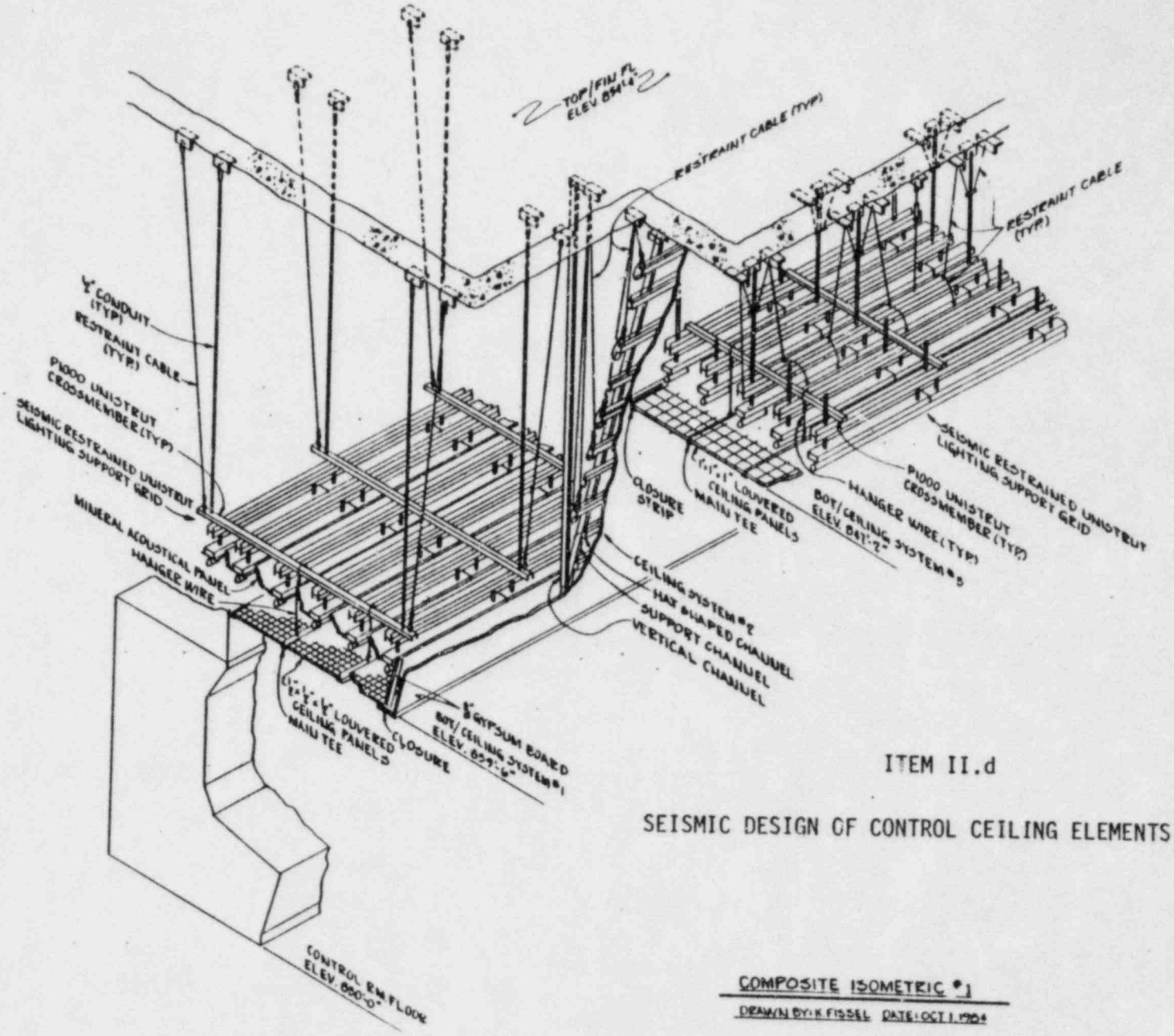
* PROVIDE RESULTS OF AN ANALYSIS WHICH DEMONSTRATES THE FOREGOING PROBLEMS ARE NOT APPLICABLE TO OTHER CATEGORY II AND NON-SEISMIC STRUCTURES, SYSTEMS AND COMPONENTS ELSEWHERE IN THE PLANT.

ITEM II.D

BACKGROUND

* DESIGN PHILOSOPHY WAS TO SEISMICALLY RESTRAIN ALL MEMBERS WITH LARGE MASS.

* ARCHITECTURAL FEATURES WITH SMALL MASSES, IF LOCALIZED FAILURE OCCURRED, WOULD NOT BE ADVERSE TO THE OCCUPANTS OF THE CONTROL ROOM.



ITEM II.d

SEISMIC DESIGN OF CONTROL CEILING ELEMENTS

COMPOSITE ISOMETRIC #1

DRAWN BY: K FISSEL DATE: OCT 1, 1984

ITEM II.D

TUEC ACTION

* For the most direct and timely resolution, actions will be taken to preclude any item from falling.
* Seismic analysis will be provided which demonstrates compliance with Reg. Guide 1.29 and FSAR Section 3.7B.2.8.
* Horizontal seismic restraints will be installed to prevent interaction between ceiling systems.
* The drywall ceiling will be replaced to expedite resolution in lieu of verification testing.
* Perform evaluation on individual components of acoustical and louvered ceilings and provide positive attachment if failure is a concern.
* Verification will be performed by quality control on all applicable design requirements.
* Provide summary document which delineates the philosophy and implementation of the damage study evaluations made throughout the plant where potential interactions existed.
* Perform a review of architectural specifications and drawings to confirm that architectural features have been appropriately evaluated in our present damage study program.

ITEM NUMBER II.A

REINFORCING STEEL IN REACTOR CAVITY

DESCRIPTION OF ISSUE IDENTIFIED BY NRC

* A PORTION OF THE REINFORCING STEEL WAS OMITTED IN A REACTOR CAVITY CONCRETE WALL PLACEMENT BETWEEN EL. 812'-0" AND EL. 819'-0 1/2".

ACTION IDENTIFIED BY NRC

* TUEC SHALL PROVIDE AN ANALYSIS VERIFYING THE ADEQUACY OF THE AS-BUILT CONDITION.

* THE ANALYSIS SHALL CONSIDER ALL REQUIRED LOAD COMBINATIONS.

ITEM NUMBER II.A

BACKGROUND

* INVESTIGATED DOCUMENTED OCCURRENCE OF REINFORCING STEEL OMITTED FROM A UNIT #1 REACTOR CAVITY CONCRETE PLACEMENT.

* REINFORCEMENT INSTALLED PER REVISION 2.

* REVISION 3 ISSUED AFTER CONCRETE PLACEMENT ADDING REINFORCEMENT.

* REINFORCEMENT ADDED AS A PRECAUTION AGAINST CRACKING OF CONCRETE WHICH MIGHT OCCUR IN THE VICINITY OF THE NEUTRON DETECTOR TUBES SHOULD A LOSS OF COOLANT ACCIDENT OCCUR.

* BROWN & ROOT ISSUED NON CONFORMANCE REPORT CP-77-6.

* GIBBS & HILL EVALUATION INDICATED OMISSION DID NOT IMPAIR INTEGRITY OF THE STRUCTURE.

* REVISION 4 ISSUED TO PLACE A PORTION OF THE REINFORCEMENT IN THE NEXT CONCRETE PLACEMENT.

* TRT REQUESTED DOCUMENTATION OF ANALYSIS PERFORMED SUPPORTING GIBBS & HILL CONCLUSION.

ITEM NUMBER II.A

TUEC ACTION PLAN

* An analysis of "As-Built" reactor wall will be performed. Through analysis it will be established that structural integrity of wall is not compromised.

* Gibbs & Hill will perform the analysis and design review the calculations.

* An external organization will perform additional design review of calculations.

* Expanded review of all instances of rebar omissions will be performed. It will be ascertained that in every such case proper engineering evaluation and documentation does exist.

ITEM II.B

CONCRETE COMPRESSIVE STRENGTH

NRC DESCRIPTION OF ISSUE

* ALLEGATION OF FALSIFICATION OF CONCRETE COMPRESSIVE STRENGTH TEST RESULTS COULD NOT BE PROVEN VALID OR INVALID

* CONCRETE STRENGTH LOWER THAN THAT SPECIFIED IN THE DESIGN MAY REDUCE THE LOAD RESISTING CAPACITY OF STRUCTURES

ACTION REQUIRED BY NRC

* TUEC SHOULD DETERMINE AREAS WHERE CONCRETE WAS PLACED BETWEEN JANUARY 1976 AND FEBRUARY 1977 AND PROVIDE A PROGRAM TO ASSURE ACCEPTABLE CONCRETE STRENGTH

* TEST PROGRAM TO INCLUDE RANDOM SCHMIDT HAMMER TEST ON CONCRETE IN AREAS WHERE SAFETY IS CRITICAL

* ADDITIONAL SCHMIDT HAMMER TEST ON CONCRETE NOT WITHIN THIS SPECIFIED TIME FRAME

* COMPARISON OF THE TEST RESULTS TO DETERMINE IF ANY SIGNIFICANT VARIANCE IN STRENGTH OCCURS

ITEM II.B

BACKGROUND

* ALLEGED FALSIFICATION OF COMPRESSIVE STRENGTH TEST

* NRC REGION IV INVESTIGATED

* OTHER ALLEGATIONS
  - AIR CONTENT
  - SLUMP
  - DEFICIENT AGGREGATE GRADING
  - CONCRETE IN THE MIXER TOO LONG

* EVIDENCE SUGGESTS FALSIFICATION DID NOT OCCUR

* MATTER CANNOT BE RESOLVED BASED ON COMPRESSIVE STRENGTH TEST IF DOUBT EXISTS DUE TO FALSIFICATION

* NEED CONFIRMATORY EVIDENCE ON TEST RESULTS

ITEM II.B

TUEC ACTION PLAN

* SCHMIDT (REBOUND) HAMMER TEST, A NON-DESTRUCTIVE TEST, WILL BE PERFORMED AS REQUESTED BY TRT

* 327 PLACEMENTS IN CATEGORY I - SAFETY-RELATED STRUCTURES DURING SUSPECT TIME FRAME

* 50 TESTS TO BE PERFORMED, BASED ON RECOMMENDED SAMPLE SIZES PER MIL-STD-105D

* 50 TESTS OUTSIDE QUESTIONED TIME FRAME

* STATISTICAL ANALYSIS TO DETERMINE IF A SIGNIFICANT VARIANCE EXISTS BETWEEN THE TWO DATA SETS

ITEM II.c

MAINTENANCE OF AIR GAP BETWEEN CONCRETE STRUCTURES

NRC DESCRIPTION OF ISSUE

* ADEQUACY OF THE AIR GAP COULD NOT BE DETERMINED SINCE:
  - AVAILABLE DOCUMENTATION DID NOT PROVIDE LOCATION OR EXTENT OF REMAINING DEBRIS.
  - ADDITIONAL SITE FIELD INVESTIGATIONS WERE NOT DOCUMENTED ON PERMANENT RECORDS.
  - PERMANENT INSTALLATION OF ELASTIC JOINT FILLER HAD NOT BEEN SHOWN TO BE CONSISTENT WITH SEISMIC ANALYSIS ASSUMPTIONS AND DYNAMIC MODELS USED TO ANALYZE THE BUILDINGS.

TUEC ACTION REQUIRED

* PERFORM INSPECTION OF THE AS-BUILT CONDITION TO CONFIRM THAT ADEQUATE SEPARATION FOR ALL SEISMIC CATEGORY I STRUCTURES HAS BEEN PROVIDED.
* PROVIDE RESULTS OF ANALYSES FOR ACCEPTANCE OF ELASTIC JOINT FILLER AND DEBRIS BETWEEN CONCRETE STRUCTURES CONSIDERING CHANGES IN SEISMIC RESPONSE OR DYNAMIC RESPONSE CHARACTERISTICS OF THE CATEGORY I STRUCTURES, COMPONENTS AND PIPING WHEN COMPARED WITH THE RESULTS OF THE ORIGINAL ANALYSES.

ITEM II.c

BACKGROUND

* SEPARATION BETWEEN CATEGORY I STRUCTURES IS REQUIRED IN THE FSAR TO PREVENT UNACCEPTABLE SEISMIC INTERACTION DURING AN SSE

* ALL SEPARATIONS BETWEEN CATEGORY I BUILDINGS AND BETWEEN CATEGORY I AND NON-CATEGORY I STRUCTURES FOR THE WHOLE PLANT WILL BE INSPECTED

* THE AS-BUILT SEPARATION CONDITION WILL BE DOCUMENTED FOR ENGINEERING REVIEW; INACCESSIBLE AREAS WILL BE CONSERVATIVELY ESTIMATED FOR SIZE AND NATURE OF DEBRIS

ITEM II.c

TUEC ACTION PLAN

* QC INSPECTION OF AIR GAP BETWEEN CATEGORY I STRUCTURES AND CATEGORY I AND NON-CATEGORY I STRUCTURES WILL BE REPERFORMED AND DOCUMENTED

* ANY DEBRIS ENCOUNTERED MAY BE REMOVED AFTER DOCUMENTATION BY QC

* ENGINEERING EVALUATION OF DOCUMENTED INSPECTIONS FOR IMPACT ON SEISMIC AND DYNAMIC RESPONSES

* EVALUATION WILL DETERMINE CHANGE IN FREQUENCY FROM ORIGINAL FUNDAMENTAL MODE AND EVALUATE STRUCTURAL INTERACTION EFFECTS. BASED ON THE SIGNIFICANCE OF THE FREQUENCY CHANGE, FURTHER ENGINEERING ACTIONS WILL BE DETERMINED FOR EVALUATION OF IMPACT ON COMPONENTS AND PIPING

* REMOVE ANY DEBRIS WHICH SIGNIFICANTLY AFFECTS THE ORIGINAL DESIGN CALCULATIONS

* REVIEW PROJECT PROCEDURES FOR ESTABLISHMENT OF REQUIREMENTS FOR MAINTENANCE OF ADEQUATE SEPARATION CONDITIONS

* EVALUATE NEED FOR FSAR UPDATE BASED ON AS-BUILT CONDITIONS

ITEM II.E

REBAR IN FUEL HANDLING BUILDING

DESCRIPTION OF ISSUE IDENTIFIED BY NRC

* UNAUTHORIZED CUTTING OF REBAR ASSOCIATED WITH THE INSTALLATION OF THE TROLLEY PROCESS AISLE RAILS IN THE FUEL HANDLING BUILDING MAY HAVE OCCURRED.

* LOSS OF THE REBAR MAY REDUCE THE LOAD RESISTING CAPACITY OF THE CONCRETE FLOOR SLAB.

ACTION IDENTIFIED BY NRC

* TUEC SHALL PROVIDE INFORMATION TO DEMONSTRATE THAT ONLY #18 REBAR IN 1ST LAYER WAS CUT,

OR

* PROVIDE DESIGN CALCULATIONS TO DEMONSTRATE THAT STRUCTURAL INTEGRITY IS MAINTAINED EVEN IF #18 REBARS IN BOTH 1ST AND 3RD LAYERS WERE CUT.

ITEM II.E

BACKGROUND

* In process aisle area of fuel building at El. 810'-6", floor slab top reinforcement has 3 layers. 1st and 3rd layers consist of #18 rebars running east-west. 2nd layer is #11 rebar running north-south.

* Layout of trolley rails and top slab reinforcement as well as spacing of Hilti bolts is such that bolts will not encounter #11 rebars running north-south in 2nd layer. But if holes were drilled 9" deep, depth would cut 1-#18 rebar in each 1st and 3rd layer at one rail location, due to spacing of rails and spacing of #18 rebars running east-west.

* Analytical approach will be used to resolve this situation.

TUEC ACTION PLAN

* Design calculations will be performed to establish structural adequacy of slab even if 1-#18 in 1st and 3rd layer is cut at one rail location.

* A review of the programs controlling rebar cutting will be performed.

PREOPERATIONAL TESTING
Issue III.D

BACKGROUND

* Test engineer use of design documents
  - Testing
  - General information

* Satellite document control

TUEC ACTION PLAN

* Revise administrative procedure

* Instruct test engineers on new requirements

COMANCHE PEAK RESPONSE TEAM ORGANIZATION

* PERSONNEL QUALIFICATION
* SUMMARY OF PROGRAM PROCESS
* ENGINEERING AND QA
* DOCUMENTATION

SUMMARY OF PROGRAM PROCESS

1. Receipt of NRC-TRT request for additional information.

2. Preliminary review of issue by CPRT Program Manager, Senior Review Team and appropriate Review Team Leader.

3. Assignment of Issue Coordinator.

4. Obtain additional, clarifying information from NRC-TRT to ensure full understanding of the concern (if necessary).

5. Develop Action Plan to resolve concern using guidance provided in Attachment 2.

6. Action Plan approved by appropriate Review Team Leader, Program Manager and Senior Review Team.

7. Implement Action Plan.

8. Identify root cause and potential generic implications.

9. Concurrence of appropriate Review Team Leader, Program Manager and Senior Review Team in root cause definition and potential generic implications assessment.

10. Develop revised Action Plan (if applicable).

11. Revised Action Plan approved by appropriate Review Team Leader, Program Manager and Senior Review Team (if applicable).

12. Implement Revised Action Plan (if applicable).

13. Develop Action Plan Results Report using guidance provided in Attachment 3.

14. Action Plan Results Report approved by appropriate Review Team Leader, Program Manager and Senior Review Team.

15. Implement necessary additional corrective action (if applicable).

16. Implement necessary corrective action to prevent reoccurrence in the future (if applicable).

17. Assess Action Plan Results Report as part of Collective Significant Evaluation.

18. Implement necessary activities stemming from the Collective Significance Evaluation.

19. Submit Final Report to NRC.

TYPES OF ACTIVITIES

- PHASED REVIEWS
- SAMPLING TECHNIQUES
- TRT SPECIFIC EXAMPLES
- CHANGES TO ACTION PLANS

INTRODUCTION OF SPEAKERS

* ELECTRICAL/INSTRUMENTATION LEADER	L. M. POPPLEWELL
* QA/QC LEADER	A. VEGA
* CIVIL/STRUCTURAL LEADER	C. R. HOOTON
- ISSUE Ic, IID COORDINATOR	M. R. MCBAY
* TESTING PROGRAMS LEADER	R. E. CAMP

SCHEDULE

TUEC MEETING WITH NRC STAFF

OCTOBER 19, 1984

AGENDA

INTRODUCTORY REMARKS	M.D. SPENCE
CPRT PROGRAM OVERVIEW	J.T. MERRITT
ISSUE-SPECIFIC ACTION PLAN PRESENTATIONS	L.M. POPPLEWELL C.R. HOOTEN M.R. MCBAY A. VEGA R.E. CAMP
SUMMARY	J.T. MERRITT
CLOSING REMARKS	M.D. SPENCE

ITEM I.D.1

QC INSPECTOR QUALIFICATIONS

TUEC ACTION REQUIRED

* TUEC SHALL REVIEW ALL ELECTRICAL QC INSPECTOR TRAINING, QUALIFICATIONS, CERTIFICATION AND RECERTIFICATION FILES AGAINST THE PROJECT REQUIREMENTS

* TUEC SHALL PROVIDE INFORMATION IN A FORM THAT CLEARLY SHOWS THAT THE REQUIREMENTS HAVE BEEN MET BY EACH ELECTRICAL QC INSPECTOR

* IF AN INSPECTOR DOES NOT MEET REQUIREMENTS, TUEC SHALL REVIEW THE RECORDS TO DETERMINE ADEQUACY OF INSPECTIONS AND ASSESS IMPACT ON THE SAFETY OF THE PROJECT

ITEM I.D.1

ADDITIONAL NRC COMMENTS

* IDENTIFIED DEFICIENCIES HAVE GENERIC IMPLICATIONS TO OTHER CONSTRUCTION DISCIPLINES

ITEM I.D.1

BACKGROUND

* CPSES PROJECT REQUIREMENTS ORIGINALLY DERIVED FROM 10CFR50, APPENDIX B

* CPSES PROJECT REQUIREMENT REVISED IN 1981 TO REFLECT SUBSEQUENT COMMITMENT TO ANSI N45.2.6 AND REGULATORY GUIDE 1.58

* CPSES ASME INSPECTORS CERTIFIED UNDER A SEPARATE PROGRAM INDEPENDENTLY REVIEWED BY ASME-AUTHORIZED NUCLEAR INSPECTOR (ANI).

* CPSES QC INSPECTOR CERTIFICATION PROCESS REFLECTS A MORE CONSERVATIVE APPROACH THAN THE COMMON PRACTICE IN THE NUCLEAR INDUSTRY

* TUEC REVIEW OF SPECIFIC EXAMPLES CITED BY NRC-IRT INDICATES THAT SUBJECT INSPECTORS MET PROJECT REQUIREMENTS

ITEM I.D.1

TUEC ACTION

* TUEC IS CONDUCTING AN EXPANDED REVIEW OF QC INSPECTOR CERTIFICATION RECORDS AGAINST PROJECT REQUIREMENTS AND WILL ASSURE THAT TRAINING/CERTIFICATION FILES ARE COMPILED IN A FORMAT THAT CLEARLY AND CONCISELY DEMONSTRATES THAT PROJECT REQUIREMENTS ARE MET

* SCOPE OF REVIEW WILL INCLUDE ALL ELECTRICAL QC INSPECTORS WHO HAVE EVER WORKED AT CPSES AND ALL OTHER QC INSPECTORS (EXCEPT ASME INSPECTORS) CURRENTLY WORKING AT CPSES

TUEC ACTION (CONTINUED)

* PHASE ONE
  - REVIEW OF ALL AVAILABLE DOCUMENTATION
  - CHECKLIST WITH PREDETERMINED ATTRIBUTES
  - CERTIFICATION SUMMARY FORM
  - PERFORMED BY TUGCO AUDIT GROUP (TAG)

* PHASE TWO
  - EVALUATE CERTIFICATION RECORDS NOT VERIFIED IN PHASE ONE
  - SPECIFIC EVALUATION CRITERIA
  - BASES FOR DECISIONS DOCUMENTED
  - PERFORMED BY SPECIAL EVALUATION TEAM

* PHASE THREE
  - IF INSPECTORS ARE FOUND WHOSE QUALIFICATIONS CANNOT BE DEMONSTRATED, REVIEW OF INSPECTION RECORDS WILL BE PERFORMED TO DETERMINE IMPACT ON SAFETY OF THE PROJECT
  - PERFORMED BY TUGCO QUALITY ENGINEERING

ITEM I.D.2

GUIDELINES FOR ADMINISTRATION OF QC INSPECTOR TESTS

NRC DESCRIPTION OF ISSUE

* LACK OF GUIDELINES AND PROCEDURAL REQUIREMENTS FOR TESTING AND CERTIFYING ELECTRICAL QC INSPECTORS

ACTION REQUIRED BY NRC

* TUEC SHALL DEVELOP A TESTING PROGRAM FOR ELECTRICAL QC INSPECTORS WHICH PROVIDES ADEQUATE ADMINISTRATIVE GUIDELINES, PROCEDURAL REQUIREMENTS AND TEST FLEXIBILITY TO ASSURE THAT SUITABLE PROFICIENCY IS ACHIEVED AND MAINTAINED

ITEM I.D.2

BACKGROUND

* CURRENT PROCEDURES ALLOW QE PERSONNEL TO DEVELOP TESTS APPROPRIATE TO THE SPECIFIC CIRCUMSTANCES
* ADDITIONAL GUIDELINES WOULD REDUCE POTENTIAL FOR INCONSISTENCIES

TUEC ACTION

* RELEVANT PROCEDURES WILL BE REVIEWED AND APPROPRIATELY REVISED TO PROVIDE MORE DEFINITIVE GUIDELINES
* THESE PROCEDURES PERTAIN TO THE TRAINING AND CERTIFICATION OF ALL INSPECTORS
* CERTIFICATION TESTS CURRENTLY IN USE WILL BE REVIEWED AND APPROPRIATELY REVISED TO REFLECT MORE DEFINITIVE GUIDELINES

ITEM I.A.1

HEAT SHRINKABLE CABLE INSULATION

DESCRIPTION OF NRC ISSUE

* CONFUSION AS TO WHEN THE INSTALLATION OF HEAT SHRINKABLE SLEEVES WAS TO BE DOCUMENTED

TUEC ACTION REQUIRED

* CLARIFICATION OF PROCEDURAL REQUIREMENTS
* ADDITIONAL INSPECTOR TRAINING
* ASSURANCE THAT SLEEVES ARE INSTALLED WHERE REQUIRED

ITEM I.A.1

BACKGROUND

* IRs DO NOT CONSISTENTLY INDICATE WITNESSING OF INSTALLATION AS AN ATTRIBUTE
* POSSIBLE UNCERTAINTY EXISTS AS TO WHEN DOCUMENTATION IS REQUIRED
* NO INSTANCES OBSERVED WHERE SLEEVES WERE REQUIRED AND WERE NOT ADDRESSED BY INSPECTION REPORTS

TUEC ACTION

* REVISE INSTALLATION PROCEDURE
* REVISE INSPECTION PROCEDURE
* TRAIN AND CERTIFY INSPECTORS
* INITIATE INSPECTION SAMPLING PROGRAM TO ASSURE SLEEVES ARE PROPERLY INSTALLED

ITEM I.A.2

INSPECTION REPORTS ON BUTT SPLICES

DESCRIPTION OF NRC ISSUE

* Lack of documentation of butt splice inspections
* Several specific examples cited

TUEC ACTION REQUIRED

* Assure that required inspections have been performed and documented
* Verify that butt splices are identified on drawings
* Verify that butt splices are identified within the appropriate panels

ITEM I.A.2

BACKGROUND

* CABLES SPLICED IN ACCORDANCE WITH DESIGN DOCUMENTS
* ADDITIONAL INSPECTION REPORTS REVIEWED
* REQUIRED INSPECTIONS WERE DOCUMENTED

TUEC ACTION

* PHASE I - VERIFY EXISTENCE OF IRS DOCUMENTING SPLICE INSTALLATION
  - REVIEW ALL INSPECTION REPORTS FOR THE 12 CABLES REVIEWED BY TRT
  - REVIEW ALL INSPECTION REPORTS ON 12 ADDITIONAL CABLES
  - IF DOCUMENTATION EXISTS, CLOSE REPORT

ITEM I.A.2

TUEC ACTION (CONTINUED)

- PHASE II - FURTHER REVIEW IF PHASE I DOES NOT CLOSE ISSUE
  - REVIEW DRAWINGS AND DESIGN CHANGES SHOWING SPLICES
  - INSPECT TO ASSURE THAT ALL BUTT SPLICES ARE INSTALLED IN APPROPRIATE PANELS.

ITEM I.A.3

BUTT SPLICE QUALIFICATION

DESCRIPTION OF NRC ISSUE

* LACK OF SPLICE QUALIFICATION REQUIREMENTS
* VERIFICATION OF OPERABILITY OF CIRCUITS IN WHICH SPLICES OCCUR

TUEC ACTION REQUIRED

* DEVELOP PROCEDURES TO ASSURE QUALIFICATION TO SERVICE CONDITIONS
* DEVELOP PROCEDURE TO ASSURE THAT SPLICES ARE NOT LOCATED ADJACENT TO EACH OTHER

ITEM I.A.3

BACKGROUND

- INSTALLATION PROCEDURES DO NOT ADDRESS OPERABILITY OF CIRCUITS WITH SPLICES
- - START-UP AND TEST PROGRAM ADDRESSES CIRCUIT OPERABILITY
- INSTALLATION PROCEDURES DO NOT ADDRESS QUALIFICATION OF SPLICES FOR SERVICE CONDITIONS
  - MILD ENVIRONMENT CONDITIONS
  - SAME CONSTRUCTION AS TERMINAL LUGS
  - LOW POWER APPLICATIONS AS PER FSAR
- NEW CRITERIA IN SER FOR FSAR AMENDMENT 44
  - REQUIREMENT TO STAGGER SPLICES

TUEC ACTION

- CONTINUITY CHECK TO BE ADDED TO CONSTRUCTION INSTALLATION PROCEDURE
- QUALIFICATION DOCUMENTATION WILL BE DEVELOPED
- INSPECTION WILL BE MADE TO IDENTIFY AND STAGGER SPLICES

ITEM I.A.4

AGREEMENT BETWEEN DRAWINGS AND FIELD TERMINATIONS

DESCRIPTION OF NRC ISSUE

* PHYSICAL LOCATION OF SELECTED CABLE TERMINATIONS DID NOT AGREE WITH DRAWINGS

TUEC ACTION REQUIRED

* INSPECT ALL SAFETY-RELATED TERMINATIONS
  - IN CABLE SPREAD ROOM CABINETS
  - IN CONTROL ROOM CABINETS
* VERIFY LOCATIONS ARE ACCURATELY DEPICTED ON THE DRAWINGS

ITEM I.A.4

BACKGROUND

* NRC SELECTED CABLES REVIEWED
  - DESIGN CHANGES REVIEWED
  - TEMPORARY MODIFICATIONS REVIEWED
* FINDING
  - 3 CABLES APPEAR TO BE CONNECTED CORRECTLY
  - 1 CABLE DESIGNATED AS "SPARE"
  - 1 CABLE CONNECTED CORRECTLY BUT COLOR CODE ON DRAWING INACCURATE
  - 1 CABLE HAD INCORRECT TERMINATION
* ISSUES HAVE NO ADVERSE SAFETY SIGNIFICANCE

TUEC ACTION

* CONDUCT SAMPLE INSPECTION OF 500 SAFETY-RELATED TERMINATIONS
* REVIEW DRAWINGS FOR ACCURATE INCORPORATION OF DESIGN CHANGES
* RECONCILE APPARENT DIFFERENCES BETWEEN INSPECTION AND DPAWING REVIEW
* EXPAND SAMPLE AS NECESSARY IF CONFIDENCE LEVEL IS NOT ACHIEVED

ITEM I.A.5

NCR's ON VENDOR-INSTALLED AMP TERMINAL LUGS

DESCRIPTION OF NRC ISSUE

* NONCONFORMANCE REPORTS CONCERNING VENDOR LUGS IMPROPERLY CLOSED

TUEC ACTION REQUIRED

* REEVALUATE AND REDISPOSITION ALL NCR'S RELATED TO VENDOR LUGS

ITEM I.A.5

BACKGROUND

* EQUIPMENT INVOLVED FROM 2 VENDORS
  - GE
  - ITT GOULD-BROWN BOVERI
* LUG VENDOR CONTACTED IN 1981 AND IN APRIL 1984
* LUG VENDOR GAVE SPECIFIC CRITERIA
* NONCONFORMANCES DISPOSITIONED USING VENDOR CRITERIA

TUEC ACTION

* ALL NONCONFORMANCES REGARDING BENT LUGS WILL BE REDISPOSITIONED

ITEM I.B.1

FLEXIBLE TO FLEXIBLE CONDUIT SEPARATION

DESCRIPTION OF NRC ISSUE

- MINIMUM SEPARATION REQUIREMENTS NOT MET
  - MAIN CONTROL BOARDS
  - SAFETY-RELATED CABLES WITHIN FLEXIBLE CONDUITS

TUEC ACTION REQUIRED

- REINSPECT ALL PANELS CONTAINING REDUNDANT SAFETY-RELATED CABLES AND CORRECT ANY VIOLATIONS

OR

- PROVIDE ANALYSIS SHOWING THAT THE FLEXIBLE CONDUIT IS ACCEPTABLE AS A BARRIER

ITEM I.B.1

BACKGROUND

* SWITCH MODULES ON THE MAIN CONTROL BOARD REQUIRE SLACK IN THE CABLES FOR:
  - REMOVAL/REPLACEMENT
  - REMOVAL FOR TESTING
  - REMOVAL FOR ADJUSTMENT
* FLEXIBLE METAL CONDUITS USED TO PROVIDE APPROPRIATE SEPARATION
* SUFFICIENT DOCUMENTATION DOES NOT EXIST QUALIFYING THE FLEXIBLE CONDUIT AS A BARRIER

TUEC ACTION

* PROVIDE SUFFICIENT DOCUMENTATION, INCLUDING ANALYSES, NECESSARY TO QUALIFY THE FLEXIBLE CONDUIT AS A BARRIER

ITEM I.B.2

FLEXIBLE CONDUIT TO CABLE SEPARATION

DESCRIPTION OF NRC ISSUE

* MINIMUM SEPARATION CRITERIA NOT MET IN MAIN CONTROL PANEL BETWEEN:
  - SAFETY-RELATED CABLES AND SAFETY-RELATED CABLES WITHIN FLEXIBLE CONDUIT
  - SAFETY-RELATED CABLES WITHIN FLEXIBLE CONDUITS AND NON-SAFETY-RELATED CABLES
  - SAFETY-RELATED CABLES AND NON-SAFETY-RELATED CABLES

ITEM I.B.2

TUEC ACTION REQUIRED

- REINSPECT ALL PANELS CONTAINING SEPARATE CABLES AND CABLES WITHIN FLEXIBLE CONDUIT AND CORRECT ANY VIOLATIONS

OR

- PROVIDE ANALYSIS DEMONSTRATING THE ADEQUACY OF THE FLEXIBLE CONDUIT AS A BARRIER

ITEM I.B.2

BACKGROUND

- ISSUE CONCERNS CABLE IN FREE AIR TO FLEXIBLE CONDUIT SEPARATION

TUEC ACTION

- PROVIDE ANALYSIS SHOWING THAT INSTALLATION IS ADEQUATE AND ACCEPTABLE

ITEM I.B.3

CONDUIT TO CABLE TRAY SEPARATION

DESCRIPTION OF NRC CONCERN

* ANALYSIS SUBSTANTIATING SEPARATION BETWEEN CONDUIT AND CABLE TRAYS HAS NOT BEEN SUBMITTED TO NRC

TUEC ACTION REQUIRED

* SUBMIT ANALYSIS

ITEM I.B.3

BACKGROUND

- Separation criteria based on IEEE 384-1974 and Reg. Guide 1.75 (Rev. 1-1975)
- Documents exist within Gibbs & Hill substantiating the separation criteria
- Criteria were not submitted for NRC review

TUEC ACTION

- Submit Gibbs & Hill documents
- Submit Sandia Report

ITEM I.B.4

BARRIER REMOVAL

DESCRIPTION OF NRC ISSUE

- CERTAIN BARRIER MATERIAL IN MAIN CONTROL BOARD HAD BEEN REMOVED

TUEC ACTION PLAN

- REPLACE THE BARRIER MATERIAL
- ASSURE THAT REDUNDANT FIELD WIRING MEETS MINIMUM SEPARATION CRITERIA
- ADDITIONAL ACTION CONTINGENT ON IDENTIFICATION OF ROOT CAUSES

ITEM I.B.4

BACKGROUND

- VENDOR-SUPPLIED BARRIER MATERIAL HAD BEEN REMOVED

TUEC ACTION

- REPLACE BARRIER MATERIAL
- REWORK CABLES TO RESOLVE SEPARATION CRITERIA VIOLATIONS

HOT FUNCTIONAL TESTING DATA PACKAGES
Issue III.A.1

DESCRIPTION OF CONCERN

* In reviewing test data packages, the TRT found that certain test objectives were not met for at least three Preoperational Hot Functional Tests

ACTIONS REQUIRED BY TUEC

* Review all complete Preoperational Test Data Packages to ensure there are no other instances where test objectives were not met, or prerequisite conditions were not satisfied. The three items identified by the TRT shall be included, along with appropriate justification, in the test deferral packages presented to the NRC