ORIGINAL

UNITED STATES
NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF:

DOCKET NO: STN 50-498-OL
STN 50-499-OL

HOUSTON LIGHTING AND POWER COMPANY,
et al.

(SOUTH TEXAS PROJECT, Units 1 and 2)

EVIDENTIARY HEARING

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	:	DOCKET NO.
HOUSTON LIGHTING AND POWER	:	STN-50-498-OL
COMPANY, ET AL.,	:	STN-50-499-OL
(South Texas Project Units 1 & 2	:	

University of Houston

Teaching Unit II, #215

Houston, Texas

Friday, 2 August 1985

The hearing in the above-entitled matter was convened, pursuant to adjournment, at 9:05 a.m., BEFORE:

JUDGE CHARLES BECHHOEFER, Chairman,
Atomic Safety and Licensing Board.

JUDGE JAMES C. LAMB, Member,
Atomic Safety and Licensing Board.

JUDGE FREDERICK J. SHON, Member,
Atomic Safety and Licensing Board.

APPEARANCES:

On behalf of the Applicants:

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On behalf of the Nuclear Regulatory Commission Staff:

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Office of the Executive Legal Director

On behalf of the Intervenor:

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Nuclear Power.

C O N T E N T S

P R O C E E D I N G S

JUDGE BECHHOEFER: Good morning, ladies and gentlemen, are there any preliminary matters this morning before we resume cross-examination of Dr. Bernsen and --

MR. SINKIN: We have one preliminary matter, Mr. Chairman. There is a conflict in the record now between the testimony of Mr. Tapia and Mr. Lopez, and we are aware for the basis for this conflict and believe the record should be clarified.

Mr. Lopez testified that the low value under the auxiliary feedwater storage tank was in one corner of the foundation. Mr. Tapia testified it was ten feet from the center.

The building tank radius is 30 feet, and the corner of the foundation is still further from the center. So a point 10 feet from the center could not be anywhere near the corner of the foundation.

After his testimony, I had an opportunity to look at the drawings Mr. Tapia was using. There is, in fact, on one of those drawings, a point with an unadjusted value of 78.6 percent which is very close to the to the 78.7 percent which is in Applicants' Exhibit 67 as the value under the tank that was reported to the NRC. But that point is indeed only about 10 feet from the center.

There is, however, a second point on a subsequent drawing that is in the corner of the foundation and this point had an unadjusted value under 74 percent. The adjusted values on Mr. Tapia's diagrams were lower than the unadjusted values.

So apparently, well, at least it appears possible that there is an error in the Applicants reports if Mr. Tapia's drawings are correct.

There seem to be two points below the tank, one near the center at 78.7 or so, and one near a corner at under 74 percent.

CCANP suggests the record be clarified by the submission of affidavits with an opportunity to recall witnesses. An affidavit from Mr. Tapia on how many points below 80 percent are on the diagrams he received from the Applicants and their location should be sufficient to clarify Mr. Tapia's testimony.

By the way, I called to his attention, I said, "Is this the point you were saying was the low one?" He said, "Yes." And so I turned three pages later and I said, "What's this one?" And there was an expletive deleted and he obviously hadn't had time to look at them sufficiently or didn't realize what was happening. But he thought that he was looking at the one the Applicants

had reported, and it was indeed only ten feet from the center.

The Applicants could then file a responsive affidavit either explaining the seeming discrepancy or modifying their report to the NRC with an explanation for the modification.

After review of the affidavits, CCANP would decide whether to ask the Board to re-call any witnesses.

MR. REIS: Mr. Chairman, is this worth the effort? This matter of whether it's at the corner or in the center is very, very collateral to any matter this Board has to decide. And taking up the time with this sort of thing to do this -- yes, there's a discrepancy in the record. I don't know where there's a trial that there isn't a discrepancy in the record.

I see no need to take up the time with this and to bother with this at all. This is just collateral to the issue. And it does not effect the Board's determination -- could not effect the Board's determination, whether it be right at the corner or in the middle. It really doesn't really matter.

JUDGE BECHHOEFER: I think the fact that there may be two of them is more significant than where they actually are.

JUDGE SHON: Mr. Sinkin also alleged that one

of them was an uncorrected value, is that right?

MR. SINKIN: Unadjusted next to it, whatever that means. There was then two adjusted below it.

MR. GUTTERMAN: I'm at a total loss, Mr. Chairman, because we're getting statements from Mr. Sinkin, I have no way of verifying, I have no information --

MR. REIS: And he had an opportunity during hearing to do this. The documents were on the table, he could walk over and have gotten them.

MR. PIRFO: I specifically addressed that opportunity, if you will recall.

MR REIS: And to reopen now --

MR. GUTTERMAN: We just simply don't have those diagrams in front us, we don't have the witnesses here anymore.

MR. SINKIN: I'm not suggesting we do this today, Mr. Chairman. My suggestion was Mr. Tapia file an affidavit at some point in the future stating what's on the drawings he has, what the .10 feet from the center is, what the point at the corner is; that should clarify his testimony.

The Applicants can then file an affidavit from Mr. Lopez or whoever as to why those don't mean anything or correct their filing with the NRC so that

it's correct. Very simple procedure.

MR. PIRFO: I might add is that Mr. Tapia is going off to Korea pretty soon.

JUDGE BECHHOEFER: Do you know how long? I have --

MR. PIRFO: Four or five weeks.

Unless Mr. Sinkin has different information, he seems to know more about our witnesses than I do.

MR. REIS: That's the first time and then he's going again, a series of trips.

JUDGE BECHHOEFER: Mr. Reis, do you know whether Mr. Johnson could make a correction on the records when he's here? Does he know enough about the subject to do that?

MR. REIS: I'd have to inquire of him. I don't know at this point. I don't believe so, but we will see whether we can find somebody else.

MR. SINKIN: Mr. Chairman, one of the reasons I brought this up this morning, if Mr. Tapia is about to fly away to Korea leaving the drawing where no one can find them, he should be informed soon to either turn the drawings over to someone else to deal with or do the affidavit.

MR. GUTTERMAN: Mr. Chairman, I point out we

were in session for a couple hours after Mr. Tapia got off the stand yesterday. If this had been brought up yesterday when all the witnesses were here, we could have resolved it on the spot.

MR. PIRFO: That's what I'm trying to understand. Mr. Sinkin said he spoke to Tapia after he left the Staff and I know when Tapia left the building because he took off, said "Goodbye," and that was it. And that was a break, we had just gone into like a 15, 20 minute break and I don't understand why Mr. Sinkin sat on this information for not only the 15 minutes break but the two hours after and then brings it up this morning when people have already flown off.

MR. SINKIN: Mr. Tapia did leave immediately. I was not -- I was almost certain that they had said it was under the corner. That was the point I was focusing on and then I realized later that obviously two is more important than one.

But I was focusing, did they really testify it was under the corner and he said it was ten feet which I was pretty sure they said. But I didn't go back and review my notes at that time. When I got home last night I did. I'm sorry for the inconvenience. I just felt like it ought to be clarified in the record.

MR. PIRFO: Seems to me, Judge Bechhoefer, that

Mr. Sinkin should be just able to offer the drawings. Of course he doesn't have the drawings.

MR. SINKIN: If Mr. Tapia can send the drawings, we could just submit what he's --

MR. PIRFO: That's another problem. He had an opportunity to look at the drawings, people heard me, I mean he didn't get off his seat to go look at that drawing. We offered that and I think we did everything reasonable. I'm at a loss.

JUDGE BECHHOEFER: The Board thinks Mr. Tapia should submit an affidavit and that affidavit should explain, among other things, what the significance of there being more than one and what the significance of one being in the corner would be, in terms of settlement or differential.

MR. REIS: If there is more than one.

JUDGE BECHHOEFER: Or differential elements. And then the Applicants can file a responsive affidavit; it may be sufficient to just leave the record that way.

JUDGE LAMB: Also, the Board would be interested in whether those circumstances changed Mr. Tapia's conclusion which he reached.

MR. PIRFO: I'm sorry, Judge Lamb, I didn't hear the last --

JUDGE LAMB: As to whether that change would

affect Mr. Tapia's conclusion about --

MR. PIRFO: I heard that, I maean the tail end.

JUDGE LAMB: -- about this whole matter.

JUDGE BECHHOEFER: When we receive that, the Applicants may respond with their own affidavit if they wish to. It may be that you won't wish to. If Mr. Tapia concludes that there's no significant change, you may not want to bother doing anything. We're not saying you have to, in other words. We're giving you the opportunity.

MR. GUTTERMAN: That's fine, Mr. Chairman.

JUDGE BECHHOEFER: Any other preliminary matters?

MR. SINKIN: One more, Mr. Chairman. Very briefly, my notes reflect that there is one other audit that's coming that we haven't gotten yet. It's going to be the supportive audit for the finding in the C-11 audit, whatever that one is.

MR. GUTTERMAN: I don't believe we said we would supply another audit. We thought about supplying a response to one of the CAR's that was cited in the audits that CCANP made an exhibit. But after Mr. Jordan testified further on it, I felt the record was sufficiently clear and it was unnecessary to supply it, so we didn't.

In other words, all of the audits that we said we were going to supply were supplied the day before yesterday. Everybody had them. There was a question raised.

MR. SINKIN: We're not saying another audit. I'm saying the CAR that was referenced in the audit --

JUDGE BECHHOEFER: That's G057?

MR. SINKIN: I think that's the --

MR. GUTTERMAN: Yes, Mr. Chairman.

MR. SINKIN: I may have misunderstood what you said. I thought you were going to supply it, that's what any notes --

MR. GUTTERMAN: And what I said was I wanted to have the opportunity to put in it the record. I reviewed it and it didn't add anything to Mr. Jordan's testimony; I didn't see any need to clutter the record with yet another document.

JUDGE LAMB: Excuse me. But didn't we submit something of that type?

MR. GUTTERMAN: We submitted 508.

JUDGE LAMB: That was the CCANP No. 107?

MR. GUTTERMAN: Yes. And I'm perfectly willing to supply 507 if somebody wants it, but I don't think it really addresses anything to Mr. Jordan's testimony.

MR. SINKIN: I guess from our experience

yesterday, I guess we would just like to review it if that would be all right.

MR. GUTTERMAN: Is this now another discovery request, Mr. Chairman?

MR. SINKIN: You just offered if anyone wanted to look at it, we would be happy to have a look it. And I said, yeah I'd like to have a look at it.

MR. GUTTERMAN: I did not offer to hand it around to look at. If it was wanted to be put in the record, we would put in it the record.

MR. SINKIN: I can't know if I want it in the record if I haven't seen it.

MR. GUTTERMAN: That's a choice you have to make.

MR. PIRFO: I might add one other matter, Judge.

JUDGE BECHHOEFER: And this raises because of the interview apparently Mr. Sinkin had with Mr. Tapia after his testimony, I'd appreciate in the future if Mr. Sinkin is going to talk to our witnesses, he at least let's us know.

MR. REIS: I was there, I was nearby. I was four feet away.

MR. PIRFO: Okay, I was misinformed.

MR. REIS: I was privy to the whole

conversation.

MR. PIRFO: My apologies, Mr. Sinkin, I was misinformed.

MR. SINKIN: At this particular --

JUDGE BECHHOEFER: The Board doesn't think that that document would be necessary. If our recollection is right, it deals wth hold points but not with soils.

MR. GUTTERMAN: That's right, Mr. Chairman. That's why we didn't hand it out the day before.

JUDGE BECHHOEFER: Okay. Anything further?

MR. SINKIN: No.

JUDGE BECHHOEFER: You may resume cross-examination.

CROSS EXAMINATION CONTINUED

By Mr. Sinkin:

A Good morning, gentlemen.

A (By Mr. Lopez) Good morning.

A (By Mr. Bernsen) Good morning.

Q Turning in your testimony to page 35, you reference at line 12, B&R procedure STP-DC-005. Do you know if this procedure was provided to and reviewed by Quadrex during their study?

MR. LOPEZ: May I see the Brown & Root summary

sheets?

A (By Mr. Lopez) I believe the answer is -- I do not know if they received it. I was just wanting to make sure if there was a reference it to in the reference to review report -- or review the vendor report, I should say.

Q Do you know if the Houston review team on May the 7th and 8th, 1981, reviewed that procedure?

A The Houston review team being Mr. Goldberg --

Q And Dr. Sumpter --

A I do not know whether they reviewed that procedure.

Q Do you know whether that procedure was being effectively implemented in May of 1981?

A I know that the -- well, let me tell what you I do know. I know that the procedure was in existence; I know that there was evidence of the implementation of that procedure as to effectiveness. I can only make a judgment based upon what I've seen.

As I had mentioned before, I performed no audits or detailed reviews of following through the effectiveness.

A (By Mr. Bernsen) In a sense, what Frank is saying is that you can see evidence of the implementation by reviewing the specifications.

JUDGE BECHHOEFER: I'm not sure. Can you explain why?

DR. BERNSEN: Well, the procedure provides what's required in a specification, the content, scope of the specification. You can look at specifications that were written prior to that time and see that the requirements of the procedure are, in fact, incorporated in the specifications.

Q (By Mr. Sinkin) Do you know if the Houston review team on May 7 or 8 reviewed any of those specifications?

A (By Mr. Bernsen) Don't know.

A (By Mr. Lopez) Do not know.

Q Dr. Bernsen, on page 36 at the bottom, you discuss criterion 7 of Appendix B, which requires that measures are established to assure that purchased services confirm to procurement documents. Turning to Page 3-3 of the Quadrex report, Volume 1 --

A Yes.

Q Item three, the last sentence, "No documented criteria exists governing the evaluation process for vendor reports." Why does that not represent to you a violation of criterion 7s requirements?

A (By Dr. Bernsen) I think what I'd like to do is first -- if I will answer your question specifically --

but then I need to amplify it. If one takes the statement on its surface in the various subtle ways it might be interpreted, in one context you could say that that might be a violation.

However, we know that they did have a procedure for review of vendor reports. So that from QA stand point, they had a program that met the requirements of Appendix B.

If you look at it in another way, say documented criteria, generally the criteria that are provided, and these are really aids to the reviewer in terms of what you want them to review, are fairly general. And in fact, the requirements that the industry is commonly applied in this area, the criteria of the industry commonly applied in this area, have changed overime.

In the early '70s, it was normally a review to make sure the document existed, and that interface information was provided. In other words, if you were the engineer buying equipment, you would assure that the anchor bolts, locations for the equipment, the nozzles sizes, things of this sort, that were essential for you to complete your system design, were, in fact, included in vendor information and vendor reports.

As time went on and the level of concern over

the letter perfection, if you will, of vendor documentation became more important in the licensing process, engineers gradually provided more attention to the detailed content of work done by supplier or vendor organizations.

At the same time, the level of guidance provided to the engineer in terms of procedures, criteria, discipline instructions and things of this sort, changed, too. So that the real issue -- well, there isn't a real issue here, because as I say, the basic procedures for the review of vendor reports were, in fact, in place and we understand that Brown & Root had actually, as most of the engineers designing nuclear plants recognize in the late '70s, that they needed to provide a much more intensive level of review of stress reports and equipment qualification reports and associated documentation than had been the practice in the early '70s.

JUDGE BECHHOEFER: Dr. Bernsen, when you describe criterion 7, are you limiting that to the establishment of an appropriate program or would you include as well a requirement that the program be effectively implemented?

DR. BERNSEN: Both. Both establishment and execution or implementation.

JUDGE BECHHOEFER: Now, if HL&P were faced with some of these statements in the Quadrex report, concerning the control of specifications going to contractors, would you not think that there was at least some problem with implementation of the program? "You," being HL&P at the time.

DR. BERNSEN: I heard the question, but I'm not clear because the sentence we're dealing with says "no documented criteria exists governing the evaluation process for vendor reports."

I mean, this is a specific. You're question was a little different.

JUDGE BECHHOEFER: It was. If one looked at the underlying basis for that statement, would one at least question the effectiveness of implementation of criterion 7? If you looked at the underlying questions and that type of thing.

DR. BERNSEN: And if you look at the underlying questions, the general conclusion that I come to and, in fact, we did have an opportunity to look at some of the questions that underlie this statement, it appears that the -- the deficiencies presumed by Quadrex either were related to documents that had not completed review or related to documents that had been reviewed in the normal engineering fashion at a previous time and

were subject to the Brown & Root program for re-review of these reports in more detail.

So that this was an observation of something in process and not completed.

Q (By Mr. Sinkin) Dr. Bernsen, it would be your position that if Quadrex found a whole series of inadequate vendor reports, but those reports -- and they had been accepted by Brown & Root but Brown & Root had begun a program to reevaluate those reports, then you don't have a quality assurance deficiency that's potentially reportable in all of these reports that have errors?

A (By Dr. Bernsen) Well, that's a question, right?

Q I hope it's a question.

A As I said before, the normal practice instilled by contract, vendors are responsible for the quality of their work, that the Applicant and through his agent or his engineer, does have a responsibility to assure a reasonable degree of compliance.

One has to judge the level of compliance and the significance of deficiencies that may exist even after these things are reviewed.

I think that it's quite obvious that if you looked at --and we've done it in many cases, the whole

volume of documentation of quality on a project that you're bound to find some errors. Some of these are typographical, some of these are omissions, some of these deal with the, let's say the quality and clarity of the document but not necessarily the technical content.

One has to judge the significance of those documentation deficiencies, do they effect the product, do they effect safety, are they significant. But I'm quite certain that in any document that's ever produced, I think it's rather interesting that after we had reviewed our testimony and lots of other people had reviewed it, that we re-reviewed it and corrected it. Judge Shon found another obvious error. And things like this are bound to occur no matter how many times you review things.

Q Would you ever rely on a consultants report to make a 50.55(e) report or would you always want to go check it?

JUDGE BECHHOEFER: What do you mean?

MR. SINKIN: Let me ask you that of them.

JUDGE BECHHOEFER: Tell -- in terms of the two people sitting right here.

A (By Mr. Bernsen) Would I ever rely on a consultants report? I'm sure there are cases where I would, yes.

Q Can you give me any kind of guidance what kind you might rely on versus those you won't rely on?

A Well, let's --

MR. REIS: Mr. Chairman, I object to the question. We are not dealing with the situation here -- the question is would you ever rely on a consultant's report is probably proper if you didn't have 24 hours to look at it. But the question here -- I take it the question involved whether you were going to make a 50.55(e) report and whether you had to rely on it or to the purpose of a 50.55(e) report. And the matter is not probative where you had 24 hours to look at it. The question just doesn't add anything. You might or you might not but it's not improper to spend 24 hours to look at it.

I appreciate that observation and therefore I object to the question.

MR. SINKIN: I appreciate that observation, Mr. Chairman, and I would agree with it.

MR. REIS: Does that mean you withdraw the question.

MR. SINKIN: I withdraw the question.

Q (By Mr. Sinkin) You do understand, do you not, that Mr. Goldberg made a decision on May 7 or May 6th perhaps, 1981, that he wasn't going to use the 14 days

even available to him, that they were going to do it in 24 hours. You do understand that that's how they made their decision?

A (By Mr. Lopez) I heard him testify to that. So I understand that now.

A (By Mr. Bernsen) Yes.

(No hiatus.)

Q Did you understand that at the time you prepared your testimony?

A (By Mr. Lopez) No, I did not.

A (By Dr. Bernsen) I don't think it was really the subject of our testimony.

Q So, in approaching your decision on whether these were reportable, it did not matter to you whether you would have had fourteen days or twenty-four hours to review the Quadrex findings, your decision would be the same?

A In the context of our review, I don't think the time factor was a significant consideration. We took what time was necessary to review these specific questions and to compare answers. We were not asked in the prefiled testimony whether we thought that these decisions could be made in one minute, two hours, twenty-four hours or a year, and, so, we really did not consider that.

A (By Mr. Lopez) I would add one point, however. We did, in attempting to respond to the specific tenor of the questions, try to determine whether or not the documents were available or if we had information to that effect or had, in fact, used, you know, to actually make those determinations, you know, as opposed to documentation that may not have even been

available at all until some later time.

Q But you made no attempt to, as it were, recreate the event, you know, put yourself in as much as possible the exact position that the Houston review team would have been in?

MR. FRANTZ: I'm going to object to this line of questioning. I'm not sure what its relevance is. We've already had testimony that HL&P relied upon Brown & Root, that Dr. Sumpter and Mr. Robertson sat in on the May 7th Brown & Root meetings, had the advantage of hearing what the Brown & Root engineers knew about the subject. They also had the later advantage of having a written report by Brown & Root.

I don't know how it would be even conceivable to try to recreate that situation today. It's four years ago, memories have changed, situations have changed, the Brown & Root people are no longer available as they were back then. It's a totally irrelevant question.

MR. SINKIN: I would say everything but your last sentence is a reasonable observation. I'll withdraw the question.

Q (By Mr. Sinkin) Looking at page 40 and on to 41, you talk about criterion 3 where measures shall be established for verifying or checking the adequacy of

design. And you state that it doesn't prescribe who should perform the verification and that under criteria 3, the organization which provides the input can and often does do that verification.

But if you look at the statement on page 39 at the bottom that you're responding to, the suggestion in the statement is that the group receiving the data is receiving data with an unreasonable assumption in it and is not checking to see whether the data it's receiving is unreasonable.

My question is, if you had a verified output from one discipline to another that was unreasonable and the receiving group does not recognize the fact that it's unreasonable, is there a quality assurance problem?

A (By Dr. Bernsen) The reason why we're holding up is we want to make sure that it isn't already covered somewhere in the testimony.

Well, we have dealt with a similar subject in the case of reviewing vendor furnished and design subcontractor furnished information. And in a sense the same thing applies, that informally and practically you would hope that the receiving organization, if they had the knowledge and understanding of what the information dealt with, would look at it for reasonableness. And we know that they'd look at it for reasonableness if they

can't accommodate it.

But practically you have to rely on the various technical specialties on projects as large and complex as this to perform and check their own work and then provide it to others. I'm sure there's a lot of informal transactions that go on on any project; otherwise, it could not get done and the design as you see it just would not exist.

But in terms of actual requirements and controls and procedures, you just can't mandate that a civil engineer would understand the correctness of a jet impingement load or a pipe reaction load or a compartment pressurization load, and, therefore, you can't require it. You do hear about it if they cannot accommodate it, I can assure you of that, and I'm sure it occurred here, too. But it's not the kind of thing that one can require in a QA program.

A (By Mr. Lopez) I'd like to add that -- I continued perusing the document and I do believe that we addressed that in response to question 37 on page 33 of our direct testimony and continuing on to page 34.

JUDGE BECHHOEFER: Mr. Lopez, how do you reconcile these two somewhat, I won't say contradictory thoughts, but Quadrex seemed to be worried about the fact that neither the receiving technical organization

would check the output from the other technical group or the supplying technical group wouldn't give any instructions to the receiving group. And to me that seems like something may be falling in a crack someplace.

If you say neither the receiving group has any requirement to check itself the data that it's receiving and the supplying group doesn't have any requirement to do so, to tell the receiving group how to use the data, isn't there a gap someplace? And isn't that what Quadrex was really worried about?

MR. LOPEZ: Well, to answer your last question first, I do believe that was what Quadrex was worried about. That seemed to be the concern that they were getting at.

To answer your longer and I guess first question, and Dr. Bernsen can probably add further relative to the implications of Appendix B in terms of that.

JUDGE BECHHOEFER: Right.

MR. LOPEZ: As I believe we have attempted to discuss in our direct testimony, clearly it is a very good practice to have well-experienced knowledgeable engineers who are not only knowledgeable in their own areas, but have some understanding of the way that the

data that they may be producing, particularly that that's going to be used by others as the basis for further work, might be used. And clearly it is a very good practice and a desirable situation to have engineers with enough experience to know when they receive information that may not be reasonable for the particular application that they have, to know to question that and to somehow generate either a question or some dialogue to determine whether or not that data is correct.

And to the extent that engineering organizations attempt to both utilize qualified experienced personnel and to attempt to increase by indoctrination and training their experience in performing these kinds of activities, I think all engineering organizations expect and rely heavily upon that for the purposes of efficiency and making sure that work need not be redone.

Notwithstanding the desirability of such, most engineering organizations that I'm familiar with, particularly those that have to deal with the quality assurance aspects of Appendix B, recognize that because of variations in experience, variations in knowledge, particularly, say, the knowledge that a supplier of data might have as to what possible uses some other

individual, some other engineering group perhaps, might use for his -- or might take for his data, that we cannot simply rely upon having experienced people at both ends and that they are always knowledgeable of and cognizant of what applications might be used and rely strictly upon that.

And, as a result, methodologies such as interdisciplinary meetings, interdisciplinary coordination reviews, design verification type activities which are done more to deal with the questions of interface than they are to deal with the specific technical adequacy of individual calculations, drawings, specs, that the reliance from a quality aspect need be on those kinds of programs because those are the ones that can take directly as their focus, their charter, if you will, assuring that that interface is properly met.

So, I think from a quality aspect we would tend to rely more upon the formal checking, interdisciplinary coordination and verification processes than we would on, you know, some hopeful confidence that all of our engineers are experienced enough to always recognize, you know, both the possible uses of their data and, you know, the possible unreasonableness or incorrectness of data that's been

supplied to them for their use.

DR. BERNSEN: That's a very good answer. I couldn't have done better. The problem is that the question is kind of a black and white thing that isn't really reflected in the Quadrex report. In most of the cases that they found where they thought this was a deficiency is where people were accepting and using what they felt were very conservative numbers and they have no idea of why the people were accepting and using conservative numbers. In many cases I suspect that there was good rationale for accepting those conservative numbers. The few cases we have researched seem to indicate that.

So, you've got to read the finding in the context of the work they did, the review they conducted, the results they reported.

JUDGE BECHHOEFER: When I asked my question I was referring to the statement on page 3-3 of the Quadrex report, paragraph (b)(1) where they talk about converse situations and that's what I was trying to --

DR. BERNSEN: The converse?

JUDGE BECHHOEFER: Yeah, well, I was trying to include both in my question.

DR. BERNSEN: Well, as we mention I think in our testimony, there are these mechanisms, the

coordination of completed work. In other words, an engineer will take information from another discipline and he will use it. Then, when he completes that design, he will send it back to the various disciplines that interface and they have an opportunity to review it, so that the first step in the process is this recycle where the discipline providing it has an opportunity to look at what the result was. And then there are these more formal processes for verification and design review that are also applied, as Frank described.

So, it's efficient to try to do it at the front end. You'd like to build the quality in. But in some cases you find that -- well, we always find we have to review it after the fact. In some cases you find that it's not practical to do the engineering work that efficiently.

JUDGE BECHHOEFER: Is there any, I shouldn't use possibility, but are there situations where the checking or verification never occurs, yet it doesn't violate any particular mandate? I'm trying to see if there is a crack.

DR. BERNSEN: A way to lose it somewhere in the process?

JUDGE BECHHOEFER: Yes, yes.

DR. BERNSEN: Well, all of the design work requires some degree of verification, some method of verification. And if it's carried out the way it's required to be carried out, then everything goes through at least a second check and that check is in one way or another intended to cover not only the correctness of the specific design product based on the input, but also a confirmation that the input was taken and used correctly.

JUDGE BECHHOEFER: I see.

MR. LOPEZ: I'd like to amplify that. Our review of the Brown & Root procedures relative to design verification included not only what I would characterize as design output documents, such as calculations and drawings, specifications, but also verification of design input documents, such as system design descriptions and those kinds of things, which, you know, are primary, you know, base documents, if you will, for performing a more detailed design. So, there was an attempt to try to cover, you know, all the major design interface type documents.

Q (By Mr. Sinkin) Dr. Bernsen, you said that Quadrex had no idea why Brown & Root was accepting and using conservative numbers. How do you know Quadrex had no idea why that was happening?

A (By Dr. Bernsen) They didn't indicate why Brown & Root was using and accepting conservative numbers.

Q You don't remember any --

A Oh, they made the statement that in the case of the pressure/temperature calculations that they accepted a conservative calculation to meet an NSAR submittal schedule. In that case, that's right.

Q Is that the only case you know of where Quadrex gave a reason for Brown & Root accepting conservative values?

A In order to give you a correct answer to that, I'd have to take a lot of time to review the questions. I'd rather not trust my memory. I'm too old for that.

Q You stated that all design work required some verification. Would that apply to non-safety-related calculations?

MR. REIS: Mr. Chairman, I object. It's not -- we're not interested in non-safety-related calculations.

MR. SINKIN: Well, we obviously are, Mr. Chairman, because we have a problem of Brown & Root sometimes calling things non-safety-related that were safety-related. The Bechtel procedure, for example, on calculations, if I'm correct, is to review everything

and verify everything. Brown & Root, on the other hand, said if it's non-safety-related, you don't have to verify it. That's what I'm trying to get clear in the record.

MR. REIS: Unless there's a specific showing of where there was a particular matter wrongly classified and there was no verification, this is not relevant.

JUDGE BECHHOEFER: I think we'll sustain the objection. On the basis just stated by Mr. Reis, as a matter of fact.

Q (By Mr. Sinkin) You stated that you reviewed the system design descriptions and technical reference documents of Brown & Root. In your review did you find any significant deficiencies?

MR. FRANTZ: I object to that question as no relevance to the reportable issues in this proceeding.

MR. SINKIN: Significant deficiencies and system design descriptions obviously have relevance to reportability.

MR. FRANTZ: We're discussing reportability as identified by the Quadrex report, not in things not mentioned by the Quadrex report.

MR. SINKIN: Well, the generic findings put the process of developing system design descriptions at

issue and the answer was being given that they reviewed the design outputs, they reviewed the design inputs. I'm wondering if they found things that they considered significant deficiencies.

MR. FRANTZ: If Mr. Sinkin can attempt to tie this question to something in the direct testimony, I might allow the question to go through, but he hasn't attempted to do that.

MR. SINKIN: I'm tying it to the direct testimony given to the Chairman in response to a question.

MR. REIS: Mr. Chairman, are we examining -- at this point I'm not sure whether the significant deficiencies are ones unearthed by Quadrex of Brown & Root's work or ones unearthed by the witness of Brown & Root's work in the question.

MR. SINKIN: Well, I can clarify the question. I was addressing the witness' review particularly, whether the witness found significant deficiencies in the system design descriptions whether or not found by Quadrex.

MR. REIS: I don't think that's material. I think it's only as to a review of Quadrex' work these witnesses are here and that this hearing is about.

MR. SINKIN: It's strange, Mr. Chairman, I

keep hearing my arguments about why these witnesses shouldn't be called coming back to me from other parties. If these witnesses were only to look at what Quadrex looked at and that is all they were to do, that's not what they did. I once again happen to agree with Mr. Reis that that's what should have happened, but apparently that is not what happened.

JUDGE BECHHOEFER: I think we'll overrule this objection and allow the witness to answer.

A (By Dr. Bernsen) Okay. To initiate the response, I'd like to have some clarification of the question. Are you referring to significant deficiencies in the sense of those that are reportable?

Q (By Mr. Sinkin) Well, I guess I'm referring to what you found and considered significant. We will leave the evaluation of whether they were notifiable or reportable to the parties and the Board. I'm looking at what did you find that was significant that was a deficiency in those underlying documents, the system design descriptions and technical reference documents?

A Are you talking about deficiency in the context that an incomplete document may not have all the information that it will contain when it's complete?

Q That could be significant, depending on where you are in the design process, I assume.

MR. FRANTZ: Is there a question pending now?

MR. SINKIN: Yes, there is. What significant deficiencies did they find in those documents?

A (By Dr. Bernsen) I'm afraid that the question is too broad and general to respond correctly. I think that you've got to be much more precise in defining what you're asking before we answer it.

MR. REIS: Mr. Chairman, since it's not asked -- if it's reposed again, I will object on precisely that ground unless the word significant is defined. I don't know what we're dealing with or how it's probative. It could be significant for the purposes of 50.55(e) or what, but unless it's defined, I don't know what it means.

JUDGE BECHHOEFER: I think both deficiency and significant have to be defined in some way. This is a 50.55(e) --

MR. SINKIN: Okay. Let me try and define it in some way.

Q (By Mr. Sinkin) Let's see if this is helpful. When you look at a system design description or a technical reference document and you see something in it that you know is not technically adequate, whether or not it's your opinion it rises to the level of a potentially reportable finding, it shows that the

document itself contained something that is not technically adequate. Were there items that you found that stood out in your mind as lacking in technical adequacy in those documents?

MR. REIS: Mr. Chairman, I'm going to object on the grounds that it is not relevant. We are here dealing with whether there was a duty to -- that it doesn't have enough relevance. We are here dealing -- and not probative. We are here dealing with the issue of whether the Quadrex report should have been reported under 50.55(e) or particular parts of them. The fact that there's a deficiency, there is a very large universe of deficiencies that are not reportable. Just to ask generally whether there is a deficiency gets us no closer to looking at the subset of those that were reportable under 50.55(e). If it was a large subset, we might get somewhere. But -- I mean, if it was a smaller universe, we might get somewhere. But the universe is so large that it doesn't tend to go anywhere.

MR. SINKIN: Well, we can start with the top ten, you know. They can pick --

MR. REIS: No, no.

MR. SINKIN: -- the top ten of the ones that stood out in their mind as significant technical inadequacies in system design descriptions or technical

reference documents they looked at.

MR. REIS: That wasn't the way I was using the term deficiencies. I mean, deficiencies are so large and so many things, it's every possible glitch in designing the project. And we -- it just is not probative of the issues here.

MR. SINKIN: When I use the term significant technical inadequacy, I think witnesses like this can apply that term. I hope they can apply that term.

JUDGE BECHHOEFER: Are you applying it to safety or safety-related --

MR. SINKIN: As opposed to economic, yes, we can do that, too.

JUDGE BECHHOEFER: I guess we'll allow the witness to answer, but make sure it has to do with safety or safety-related at least.

DR. BERNSEN: I didn't really think we were going to cause all this trouble and delay the process because we probably could have answered any one of the questions the same way but wanted to make sure that the Board understood and the record was clear.

Why don't you answer it, Frank.

MR. LOPEZ: In answer to I think the question that was finally posed, I did not find any matters of safety significant technical inadequacies that had not

previously been found or reported. I did rereview again the SDD dealing with HVAC design which was a matter that was determined as a result of the Quadrex report and as well as other matters that were already ongoing at Brown & Root at the time of the Quadrex review, that, if you will, technical inadequacy that had safety significance. But with the exception of that, I don't recall any other -- in reviewing SDD's and technical reference documents, any other technical inadequacies that had safety significance in the sense of 50.55(e).

Q (By Mr. Sinkin) On page 45 of your testimony, answer 47, you have two bases for your determination that Brown & Root was reviewing regulatory and industry developments in '75 and you used the Quadrex report as one of those bases. Can you tell me where in the Quadrex report it reflects that Brown & Root was reviewing regulatory and industrial developments since 1975?

Let me ask you a question at this point in your review. Are you relying in that sentence more on Bechtel's review of Brown & Root's design work for that statement than you are on Quadrex' review?

A (By Mr. Lopez) What I was searching for was relative to any specific statements in the Quadrex report itself. There's no question that in looking at

the topical matter that was discussed that it was clear to us that matters that were of licensing significance post-1973 to '75 time frame were, in fact, both being asked about by Quadrex and responded to by Brown & Root relative to their more current understanding. What I was looking for was a specific reference to, you know, to that sort of thing.

A (By Dr. Bernsen) Well, there are some. Here's one in C-41 with a statement that says they indicated that use of expansion anchors was consistent with NRC Bulletin 79-02 and was covered in TRD 5A019SQ010-G.

Q Excuse me, did you say C-41?

A C-41.

Q Isn't that interesting. I don't have a C-41 in my book. Okay.

A Really?

Q I'm not questioning you, just I don't have one. That's fine. Thank you.

A We're trying to find specific examples because that's what we understood the question to be. If you read through these three hundred odd items, I'm sure you're going to find a number of them.

Q Okay.

A But in addition to that, as Frank points out,

we're also familiar with the design --

A (By Mr. Lopez) The other one that came to mind to me was in the description of question N-13, including the B&R response, there was reference to, although it does not identify in that reference what the, if you will, the licensing the regulatory question was about, it makes reference to a December '77 letter from NRC to HL&P which is -- I believe I discussed in previous testimony was the letter of correspondence between HL&P and the NRC relative to their upgraded commitment to change the environmental conditions analysis in the IVC from what had previously been considered acceptable from a regulatory point of view to the then current thinking of the NRC as to the necessity to do environmental conditions analysis. And that's not -- that is not in the Quadrex report specifically addressed, that was in the -- that was in that letter that was referenced. But Quadrex apparently by referencing it here was aware of that letter.

Q But there were parts of the Brown & Root design engineering process where NRC requirements and new industry developments were not being accurately incorporated; is that not correct?

A I think that's true. There were areas that had not -- of, if you will, regulatory and licensing

concern and interest at that time that had not yet been implemented in the design, you know, at Brown & Root at the time of the Quadrex review. And I believe that may have been part of the reason for the introduction of the Three Mile Island upgrades because those were recognized as not yet implemented. In spite of that, some of them are mentioned in the Quadrex report I should point out.

(No hiatus.)

Q I understand. Is there any point in time in your view where Brown & Root's failure to update design criteria to include the new regulatory requirements, industry developments, would have posed safety concern, or did it already? At the time of Quadrex, is the first question; the second question is would it have ever.

A (By Mr. Lopez) I think the answer to the first question which was did it pose a safety question at the time of the Quadrex report, I don't believe so.

Then the second question, was was there ever a time that it would pose a safety, yes.

Q Assuming Brown & Root had stayed on the job.

A Well, I assume that or imply that from your question. I believe that I would have to characterize that only in the sense that if Brown & Root and therefore the licensee, HL&P, were aware of the necessity of having to meet new regulatory requirements, and made an effort to implement those into the design and ineffectively implemented them, or did not do them correctly and somehow, either by the FSAR or by some other, you know, issuance of documents, failed to properly meet those, then there might be a safety significance to that.

The issues there are really whether or not, one, there was recognition of the need to review new regulatory requirements, a control process to evaluate

the implications of those regulatory requirements to the South Texas Project particularly, and then to implement the appropriate measures and to properly represent those to the regulatory agencies.

A (By Dr. Bernsen) Let's clarify, because Frank talks about regulatory requirements and your question, I believe, addressed safety. And there is a substantial difference. And in fact, if you look at the cases Quadrex cited, they're really talking mainly about using the newest techniques to demonstrate something, calculate something, analyze something; they really aren't issues of fundamental safety that we're dealing with here. I don't think that that's the case at all. What we're really dealing with is regulatory requirements and not safety deficiencies. You might not get a license, but you could probably -- if you were there three years earlier, you probably would have.

Q You're saying that the new NRC regulations are not issued in a safety related context, that they are not issued to respond to a safety related problem?

A Now you're talking about a narrower thing. You're talking about regulations. But the things we're really discussing here are in the nature of regulatory guidance and practice, NUREG's, things of this sort.

Q So you are interpreting Quadrex's terms "NRC

regulations" to mean guidance?

A No. The deficiencies -- that's not the right word. The areas that Quadrex addressed where it appeared that the project was not addressing regulatory and I don't know -- generic requirements, really related to practices, guidance, industry norms that might have been changing and things of this sort. And I do not believe, for example, I don't believe they found or should have found any indication the project was not going to comply with regulations.

Q By the way, Mr. Lopez, you just mentioned the FSAR. And if I'm correct in your testimony, when it talks about the simultaneous shutdown of the two units in the cooling pond that we went over yesterday, your testimony says that the FSAR says they did that analysis, Quadrex was wrong. Do you remember that?

A (By Mr. Lopez) I don't know if I said the FSAR said they did the analysis. The FSAR presents the results of -- indicates that those scenarios were considered and presents the results of those scenarios. I don't think the language --

Q By "results," do you mean "numbers"?

A It presents a statement of the scenarios that were used and identifies that the essential cooling pond analysis indicates, you know, the acceptability of the

design relative to that. It also produces some tables and some various graphs or curves of temperature profiles. I didn't mean to characterize that there's a statement that says "We calculated it and there's a calculation somewhere," if that's what you're question was.

Q Yeah, that's what it struck me. Okay. Thank you.

JUDGE BECHHOEFER: Mr. Sinkin, when you get to a good breaking point.

MR. SINKIN: Okay, I'm almost there. This is a good time to take a break, Mr. Chairman.

JUDGE BECHHOEFER: Okay, fifteen minute break.

(Brief recess was held.)

JUDGE BECHHOEFER: Okay, back on the record.

Q (By Mr. Sinkin) On page 46 of your testimony, question and answer 48, how do you know that Quadrex relied only upon the three examples in your testimony to support the conclusion in question 48?

A (By Mr. Lopez) Okay, I think to begin the response, we looked at the specific question references that Quadrex used; we don't know whether it was -- whether or not it was the only thing relied upon. We simply indicated their cited reference appeared to rely upon those questions as the basis for the generic

finding. And the specific examples we stated, or quoted, were the ones that we saw, the ones with potential safety significance of the stated questions.

Q Did you make any effort to go through the rest of the report and see if there were other findings that would support Quadrex's conclusion?

A We looked at all of the stated questions for that purpose and, you know, based upon our general familiarity with the Quadrex report, I did review other questions and other generic -- I'm sorry, discipline findings. However, I did not do a page-by-page check, if that's what you were asking.

A (By Mr. Bernsen) I might add that we have reviewed a lot of the questions again, in fact, without reference to findings or either generic or discipline findings. And if I recall, there were no other significant examples of this that either are on the one hand indications of work yet to be done or indications of things that are desirable to consider for efficient operation and maintenance in addition to the specific safety related issues that we had addressed here.

Q In the three that you do address, in answer 49 you distinguish the HVAC as being of a different nature than the ECP and the pipe break analysis problems. Do you mean that the ECP and pipe break analysis problems

were not about operating modes and environmental conditions?

A (By Mr. Lopez) Will you tell me what you mean by "distinguish between them"?

Q You say in answer 49, the questions with the ECP and the pipe break analysis were of a different nature than the deficiency in the HVAC system. Do you mean by "a different nature" that they were not about environmental modes and operating conditions?

A No, that wasn't the intent of our testimony.

Q What was the intent?

A Well, questions raised relative to the design basis for the HVAC system were clearly identified examples of safety related equipment for which there had not apparently been a consideration of the requirement to provide safety related cooling, and further indications that the design of HVAC systems that needed to function in off normal conditions, that is say loss of off site power situations or perhaps accident situations, you know, had not been dealt with in Quadrex's view correctly.

This item was also reviewed by the HL&P review team; they determined that, in -- with the information that had been provided to them, that these constituted potentially reportable conditions and did, in fact,

report them.

The other two items that we are referencing here as examples of what we feel are the primary examples of safety, potential safety significance, that Quadrex was relying upon in this particular matter.

In the one case in the case of pipe break analysis, the particular question cited and the assessments by Quadrex, in our mind, indicated a concern relative to the timeliness of performing necessary analyses outside of containment, and considering the fact that they had not yet been done an inadequacy as opposed to an identified safety concern.

It also was pointed out in the Quadrex report, although the characterization is made in certain areas of the Quadrex report that the personnel interviewed were unaware of the need to perform such analyses, a review of -- a complete review of the Quadrex questions and responses in that nuclear analysis section indicates that not only did Brown & Root indicate that these analysis -- analyses were to be performed, Quadrex makes specific reference or acknowledges, if you will, that statement.

It's in other locations where they reference that they had some difficulty in at least getting one individual they were talking to to acknowledge the need for existence of some particular calculations.

And lastly, with regard to the essential cooling pond analysis, I think as we discussed in previous testimony, I'm not sure, I guess yesterday, the situation that arose relative to safety significance was a concern on the part of Quadrex that a particular analysis had not been -- had not been performed. And in fact, we were able to determine by our investigation, that those analyses, in fact, had been performed and Quadrex was simply unaware of that.

I guess in summary, the primary characterization was that there was enough evidence of a possible design deficiency in the HVAC areas; there did not seem to be that in the other two.

Q I see. So your answer 49 really, to be complete, would be that the questions and answers provided a different -- I read -- you said the "questions," you see, and that's what --

A (By Dr. Bernsen) It probably could be read as "concerns" just as easily as "questions."

Q When you were reviewing discipline findings to make your evaluation of the generic finding, did you limit yourself to the most serious findings?

A (By Mr. Lopez) Not entirely. I did -- I was certainly concentrating on the most serious findings. But as you will see in going through the Quadrex report,

it's a very long trail. A serious finding may reference another question; you go to that question and it may have other sections which become other discipline findings, which then may reference other questions; it can be a very long trail. But certainly the starting point was the most serious findings.

Q I notice in 3, that you state "Quadrex relied upon." You are not including, as I read it, the assumption regarding door and hatch positions which appear at 3-5 at the Quadrex report.

Can you tell me why you didn't consider that as falling within this particular conclusion by Quadrex?

Q (By Dr. Bernsen) I'll give Frank a rest, but he'll probably come in at the end. As we read the questions, responses and observations, there was first of all no question with regard to how they were going to treat pipe break analyses and pressurizatoin; the assumptions being made for those starting conditions appeared to be adequately conservative, perhaps maybe a bit over conservative.

The concerns they were really addressing had to do with door and hatch positions during period of maintenance, inspection, and associated with control of contamination, which is in the operation and efficiency area rather than safety area.

These questions are interrelated, and the generic observation seems to be much broader than just the safety concern. In reviewing the responses, I didn't find anything with regard to the issues -- at this stage of the project, certainly, with regard to their position on door and hatch positions that seemed to be terribly unusual or inconsistent with normal design practice.

Q Looking at finding 4.6.2.1(a), on page 4-59, did you consider this finding as falling within the area that Quadrex was making its conclusion regarding plant operating modes and environmental conditions?

A Well, to the extent that the generic finding, place myself back to that, that there was discussion of the absence of postulated line brakes and cracks outside containment and there was an inability or a perceived inability of the nuclear analysis group to develop appropriate environmental conditions for these areas in a timely manner, I did.

There was specific reference in a portion of this to question N-1, and question N-1 deals with some of the subject matter that is included within this particular discipline finding.

Q Well, the discipline finding reference question to question N-1 seems to be the problem of use of saturation temperature rather than actual temperatures

inside containment which Quadrex states is not conservative in all cases. And I'm wondering why you would consider that simply a timeliness problem.

A (By Dr. Bernsen) Let me answer that. The normal design approach on most plants is to do the LOCA analysis, the primary system pipe break analysis, to calculate containment pressure temperature conditions, and these result in saturation conditions. And its generally been the practice to specify the environmental conditions for equipment in the containment at bases, at least that was the certainly the case in the early and mid-'70s.

Later on, people discovered that if you calculate certain steam line break events, that the calculations indicate that you can achieve some degree of super heats in the containment for a short period of time. And on that basis, in more recent plants, people have conservatively specified the environmental conditions for a steam line break with some super heat, generally no significant difference in pressure, although it might be true in some cases, as the environmental conditions for equipment qualification. And it turns out that that's resulted in a lot of very difficult, complex, and -- well, perhaps, more representative qualification testing of certain pieces of equipment.

The result of all this has been, however, is if you find that you qualified the equipment to saturation temperature for LOCA conditions, that it invariably meets the conditions of temporary super heat that obtain if you have a steam line break.

So it's perfectly reasonable thing to do and was reasonable at that time, to have specified the equipment to saturation conditions for the LOCA. And then we found in many cases by analysis, one can demonstrate that the super heat conditions doesn't effect the equipment qualification. And that has been borne out also by testing.

So I wouldn't consider it a particularly unreasonable assumption. This, in a way, would be classified as a converse to the observations that were made in some other cases where they used an extremely conservative number; in this case, they probably useed more realistic numbers, and more economical and efficient ways of qualifying the equipment.

Q The analysis you referred to, that super heating conditions do not esceed the conditions as defined in the early '70s, the LOCA conditions, is that an analysis that Bechtel has performed at some point or what analysis were you referring to?

A We do that today on all plants. And it -- I

don't know whether it had been done on South Texas before or not. The point is that what comes out of that analysis is a short duration condition, a short duration condition, where the temperature in the containment theoretically exceeds saturation. And when you consider the duration and the fact that the heat transfer co-efficients in the super heat range or region are substantially lower, it doesn't have any appreciable impacts on the behavior of equipment.

We do look at it for cable, for electrical wire and cable, because it may have some impact on jackets and things of this sort. It is now common practice, of course, to specify the super heat conditions.

Q Well, the Quadrex findings says that the approach is not in accordance with IEEE-323 in May '81 means that you should look at super heat?

A IEEE-323 could be read to require that. But, I believe it is appropriate to qualify equipment by a combination of testing and analysis. And what I'm describing is that one can test under known controlled conditions of saturation and by simple very conservative hand calculations show that they're adequate to demonstrate qualification of the equipment under the other conditions.

Q Had Brown & Root performed such calculations as

of May 1891?

A I don't know. Do you know, Frank?

A (By Mr. Lopez) I don't believe that they'd performed those calculations at that time.

A (By Dr. Bernsen) I wouldn't think that it would be timely or necessary to have done it at that time.

A (By Mr. Lopez) It might be worthwhile pointing out that this -- the consideration of super heat temperatures inside of containment for -- particularly for the purposes of equipment qualification was something that was essentially coming into consideration in an around this time frame, and that most plants to that point had been in fact been using saturation temperatures in their equipment qualification.

The analyses that had been performed to indicate what implications that that might have as to the possible requalification of equipment, that determined that the only situation in which there might be some likelihood that the super heated condition might lead to the need for a more conservative temperature calculation, were those areas in which the equipment that is being qualified is operating at very high temperatures or temperatures more closely allied with the temperature of the super heated condition, the reason being that the

equipments operating, you know, even at the temperatures that normally expected inside of containment, significantly cooler than the super heated steam, the tendency is that the equipment will never see temperatures of the temperature that one might measure and you simply, you know, looked at the temperature of the super heated steam. The condensation of the steam, you know, on the device is such that it would in fact represent a much lower temperature for the equipment to actually see.

So the primary emphasis on this super heated condition is looking at equipment that might affect operation at very high temperatures and that represents a relative small total amount of equipment; typically things like the pressurizer which Westinghouse had generically reviewed relative to super heat conditions and found not to be a concern, relative -- did not have to requalify the pressurizer on the basis of super heat conditions predicted at these plants.

Q Wouldn't that be dependent upon the relationship, physical relationship, between the piece of equipment and the origin of the super heated steam in terms of how close it was?

A (By Dr. Bernsen) Not likely.

A (By Mr. Lopez) No, doesn't depend on that at

all..

A (By Dr. Bernsen) It's usually not done that way. You take a conservative set of assumptions and apply them uniformly throughout the containment.

A (By Mr. Lopez) In fact, if that was taken into account, equipment qualification would be made much easier by indicating that equipment was too far removed from location of possible breaks that the termperatures to be seen would be much lower, but that's not normally -- you don't normally do that; you just take the conservative number coming out of essentially the analysis of the pipe break.

Q So your understanding of Quadrex's use of the term "not conservative" is that they were saying the super heat value would exceed the LOCA value and should have been used. Is that correct?

A (By Dr. Bernsen) What I think they're saying is that at the time they looked at the project, the practice was developing to specify the super heat condition in the procurement, in the qualification specification for procurement of safety related equipment that needed to function after a steam line break and was located in containment. And obviously, that's a more conservative way to do ti.

And they were making an observation that they

would encourage them to consider it. That's the way I read it. I don't remember it an error or deficiency.

Q Looking at 4.6.2.1(f), I just want to be sure about your earlier answer, it refers to question N-8 and question N-8 deals with structural vents and doors. Earlier, you were talking about the problems of doors and hatch positions as being related to maintenance, inspection, operation and effeciency. Is this finding N-8, does the finding in question, N-8, have any safety related significance?

A (By Dr. Bernsen) I think just to clarify your statement, we indicated that we looked at their observations with regard to door and hatch positions for calculating pipe break conditions as well as their locations regarding these operability considerations and we found no problems with what they were intending to do for the accident conditions; but Frank can elaborate on N-8 a bit.

Q All right.

A (By Mr. Lopez) Would you like me to do that?

Q Please.

(No hiatus.)

A (By Mr. Lopez) In the B&R response, the statements are made relative to the assumptions that are made relative to -- in item 1 on, I guess, the 3-16 session that doors that can be closed will be considered closed at the initiation of an accident, and that -- item 2, that NUS calculations for the IVC will consider failure of closed doors at a predetermined differential pressure in accordance with, I won't give you the full reference, the specification for special doors.

And then a notation presumably by the Quadrex reviewer that when asked about doors to compartments that contain essential equipment but not high energy piping, NUS stated that if the potential for venting into an adjacent room where essential equipment exists, the door will be considered open. It further notes that B&R could not provide examples of that particular situation.

All three of those examples relative to environmental conditions or pipe break effects would be conservative for those particular applications.

Q Well, how do you deal with the actual Quadrex assessment of those answers where they say that Brown & Root did not appear to be aware of the proper methodology for handling potential flow paths during environmental analysis; the oral assumptions regarding

door positions are not documented and do not appear to be correlated to expected door positions during actual plant operation?

A Well, I guess relative to the purpose of our consideration of safety significance, I have -- well, first of all, I have some difficulty in correlating the Quadrex assessment with the statements that were made, that's the first point. Particularly the first sentence that they do not appear to be aware of the proper methodology for handling potential flow paths during environmental analysis. All of the examples or all the statements made in the Brown & Root response indicate that a conservative approach would have been used for defining that.

If, for some reason, the Quadrex assessor was indicating that the expected door positions would be in some other condition, then all he would have been pointing out was that there was an over-conservatism. If one assumes that if a door is open that will cause higher environmental conditions in an adjoining compartment but the expectation is the door would be closed and one used that as the basis for the analysis, then that would not necessarily lead to a conservative analysis of the environmental conditions in the other room.

So, the only point that I can determine here was that they felt that perhaps the expected door positions, the normally open or closed positions should have been used as opposed to the other. But in that case they would not necessarily have been doing the most conservative analysis for the particular purpose here.

A (By Dr. Bernsen) It's also true on the other side, if you assume that the compartment is buttoned up and only vents when the doors are capable of failing, then you're going to get a higher pressure within the compartments itself and a higher temperature, so again you're taking conservative assumptions. And, of course, you have to because if the door can be closed, it might be closed. So, it's not clear.

Now, the other thing about the statement of Brown & Root potential flow, if you want to look at it from a pressure/temperature calculation view, standpoint, they indicated NUS would be doing those calculations. I presume -- I understand somewhere else they indicated NUS would be using COMPARE which makes provision for inertial effects of fluids in compartments and things of that sort. Now, they may have meant that, but I don't think Brown & Root would have been expected to demonstrate a knowledge of something that sophisticated when they weren't doing the calculation at

the time.

Q On page 47, answer 50, was procedure STP-SD-002-B provided to Quadrex during its review?

Let me ask you actually up front, do you think this will be a question that will take you a while to figure out?

A I'm only going to look one place, we've already found it, and I just want to see whether or not it's there or not.

The place I looked doesn't indicate that, so without taking more time, I'll assume that the answer is I don't know.

Q Okay. Did you review the 1981 version of that procedure?

A Yes, I did.

Q Do you know if the Houston review team reviewed that procedure?

A I don't know.

Q Do you know if that procedure was being effectively implemented in May of 1981?

A This procedure is the procedure that describes how system design descriptions should be prepared. I reviewed both the procedure in terms of what it indicated should be in system design descriptions with particular reference to the areas that Quadrex was

addressing, that being design bases for off-normal and post-accident conditions and casual events to be considered, and then I went and reviewed the system design descriptions that were in place, you know, at that time and found that in accordance with these procedures, these elements had been covered in the system design descriptions.

So, I think the answer is there was evidence that the procedures were being developed in accordance -- or, I'm sorry, that the system design descriptions were being developed in accordance with the procedure.

Q How did you know when you were doing your review that a particular system design description had been in use in May of 1981?

A The only way I knew was by looking at the revision date for that system design description to determine whether or not it either was in 1981 or at a prior date. We also received from Brown & Root at the time of transition of the system design descriptions a complete set of them in their design manual. And to a large extent most of them -- most of the system design descriptions had not been revised in the '81 time frame, you know, after that time. So, they were all pretty much preexisting documents at the time of 1981.

Q And they all bore a date that said when they were originated?

A Yes, they did. They also bore -- in some instances bore what in Brown & Root terminology were document change notices in some instances which were at various dates from the initial issuance to the next scheduled revision. So, in a few instances some of the document change notices did bear dates in the 1981 time frame and a few past that date, but I did not rely upon that information relative to determining whether or not these elements were included.

Q Looking at your answer 54 where you're now dealing with the generic finding 3.1(d), the first item you address is the Quadrex observation that there was a lack of awareness of high energy piping in the MAB.

If by lack of awareness Quadrex meant that the engineers did not know they were supposed to perform this type of analysis, would that change your view of the quality assurance implications of this finding?

A If I understand your question, you're saying if the basis for the Quadrex concern was that the engineers, and I assume you're talking about Brown & Root as an organization or individual people that they spoke to?

Q Well, the people that the Quadrex organization

spoke to while they were doing their study.

A Let me complete my understanding. That if that were the case -- could you complete the remaining part of the question because I think I've lost the train.

Q If by lack of awareness, that phrase, Quadrex meant that the engineers they spoke to during the study did not know they were supposed to do this type of analysis, would that change your view of the quality assurance implications of this finding?

A (By Dr. Bernsen) My answer to that is no because as you posed the question, you're saying that they talked to a selected number of engineers on the project and determined -- and if these engineers indicated they were not aware of it, that doesn't demonstrate to me that the project wasn't aware of it.

Q Well, as I understand the way the Quadrex study was set up, Quadrex said to Brown & Root please provide us with people knowledgeable in the following areas, please provide us with the following kinds of documents, and Brown & Root made the selection as to who would talk to Quadrex, what documents Quadrex would see. So, Brown & Root is supplying these engineers to Quadrex to answer its questions in this area. And when Quadrex asked the questions, they demonstrate a lack of

awareness that this analysis is even supposed to be done.

Does that scenario conform to how you believe the Quadrex study was performed?

A (By Mr. Lopez) No, no, it doesn't.

A (By Dr. Bernsen) Presuming it did, there is a response in the questions that Quadrex asked that provided a table of pipe breaks and systems that were going to be considered for breaks outside containment. So, I mean, if you're talking about the specifics of Quadrex, you've got to recognize that Quadrex was provided with information from the project and said these are the systems that we are going to analyze for breaks and that's contained in the questions.

What question number is it, Frank?

A (By Mr. Lopez) N-1, I think it is.

A (By Dr. Bernsen) It's in the nuclear series. Therefore, if you want to talk about the specifics of the project, I think your characterization is wrong.

Q Your reference, Mr. Lopez, is?

A (By Mr. Lopez) Yes, I'm getting it.

The first is at question N-3.

A (By Dr. Bernsen) M, like in man, 3.

Q In the question N-3, the Quadrex reviewer is in the area of nuclear analysis talking with engineers

provided by Brown & Root and the observation is Brown & Root could not identify any high energy lines in the MAB and had no plans for their analysis.

Does the inability of the engineers in nuclear analysis to identify any high energy lines in the MAB cause you any concern in a quality assurance area?

A Not if the breaks had not been identified to nuclear. In other words, the first thing that has to be done is that the piping people lay out the piping and identify the break locations. Then, in the normal course of events, they would transmit this information to the analysis group and ask them to perform the analyses for those break locations.

Q The next sentence is, "Upon questioning, they admitted the presence of high energy lines, such as auxiliary steam, let down and possibly other lines in the MAB."

So, they were aware of high energy lines in the MAB, but they could not identify any analysis they were going to perform on this subject that Quadrex is asking about. Does that cause you any quality assurance concern?

MR. FRANTZ: I object to that characterization, Mr. Sinkin. The very first sentence in the Quadrex assessment says that B&R has a plan to

analyze all high energy lines in the IVC and MAB.

Q (By Mr. Sinkin) I guess what I'm looking at is the difference between having a procedure and implementing it.

A (By Dr. Bernsen) I guess what --

Q If you have a plan that says somewhere we're going to do these lines, but you ask the engineers who are supposed to implement that plan when are you going to do these lines and they say we have no plans to do those lines, does that cause you a quality assurance concern?

A I guess what you're doing is identifying the total ambiguity in these assessments, in these Quadrex comments.

I don't really understand what they found. We could only rely on the statements of fact that they -- or not -- that they represent to be facts that they learned from the specific people they talked to. A plan to me means that there's an intent to do it. The timing was such, the stage of the design was such that they had no assignment to do it because there wasn't any specific break to consider at that time.

You can characterize it any way you want, but I think that we'll never get together because of the ambiguity of the language.

Q Well, given that on page 13 of your testimony you state that you would recommend reporting questionable cases involving any deficiencies in the process of design that could adversely affect the safety of operations, if you have an ambiguity, would you then resolve it in terms of concluding that the worst interpretation is the better way to go in terms of reportability? If you follow me. That wasn't a very good question.

MR. FRANTZ: I don't follow you, Mr. Sinkin. Would you rephrase that, please?

DR. BERNSEN: I followed him.

MR. SINKIN: Okay, I'll rephrase it if counsel would like.

Q (By Mr. Sinkin) You have an ambiguous situation. You have a report that is summarized in the generic by Quadrex saying there is a lack of awareness, that's what Quadrex tells you, a lack of awareness of high energy piping in the MAB. They don't know the piping is there, they don't know the analysis needs to be done on it. That's what Quadrex tells you.

Then you find their answer ambiguous in that particular question that's referenced. You're not sure if that's what they really are saying, but that's what they've said in their summary.

How do you resolve the ambiguity given the standard you've set on page 13 of taking questionable cases and reporting them?

MR. FRANTZ: Mr. Sinkin just gave a long speech there, some of which was incorrect. I wish Mr. Sinkin would just state his question clearly so that the witnesses can provide a response to the question and not have to go back and sort through that speech.

Q (By Mr. Sinkin) Okay, perhaps in my lengthy questions I've laid enough foundation to ask a straightforward one here.

When you read the response to the question that we just looked at, at that time did you consider it ambiguous?

A (By Dr. Bernsen) The Quadrex response, yes.

Q How did you resolve that ambiguity in terms of reporting or not reporting?

A I don't really believe that we're talking about an ambiguity that is at all related to reportability. I can't have a deficiency if I haven't started the work.

Q Can you have a deficiency if the engineers who are supposed to perform a task don't know that they're supposed to perform that task?

A Not prior to the time that they should be made

aware of the requirement to perform the task.

Q Can you tell from the Quadrex answer whether those engineers should have been aware by that time that they were supposed to perform that task?

A Will you clarify on which Quadrex answer?

Q The Quadrex question and answer that we looked at. I'm talking about N-3.

By the way, as I read the Quadrex assessment, the first paragraph deals with seismic support and states that Brown & Root's plan to analyze all high energy lines in the IVC and MAB is related to seismic supporting of non-safety-related lines. Is that not how you read that?

A Which --

MR. FRANTZ: Mr. Sinkin --

Q (By Mr. Sinkin) We're at N-3, the Quadrex assessment.

MR. FRANTZ: We now have two questions pending.

MR. SINKIN: I'll withdraw the second question.

JUDGE BECHHOEFER: M or N?

MR. SINKIN: N as in "no."

I'll withdraw the question about seismic support so we don't confuse the record.

A (By Dr. Bernsen) I don't see anything in the question and the Brown & Root response that would give me concern. I see ambiguity in the Quadrex assessment.

Q (By Mr. Sinkin) Moving on to the second example in answer 54, in this instance it's the shielding calculations. And, as you note, the NRC was notified on May the 8th regarding the classification of the shielding calculations.

Do you agree that on May the 8th, the NRC should have been notified of the shielding calculations problem?

A In the context of the, I would say, policy or the principles that Mr. Goldberg was using for that review, yes.

Q Thank you.

The third example is the HVAC system which was also reported to the NRC on May the 8th or notified to the NRC on May the 8th. Do you agree that that notification should have been made?

A Yes.

Q And the fourth example is the computer code problem and that was notified on May the 8th. Do you agree that that notification should have been made?

A That's a little less clear. I can't disagree with the decision to report it. It was questionable.

There was a time in this business where design calculations using computer codes and computer code verification was proceeding in parallel. And if there had been a plan or an intent to verify the codes, even though it might be after some calculations were performed, then perhaps I would reconsider reportability. But if there was evidence that they really did not have a plan to verify the codes or if the verification process, procedure or plan wasn't complete enough or it was not clear whether it was complete enough, yeah, I would agree with it.

So, I think we did not address that finding and its supporting information in as much detail because we said it was reported. We don't disagree with it and I think perhaps under the circumstances I would have reported it, too.

Q Well, let me clarify the situation. Bechtel considers all computer codes as needing verification whether they're used for safety-related or non-safety-related; is that correct?

A Bechtel has a class of computer codes called standard computer codes which we allow our engineers to use without individual verification of the calculations, checking, verification, if you will. For those codes, yes, they have to be verified.

Now, we recognize that computer calculations and codes that are not verified may be used for certain types of calculations. In that case, we put the requirement on that the calculation itself needs to be checked in accordance with our normal design checking procedure. So that for that class of codes that we permit to be used without individual verification of the code, yes, that's right.

Q But Brown & Root in May of 1981 had codes classified safety-related, codes classified non-safety-related. And the non-safety-related code calculations did not have to be verified; is that correct?

MR. REIS: Mr. Chairman, I object to the question. The matter was reported. I don't see how it's relevant to the issues on what should have been reported unless it proves that -- I mean, if we're going to prove that HL&P was conservative in what they reported, I could understand the Applicants perhaps asking the question, but I can't understand really the probative nature of the question and where it's going. I let it go for a few questions and we're going on with the same thing about a matter that was reported.

JUDGE BECHHOEFER: I think we'll overrule the objection. I think he's trying to show that HL&P used

differing standards from what they either did or didn't report. Maybe I'm wrong, but --

MR. REIS: I'm sorry -- you ruled, I won't say anything.

Q (By Mr. Sinkin) Okay. Do you remember the question, Dr. --

JUDGE BECHHOEFER: Maybe I second-guessed your examination, but --

MR. SINKIN: You're very very close.

A (By Dr. Bernsen) Let's repeat the question.

Q (By Mr. Sinkin) Brown & Root had safety-related codes and non-safety-related codes. Calculations performed with non-safety-related codes did not have to be verified as a differentiation between what they did and what you described Bechtel does; is that correct?

A I'll let Frank answer it.

A (By Mr. Lopez) That's essentially correct. They had a checking process, but they did not have it under their design verification process.

A (By Dr. Bernsen) But let me clarify it because it may not be entirely -- as I understand it, their procedures called for them to check their design work, safety-related or not. It was done and then it was checked. For safety-related work, they applied

another level across the board which is more than minimum requirements of Appendix B or any of the regulatory guides.

So, understand that we're not talking about in the non-safety-related area that they just went ahead and did design work and nobody ever looked at it. That's the wrong characterization.

Q But in the safety-related area, they had a formal design review process that required a design reviewer to sign off that calculation had been verified?

A (By Mr. Lopez) Well --

Q Is that correct?

A The formal design verification process did have that. So did their checking process. It was simply that that was not a third step or a second check, if you will. Both the checking process and the verification process could be characterized as you described it, an independent review and a documentation of that review.

Q Looking at 4.2.2.1(b), can you tell me why --

A Excuse me just a second. Let me catch up with you there.

Q Sure. It's on page 4-14.

Can you tell me why in your view 4.2.2.1(b) is not a finding which should have been notified to the NRC

on May the 8th, 1981?

MR. FRANTZ: I object to that question. That finding is not an issue in this proceeding.

MR. SINKIN: Well, that finding relates directly to generic finding 3.1(d)(4).

MR. FRANTZ: Perhaps you better ask the witness that question.

MR. SINKIN: I don't need to ask the witness that question. That's my answer to your objection.

MR. FRANTZ: Okay. My objection stands then.

I might simply point out that this finding relates to several other findings in the same section regarding computer code verifications that were reported to the NRC. So, again, I think Mr. Reis' earlier comment is correct that these were reported. I'm not sure why we're going into this issue.

MR. SINKIN: Are you saying 4.2.2.1(b) was reported to the NRC?

MR. FRANTZ: No, I didn't say that. I said it was all part of a concern that was reported.

MR. SINKIN: But this was not reported.

MR. REIS: I am not sure. Let me see.

MR. FRANTZ: Mr. Sinkin, findings weren't reported as such, there were items that were reported.

MR. SINKIN: I understand. Was there a report

that the basis used by Brown & Root for determination of safety-related computer programs was not sufficient?

MR. FRANTZ: I'm sorry, Mr. Sinkin, I didn't hear the question.

Well, we're just going back and forth now. I think the Board should rule.

MR. REIS: Mr. Chairman, I would object to Mr. Sinkin's classification of what was notified. I think that's a subject of proof and I think the extent of the notification and the matter of the notification are matters that are subject to proof. And his characterization of what was notified and what was not notified is not necessarily true.

MR. SINKIN: It has been testified to by Houston Lighting & Power witnesses, Mr. Goldberg included, as to which findings were notified to the NRC. It's in all the documents we've gone through ever since. It's in the Bechtel task force report, NUREG 0948 and all the rest says 4.2.2.1(a) was the only finding reported from this section.

MR. REIS: The wording of what was reported could as well include (b).

MR. SINKIN: Well, are you representing now -- are the Applicants representing now that the report covered this item too and that there were indeed two

reports from the computer area, not one?

MR. REIS: No, one report that says programs are bad can cover both, or that programs are not verified can cover both.

MR. SINKIN: The report says program verification is not visible. Does that cover (b)?

MR. REIS: I read it to.

MR. SINKIN: Mr. Chairman, I would direct your attention to the Applicants' testimony at the top of page 51 where they have I think accurately characterized 4.2.2.1(a) which is that the users of computer codes could not determine whether the codes were safety-related or non-safety-related because the computer program verification reports were not in place.

The user doesn't know whether the code being used is safety-related or non-safety-related. That's a very different finding than a finding that Brown & Root did not adequately decide what was safety-related and not safety-related.

MR. FRANTZ: Mr. Chairman, perhaps it would clarify things. We will also discuss this same matter in our response to Mr. Sinkin's motion for reconsideration of the Board's order to quash a subpoena for Mr. Powell. I think that may be a more appropriate

occasion to discuss all this than this discussion here.

MR. SINKIN: I don't believe I should be foreclosed from asking questions about a finding of these witnesses because of some motions or response that the Applicants have filed and we're going to discuss after these witnesses are long gone.

MR. FRANTZ: Mr. Sinkin, our objection was on the grounds that this particular finding has no relevance to any finding at issue in this proceeding.

MR. SINKIN: And my response was it's of relevance to the generic finding 3.1(d)(4) and you've been making arguments that the notification is broader.

JUDGE BECHHOEFER: I think we'll overrule the objection. It looks to us like on the face 4.2.2.1(b) is connected to 3.1(d)(4).

Q (By Mr. Sinkin) The question is --

JUDGE BECHHOEFER: They rely on the same questions, if nothing else.

Q (By Mr. Sinkin) The question to the witnesses is why you would consider 4.2.2.1(b) not reportable to the NRC?

A (By Dr. Bernsen) Let's take it phrase by phrase.

I wouldn't see anything particularly reportable about saying that they did not require

verification of non-safety-related programs. You understand that.

The next is an observation which really doesn't necessarily connect to the first because I would assume that a non-safety-related program was intended to be used for a non-safety-related calculation.

(No hiatus.)

Q Just a moment, let me make sure I understand that. You would make an assumption that a non-safety related assumption would be used for a non-safety related calculation?

A (By Mr. Bernsen) Yes, I mean, it's logical.

Q Okay.

A Now, the next one, which is, the next sentence, says, "The basis used by B&R for determination of safety related is not sufficient. For example, some safety related calculations are not directly related to plant safety related systems. See question R-7."

Now, R-7 is the one on the shielding calculations not treated as safety related. Isn't it? I believe so.

Q No, it's -- well, you take a look at R-7 and see if you think it is.

A It's not. So the essence of this is that shielding calculations are not treated as safety related. Now that was originally reported and withdrawn.

Q Well, we're talking about on May 8th, 1981?

A Yeah.

Q If you're going to report the shielding calculations?

A That's correct.

Q And they were reported?

A That's right.

Q So 4.8.2 -- 4.2.2.1(b), is reportable in your view, but was covered by the report on the shielding calculations, of course. Is that what you're saying?

A That's covered in our first far -- second example. That's covered in our second example on page -- answer 54 on page 50.

Q I understand. But I'm asking you if you consider the notification of the shielding calculations classification as capturing all that's expressed in 4.2.2.1(b).

A (By Mr. Bernsen) In tracing the observation and the references, that's the only thing we can find that appears to be in that category. I think we did talk about the vent stack problem yesterday and although that's not referenced directly, but one might draw a connection.

But again, that seemed to be an appropriate application, so that what you're left with is a caution area observation in that finding that says make sure that you follow your practice and only use verified codes where you're making safety related calculations. That's the way I read it.

Q Do you read 4.2.2.1(b) as applying to calculations or so to the codes, themselves?

A Yes, calculations.

Q Maybe that's the problem. If you look at C/M-8, which is referenced in 4.2.2.1(b), go to the Quadrex assessment and read the last line of the first paragraph.

A Yeah.

Q Isn't Quadrex's concern expressed in B, that the -- that Brown & Root uses a system that classifies the programs as safety related or non-safety related and does not require verification of non-safety related programs as it states in the finding? And the problem is you can't know how the program's going to be used so you're setting up a situation where you can use a non-safety related program to do what is in fact a safety related analysis because you haven't looked at how the program's being used, so it's the classification of the program that's the problem being pointed to, not the calculation, itself --

MR. FRANTZ: I didn't hear a question there.

Q -- is that correct?

A You didn't hear my response to the Bechtel practice a few minutes ago. As I indicated, we have a set of programs we call standard computer programs. In Brown & Root terminology, that's verified computer programs. These are the ones that we permit by

calculation procedure to be used without individual verification each time they're used.

The others -- we have others, lots of others, that do not carry that standard computer program designation that are used and in some cases for safety related calculations.

Our procedure on calculations says if you use those, you've got to verify the calculation each time you use it. So that I'm not even sure that I agree with the Quadrex observation. Standard industry practice is to try to verify every computer code because it's an efficient economical and professional and safe way to go.

But there are many computer codes that cannot be verified totally, thoroughly, completely, where they're used, the calculations must be treated as individual calculations per the procedure for calculations.

Q Just sticking to what Brown & Root was doing, I wasn't really meaning to bring up what Bechtel did, sticking to what Brown & Root was doing here, as I read finding 4.2.2.1(b), Brown & Root had a policy that they did not require verifications of programs they called non-safety related. All right? Is that correct? Is that how you read it?

A I can't answer that question. I don't know

what their policy was.

Q Isn't that exactly what the first sentence says, the procedure does not require verification of non-safety related programs?

A That's a direct quotation of their -- of the Quadrex statement, yes.

Q I assume the procedure embodies the policy -- if the use of the word "policy," threw you off, let me just back up and use "procedure."

Was it Brown & Root's procedure not to require verification of safety related programs?

A That's what Quadrex says.

Q Do you have reason to doubt that?

A (By Mr. Lopez) No.

A (By Mr. Bernsen) No.

Q (By Mr. Sinkin) Would you agree that it is the project application of a particular program rather than the program, itself, which determines whether a safety related verification is needed or not of the program?

A (By Mr. Bernsen) No.

Q You would not?

A As I described before, there are two ways to use computer programs for safety related calculations.

Q Okay. But when we went through the process of the difference between Bechtel and Brown & Root, you had

a step in the Bechtel program that was not present in the Brown & Root program, if I'm correct. Let's do it one more time.

In Bechtel, if you're using a non-safety related program for a safety related calculation, you must verify the calculation. Is that correct?

A Yes.

Q Okay. But at Brown & Root, if you used a non-safety related program -- let's set this up differently. Wait a minute.

At Brown & Root, if you used a non-safety related program on a non-safety related calculation, there was no requirement for verification of the calculation. Are you with me?

A Let's go back.

Q At Brown & Root, if you used a non-safety related program for a non-safety related calculation, there was no requirement to verify the calculation. Did we not establish that earlier?

A (By Mr. Lopez) I think the point is, if it was a non-safety related calculation, there was no requirement to verify the calculation.

Q We established that point earlier.

A Right.

Q So we have a situation where you have a program

for which there's no requirement for verification. The procedure here says you don't have to verify non-safety related programs. And that's being applied to what's been classified as a non-safety related calculation so there's no need for verification.

Now, I think the problem that Quadrex is pointing to here, is that since Brown & Root did not always adequately identify whether the calculation being done was safety related or not, then the programs being used should be verified whether they were safety related or non-safety related to cover for that.

MR. FRANTZ: I object to characterization, Mr. Sinkin. There's nothing at all in this finding 4.2.2.1(b) that says that Brown & Root was not adequately characterizing its safety related calculations.

MR. REIS: I might add if you go to R-7, which is the -- is it R-7 that's referenced there. It plainly says that in the example they use, while this position may be acceptable in the past, NRC is now preparing a list of safety related shielded areas which serve to mitigate the effect.

In other words, there was no requirement at the time this was prepared, apparently and they were looking for something in the future.

MR. SINKIN: But that was reported. You see?

That's the radiation shielding. That's been notified; we're in a situation where whatever we may think about that, that's already been notified. That was considered serious enough to notify.

So given that that's the situation that we're in, you've made a decision already before you get to this finding -- well, we don't know what order they went in. Let's just say at some point in your deliberation you made a decision that you're going to report the fact that shielding calculations have been classified non-safety related. You're going to do that. That's a given -- that relates then to this problem, 4.2.2.1(b), that they -- that some safety related calculations are not appropriately classified safety related and you're using a non-safety related unverified computer program to do them.

MR. REIS: I think Mr. Sinkin has just said that the -- if this involves radiation matters, that was notified as Mr. Sinkin has just said. If it involves computer codes, and as I read this last paragraph in the Quadrex assessment in R-7, it does talk about calculations. It seems to -- it talks about what is not yet required. I don't know why we're dealing with what was not yet required at that time.

MR. SINKIN: I've responded to this one. The

problem of calculations is not the problem in (b). That's been dealt with by the fact they notified already on calculations.

We don't have to concern ourselves in (b) with whether the observation that some safety related calculations are not directly related to the plant safety systems, question R-7, that we don't have to concern ourselves with, that's been notified. You've come to a conclusion, that's true, because at least it could be true and you've made your notification.

The question is: What is Quadrex driving at in 4.2.2.1(b)? It appears to me that what they're driving at is that Brown & Root has classified programs safety related or non-safety related and that that's not adequate because Brown & Root appears to be using non-safety related programs to perform safety related calculations.

Therefore, the decision on whether a program is safety related or non-safety related has not been made well. And that's what they mean by "the basis used by B&R for determination of safety related is not sufficient."

MR. FRANTZ: This is asked --

MR. REIS: All I can say is on the face of the Quadrex report, it appears that what Mr. Sinkin is

talking about was not a requirement at that time at all. And whether or not they may have over reported something or not over reported something, is something else again.

This matter does deal with calculations and it is the calculations that they point. I don't know what other matter they could be pointing to in R-7 when they give the example in R-7 about the calculations.

MR. FRANTZ: I might also say that this question has been asked and answered. The witness has already stated it's not improper to use a non-safety code for a safety application as long as the safety calculation is verified.

MR. SINKIN: As long as the safety calculation is verified.

MR. FRANTZ: They've already answered that.

MR. SINKIN: Okay. But we've determined as part of the analysis of this, that Brown & Root did not require non-safety related calculations to be verified. So you're now in a situation where you know that Brown & Root did not require non-safety related calculations to be verified, you know that they have used a safety -- a non-safety related program on a safety related calculation that they had mischaracterized as non-safety related, and that Quadrex is saying in that situation, you better not be using a non-safety related program and

the verification requirements for programs are a problem.

Is that not how you read 4.2.2.1(b)?

MR. FRANTZ: There's an objection the floor, before we have the witnesses' answers or anything, I'd like to get a ruling from the Board.

MR. SINKIN: I don't know what the objection is to. I'm rephrasing the question.

JUDGE BECHHOEFER: I don't remember what the objection is, too. We're trying to figure out one aspect of this question.

MR. REIS: Why don't we get the question restated so we know where we are.

JUDGE SHON: It certainly appears just from what you've been pointing our noses at here that we have the following situation. The Quadrex people objected to the notion that not all programs were qualified. They said that you had to recognize that if you grabbed an unverified program, you might well use it in a safety related place.

And then in the answer to question C/M-8 they pointed out that section 1.2 of the Brown & Root's documentation leaves a loophole in verifying non-safety related programs: Any verification procedure approved by the project engineer may be used for such programs.

And it seems to me that what they've said is you've left this verification procedure for programs that are applied to safety related matters at too low a level. Someone could grab something off the shelf, take it over to his boss and say, "Is that all right?" And the boss will say "Well, ask Sam about it." And he'll ask the fellow at the next desk and the fellow at the next desk would say, "Okay," and that's the verification procedure.

It looks as if the complaint here was this, that the project engineer could specify what kind of verification could be used on any of the codes that had not been verified. That's not what it is.

MR. SINKIN: Let me try again. Let me see if I can explain what I think --

JUDGE SHON: They go on, I might point out, to point out that any changes of this sort in software should be a cause for re-verification. On the next page they say this opinion was bornE out by an incident at B&R with the program CP 3225, after a modification, a glitch in the program output was deemed insignificant by the responsible engineer and was therefore not documented.

The program was not re-verified. The glitch was later discovered to produce true errors in the numerical output so that they're suggesting that, again someone who's just the project engineer, looks at it and

says, "Well, we don't need to verify that or that's verified enough."

MR. SINKIN: I see what you are driving at -- before we leave that, though, I see what Judge Shon is driving at. But I don't agree that that's necessarily what Quadrex is saying. And let me try one more time.

Q (By Mr. Sinkin) I think what Quadrex is saying with when we look at Brown & Root's programs, we see some are classified safety related and some are classified non-safety related. But it's not the program, itself, that should determine that; it's the use of the program that should determine that.

JUDGE SHON: That's right.

MR. SINKIN: So they have set up a system where you go in and pick up a non-safety related program that says, "Use this for shielding calculations and go and do shielding calculations with it," and you then used an unverified program to do calculations that don't require verification, but we already know of one example where that led to safety related calculations being done with an unverified program and then not verified. And we've notified the NRC of that.

MR. FRANTZ: The problem --

MR. SINKIN: So it's how you determine, they're saying the method Brown & Root used to determine whether

a program was safety related or non-safety related was inadequate, insufficient, because it did not directly tie that classification to how the program was to be used.

MR. FRANTZ: Mr. Chairman, the problem here is not one of the use of the codes. As the witnesses have already described, it's perfectly appropriate to use a non-safety code for a safety calc as long as the calc is verified.

What Mr. Sinkin is pointing out a problem not with the use of the code but the problem with safety related calculations, and he's saying that certain calculations weren't properly classified and that's a different problem than the problem with the use of the codes.

MR. SINKIN: It's an aspect the same problem. If the code is not properly classified, why isn't it properly classified; because they didn't tie it to the use, that's what Quadrex is saying, the only way to properly classify a computer program as safety related or non-safety related. That's what Quadrex is saying may be wrong; may be right.

What they're saying is you determine what -- the probable application of the code rather than the code itself determines whether a safety related verification is needed.

JUDGE SHON: I think you have asked the question at least once. Is the fact that the verification or non-verification aspects of a code was tied to the code and not to the application, is that a breakdown in quality assurance. And the witnesses have, unless I'm mistaken, to review the bidding, already said no, that is not because there are other ways of handling this. Is that correct?

MR. LOPEZ: That's correct.

JUDGE SHON: And doesn't that leave us right where we were a few moments ago, you know, what are one of the others ways, we will verify a code when you apply it to a safety subject or a safety application. And it seemed that Quadrex had said there's a loophole in the process when that comes up.

When you have a non-verified code that you're going to apply to a safety related application, that aspect had a loophole in it from question C/M-8. Is this not correct?

MR. SINKIN: Not quite, in my view. I think we're getting closer.

JUDGE BECHHOEFER: Let's let the witnesses say. Do you read that as saying that, that when you --

DR. BERNSEN: I have a feeling that it's a problem because of the way they stated it and further

exacerbated by the way Mr. Sinkin is trying to characterize it.

As I see it, let's go through the process and, Frank, check me if I'm correct, on what Brown & Root did, because we might have confused everybody with what Bechtel does. But I will make some observations just to indicate this.

It's typical practice to have a set of codes that are preverified by some procedure. Okay. And then to have some codes that are not as well or not at all verified.

In the Brown & Root scheme, the ones that were preverified and allowed to be used on nuclear plants were called "safety related codes." They attempted to have a complete set of these types of verified codes to do all their safety related work. And in fact, it's my understanding that their procedure says that if do you a safety related calculation, you have to use a verified code. Is that correct, Frank?

MR. LOPEZ: Yes.

DR. BERNSEN: So that they were restricting their activities even more than we would normally restrict ours. They said, "If you're going to do a safety related calculation, you should use a verified code."

Now, that really generated the first reportable item which said that engineers doing safety related calculations could not be sure of the verification status of the codes they were using. And that was a valid observation because there was some -- there were some problems encountered in determining which versions had been verified to which degree and these are, to some extent, touched on in on C/M-8 is it.

MR. SINKIN: C/M-3, I think.

A (By Dr. Bernsen) So that covers the first aspects, that if you've got a requirement that says whether you do a safety related calculation, you must use a verified nuclear grade, pedigreed program, and if the user can't determine whether it is or not, then you could have a problem. That's a quality assurance concern.

The only other one was that now if you've got that kind of a system, you've got to be sure that you're properly classifying your calculations into safety related and non-safety related. They had an observation where they felt that Brown & Root was improperly classifying the calculation. And that's the other item that was potentially reportable.

That to me embraces the finding, the two findings. The rest of it is a recommendation that says, "Yes, guys, if you really were to consider a broader set

of computer codes, maybe all of them, you would never have this problem."

Q (By Mr. Sinkin) Consider them all safety related?

A Yeah, just sort of a recommendation. That's nice to have but in fact it's not possible and practical in some cases.

JUDGE LAMB: You mean to make them all safety related?

DR. BERNSEN: Yeah, well, no, what I'm really saying is we have not been able to make every one of the codes we use for so-called nuclear analysis into standard Bechtel computer programs. We have some Monte Carlo codes that are very difficult, essentially impossible to verify, so you go run them, check the results each time. You just can't -- you can't rely on the verifiability of that complex a code. So we don't try. But whenever you can you try to verify the code. It's just more efficient.

JUDGE LAMB: Are you saying that's what Quadrex was suggesting?

DR. BERNSEN: My understanding of what they were suggesting is that it would be much better to verify more codes to avoid the possibility that you might accidentally use an unverified code in a safety related

calculation and not know it. That's my interpretation of the whole thing.

Now, I can assure you that if we go around this room we'll get different interpretations because of the lack of precision in the way Quadrex defined the findings in the assessments. We can spend a whole afternoon discussing it.

Q (By Mr. Sinkin) There is one significant difference, I think, though, in the Bechtel program. And that is that all of your calculations are verified whether they are safety related or non-safety related. Isn't that correct?

A (By Mr. Bernsen) All of our calculations are checked, which is the way we -- this is our terminology for verification. In the Brown & Root process, all of their calculations are checked.

Q All of --

A All of theirs are checked per their procedure. For safety related calculations, they apply an additional level of verification; as I described earlier, that's really going somewhat further than minimun requirements of the regulation and the regulatory guidance.

Q (By Mr. Sinkin) I would agree that Dr. Bernsen has set up the two projected problems of the classification of the codes and the classification of the

calculations. And if what had been notified to the Nuclear Regulatory Commission was a generic concern that Brown & Root did not adequately classify their calculations as safety related versus non-safety related and did not -- and that led to a question as to whether the use of their codes was appropriate because they were separated, too; then I might feel that 4.2.2.1(b) had been notified, that the concern had been covered.

But if you're only going to say an error was made in the shielding calculations and then you work on those, and you only say that the computer verifications program is not visible to the user as to whether the one he's using is verified or not, would you tell that 4.2.2.1 had been covered?

MR. FRANTZ: I object. That question is extremely argumentive, it's long --

MR. REIS: I couldn't follow the question.

MR. SINKIN: Well, I'm through with my questioning in this area, and I see it's lunch time, if the Board has any further clarification I'd be glad to try and help.

JUDGE BECHHOEFER: I have one question of this general area. In -- I was looking at the wrong one. Just a second. In question C/M-8, I think Mr. Shon mentioned this, the so-called incident with program CCP

225, which apparently did produce come erroneous results. How does that fit into the reportability scheme? Was that included in the item that was reported or alternatively, should it have been reported?

MR. LOPEZ: The best way I can address that is that in looking at the -- in essence really, the full evaluation to determine whether or not there was any safety significance to the reported problem on computer program verification, the effort to determine whether or not there were, in fact, first of all whether they were or not un-verified programs.

Secondly, to determine whether or not any unverified programs were used in safety related calculations.

Thirdly, to determine whether or not there were any safety significance, either errors in calculations as a result of programs having errors in them, and no safety significance problems arose from any of those; there were, in fact, some errors found in programs, errors in the sense that there were potential problems associated with -- the program had not been verified having either some modeling problem or some input error problem or whatever else.

But there were no identified, as a result of that, as a result of that, no identified safety

significant problems in calculations that used those problems, even the ones that had the -- as the term is used, the glitches.

JUDGE BECHHOEFER: Well, on May -- I'll be back in one minute on May 8, when they were told that there were errors, didn't that make them potentially reportable until they later found out what their safety significance was? And then they could have withdrawn them.

My other question was whether there was included in the one that was reported, which I guess you haven't answered yet.

MR. LOPEZ: I thought that was what I was responding to. I don't know -- if you're asking whether or not on May 8, whether they reported the item on computer program verification they took into account this -- in statement here of a glitch or an error a numerical output, I don't know that specific element. All I know is that that they addressed the ideas that computer program verification was not apparent in all cases to the users and that was a concern and it was going to take a significant amount of investigation and had potential, at least significant potential to possibly effect safety related calculations. So they reported the entire matter.

What I was addressing was that in resolving

that matter to determine whether or not there was safety significance, we found none.

DR. BERNSEN: I was just going to address that the title of this report, reportable item, is not fully descriptive of the condition they reported and the process they used to investigate it and correct it.

In fact, it embraced the whole question of whether programs were verified or not, whether they were adequately verified or not, whether each version used was adequately verified and what impact this has on calculations, so that the title of the notice is a little narrow as compared with the scope of the problem they reported and the actions they took to investigate it and resolve it.

JUDGE BECHHOEFER: Would you say that this so-called glitch was encompassed by what they were reported?

DR. BERNSEN: I would say that because I'm sure that as we got into the final resolution of that issue, it's our understanding that versions of codes should -- each version of a code should be verified, the changes in codes should be looked at from the standpoint of their impact on the accuracy of the code.

(No hiatus.)

JUDGE BECHHOEFER: So, this particular application noted in question C/M-8, you noted that was actually comprehended by what was reported?

DR. BERNSEN: Based upon my knowledge of the scope of this effort, yes, but I haven't researched it specifically. I know that they looked at every calculation that we retained in the engineering and ascertained that the codes used were adequately verified.

Q (By Mr. Sinkin) When you say "they," are you referring to Bechtel or to HL&P's follow-up to this item?

A (By Dr. Bernsen) Well, the final resolution occurred after Bechtel assumed responsibility for engineering.

Q So, you're taking the whole resolution up to final close-out?

A (By Mr. Lopez) That's right.

Q Okay. Which is both HL&P and --

A There was a good bit of activity that had already begun before Bechtel had that responsibility, but the final close-out and resolution and disposition occurred under Bechtel responsibility. The final report, if you will, on reportability was something that was prepared using evaluations performed by Bechtel.

Q But was done for the HL&P Incident Review Committee?

A It was done to close out the report. I guess you could describe it in terms of the Incident Review Committee. In the workings of the Incident Review Committee, we have primarily those meetings that were held at the beginning to determine whether or not a call should be made. Once those determinations are made, then we simply are provided action items. We don't particularly report it back to the Incident Review Committee. However, we provide our evaluations from Bechtel formally by correspondence to HL&P who then has their Incident Review Committee review that information before they prepare their report to the NRC. So, I guess in that terminology, yes.

MR. REIS: Mr. Chairman, can I go out of order and ask one question that may shed some light on this?

JUDGE BECHHOEFER: Yes. You might as well. Everybody else is going out of order.

MR. REIS: Do you gentlemen know whether there was a Brown & Root procedure that required only verified codes to be used for safety-related calculations? None of this addresses -- seems to address that.

MR. LOPEZ: Say it again? Do I know whether or not there was a Brown & Root procedure --

MR. REIS: Procedure that required --

MR. LOPEZ: -- that only --

MR. REIS: -- verified codes be used for safety-related procedures.

MR. GUTTERMAN: Calculations.

MR. SINKIN: Calculations.

MR. REIS: Calculations.

MR. LOPEZ: That's my understanding of the procedure, yes. They had a calculation procedure to that effect.

Q (By Mr. Sinkin) All right. So, is the sort of bottom line here that having -- in your view having reported -- notified the NRC of the shielding calculation problem, having notified the NRC of the visibility of the computer code problem, that you have captured the concern expressed in 4.2.2.1(b)?

A (By Dr. Bernsen) We believe, as answered before, that is the case, yes.

A (By Mr. Lopez) I concur with that.

MR. SINKIN: Well, then let's go have lunch.

JUDGE BECHHOEFER: That's a good idea. Be back about ten after 2:00, I guess.

(Luncheon recess taken.)

JUDGE BECHHOEFER: Back on the record.

Q (By Mr. Sinkin) Before the break for lunch we

were discussing the effort made by first Brown & Root and HL&P and then followed up by Bechtel to evaluate the reportability of the notification that had been made on computers. And you spoke about the fairly extensive effort that was done in the computer area.

Did that effort also capture the concern expressed in 4.2.2.1(c) on page 4-15?

A (By Mr. Lopez) Well, in the sense that one of the elements of the investigation was to determine whether or not adequate verification, you know, was, in fact, in place for a number of the codes, our view of inadequate verification clearly includes, you know, the, if you will, the full range of the options of a code that might be able to be used.

Q Okay.

Now, 4.2.2.1(e) is the -- I think is the glitch that the Chairman was referring to. This time the reference is to question C/M-2. And as I look at that question, it refers to the program CP-225 which was the one that had the glitch the Chairman referred to. And I have the same question whether the evaluation effort captured the concern expressed in that finding? I believe the original reference was to the second page of C/M-8 where the glitch was described.

MR. REIS: Excuse me, Mr. Sinkin, are you

talking about subparagraph (e)?

MR. SINKIN: In which --

MR. REIS: 4.2.2.1 --

MR. SINKIN: Oh, yes, (e).

MR. REIS: -- (e)?

MR. SINKIN: Yes.

A (By Mr. Lopez) That makes reference to question C/M-2 which is what we're looking at now.

A (By Dr. Bernsen) Yeah, I would say it's a corollary to that. In other words, the treatment -- the identification of versions and changes, it's important that every time there's a change made that you verify the effect of that change on the program. And that again would be indicative of the difficulty in a user determining that he was using the verified code. So, it's really -- it was swept up in the whole concept.

Q (By Mr. Sinkin) Do you agree with that, Mr. Lopez?

A (By Mr. Lopez) Yes, I think so.

Q Okay. And 4.2.2.1(f), whether that one is also encompassed by the evaluation?

A (By Dr. Bernsen) No, I consider that more of an observation than a deficiency. If there was evidence that they -- significant evidence, a lot of cases where they had treated a change as insignificant when, in

fact, it was significant, then I would consider that true.

One example, I think there was just one -- options on the -- which part of the question --

Q Well, I see there are two parts to (f) and you were referring to the second part which is the glitch problem again.

A Right.

Q And the first part you were referring to was more of an observation?

A The first part, yeah, in general, a number of options for verifying computer codes is permissible and necessary because of the nature of these codes.

Q Okay. Turning to the fifth example on page 51 which addresses support systems, once again I think we may have a difference here as to how I read the Quadrex finding and how you have apparently read it and let me try and clarify that.

The question E-3, which is the first reference, it's a long rather lengthy question and assessment. I would like you to identify for me, if you would, which part of question E-3 you think is being referred to by Quadrex in its reference to support systems?

A (By Mr. Lopez) I believe the portion dealing

with support systems most clearly identified from the E-3 response is reflected in section, if you will, 4 of the B&R response which is at the top of I guess the second page of this E-3 describing the support system identification process, if you will. And then at the bottom of the Quadrex assessment, merely the observation that, as it says, finally no basis or procedures were provided to identify support systems.

Q Okay. And then question E-15.

MR. FRANTZ: Do you have a question with respect to E-15?

MR. SINKIN: It's the same question, which part of E-15 relates to the generic finding on support systems.

Q (By Mr. Sinkin) I may be able to speed this up.

Is the FHB, fuel handling building, HVAC exhaust subsystem a support system as you understand the use of that term?

A (By Dr. Bernsen) It's a support system, but I really don't see how it's -- well, of course, as we say, these things are really not -- we've considered them, but they really don't have any significance.

A (By Mr. Lopez) I think to respond to your question, what we're dealing with here is 3.1(d) which

is a generic concern on the part of Quadrex relative to the classification of various components. Although the fuel handling building exhaust system might, in fact, be a support system, I don't believe that Quadrex was raising any questions relative to its classification, merely whether or not it had met the single failure criteria.

Q Which is a different safety-related problem, right?

A A different safety-related question than the classification question.

Q On that --

A The portion of E-15 that I believe was the basis that Quadrex is using to cumulate it in with these others was the whole question of whether or not the reactor trip on turbine trip and turbine trip on reactor trip and the other example they gave systems should be classified as safety-related or not.

Q Well, there was no question, was there, that Brown & Root had classified that as safety-related and that's why they were specifying Class 1-E equipment?

A No, I don't think that's -- I don't think that's the case. I believe we discussed this item in previous testimony relative to, you know, the NRC's position on this equipment that's located out in the

turbine building and to what extent it could be considered safety-related in the normal, if you will, meaning of that term. They were definitely indicating that they felt that Class 1-E power should be provided.

There are many instances in plant designs where for one reason or another for reliability Class 1-E power might be provided in non-safety-related systems.

Q I guess the reason that the HVAC exhaust subsystem suggested itself to me for this particular generic was there is a citation to question R-6 which is also cited in the actual example supporting the generic. Let me try a question related to that.

The problem in the fuel handling building HVAC exhaust subsystem was a single failure criterion problem which is a safety-related problem. It is not a problem of classification as to whether it's safety-related or non-safety-related, right?

A I [illegible] the way to characterize it, the problem that they were attempting to have considered could have been the same problem, if you will, whether or not the instrument air line that was of concern to them relative to blockage had been designated safety-related or not. The single failure criteria would not have -- would still have applied whether or

not that had been designated as safety-related or not.

So, that was one area where I did not particularly feel that a classification question was what was the reason for their citation and I really found nothing in R-6 that really dealt with classification issues.

Q That's the problem I had. That's what I'm trying to get at. You have tended to take all of this fifth example and say that the problem is classification, safety-related versus non-safety-related. Yet, cited by Quadrex are questions that don't lend themselves to that approach. But --

MR. FRANTZ: Mr. Sinkin, excuse me, I'm not sure they said that. I think they said that Quadrex said these were classification problems.

Q (By Mr. Sinkin) I think we're in agreement that the HVAC is a classification problem and you have so testified; is that correct?

A (By Mr. Lopez) I believe so, yes, or at least that was the way Quadrex characterized it. I believe there is some basis for that.

Q What about question M-5?

MR. FRANTZ: Mr. Sinkin, do you have a question with respect to M-5?

Q (By Mr. Sinkin) What is it that you see in

question M-5 that relates to identified support systems?

A (By Dr. Bernsen) Our brief review doesn't seem to show anything.

Q What about question M-25?

A (By Mr. Lopez) Once again, there's really little there in my view related to support systems. Actually nothing that I can find.

Q Well, then let me suggest that there may be a different approach that explains what Quadrex was driving at here. That where at the top of page 3-6 Quadrex says in several instances design activities that affected plant safety were designated as non-safety-related, that's a classification problem. Can we agree that that's a definition of a classification problem?

My suggestion to you is that the next --

MR. REIS: I'm sorry. I didn't hear an answer to the last question.

MR. SINKIN: Yes, they nodded.

Unfortunately, you need to say something.

A (By Dr. Bernsen) We're just listening. I thought you made a statement.

Q (By Mr. Sinkin) Would you agree that that's a statement of a classification problem, the statement at the top of page 3-6?

A (By Dr. Bernsen) Yes.

A (By Mr. Lopez) If it were true, yes.

A (By Dr. Bernsen) Yes.

Q Okay. If you turn back to page 3-5, the generic title of this finding is safety-related versus non-safety-related distinctions. If you were to set aside for a moment the classification sentence at the top of 3-6 and treat the next section as dealing with areas where Brown & Root's distinctions about safety-related versus non-safety-related may or may not have been adequate, does that in your mind create any difference in how you would approach those items?

A (By Mr. Lopez) I just can't get to that point. I try to read in context what Quadrex was saying. Below the title of that section they say it was observed on many occasions that B&R uses a very sharp distinction between safety-related and non-safety-related categorizations for both equipment and calculations. They seem to be stating that that was their concern and were trying to give examples.

Q Okay. As I say, we do read it differently.

A Yes, apparently so.

Q I'm trying to give you perhaps a different approach that may explain why these questions cited by Quadrex don't seem to support classifications.

If you were to read it as two different sections -- well, it may be another section at the end, but these two areas, if you read the first paragraph on page 3-5 of the generic and the top lines, few lines of 3-6 as one problem with classifications and then in the next line where they say, "In these cases," the cases they're about to cite, "the Brown & Root position was felt to be either inaccurate or questionable," it's dealing with a safety-related question where Brown & Root's approach to a safety-related question was questionable or inaccurate.

MR. REIS: Mr. Chairman, I object to the question. He is arguing with the witness. He isn't asking for a yes or no answer. He is explaining his position and not getting what the witnesses interpret this to be.

I think it's an argument at this point, although it's not -- it's in polite terms and all and quiet voices, it is nevertheless an argument.

MR. SINKIN: I really am not trying to argue. I'm trying to suggest that I had the very same problem that they had. That if you read item 5 and you start walking through each question and say is this a classification problem, many of them don't seem to deal with classification problems at all. They do, however,

deal with whether Brown & Root is adequately addressing the concept of what's safety-related and what's not safety-related. That's the way I read it. And if you read some of the questions in that light as to whether they have adequately addressed something in all of its safety-related aspects, that the questions do fit.

MR. FRANTZ: The Applicants join the Staff's objection that this question has been asked and answered. The witnesses just don't agree with Mr. Sinkin's interpretation.

MR. SINKIN: Well, I was really asking them to adopt for a moment a different interpretation and see if the questions still fit. We can make it hypothetical if you want, what if.

JUDGE BECHHOEFER: I think we'll sustain that objection.

While we're still near the fifth example, could you gentlemen define what you had in mind when you said on line 16 and 17 on page 51, "analyses which Quadrex believed may have contained errors?"

MR. LOPEZ: What I had in mind, Judge Bechhoefer, was that in a number of the cited examples under support systems, I think notably N-17, Quadrex identified what they felt was an error in not having performed a particular -- if I recall properly, that's

the essential cooling pond analysis, what they thought was an error in not having considered a required scenario.

So, that's what -- I was characterizing that as one of the examples of what Quadrex is citing in other places is an indication where they may have contained errors. That's the only way that I was able to draw a relationship, clear one that I could find, relative to the safety-relatedness of the support system question in that particular instance.

Q (By Mr. Sinkin) Doesn't that, in fact, suggest that what Quadrex was driving at was areas where they did a less than adequate treatment of a safety-related problem?

MR. FRANTZ: Asked and answered.

MR. SINKIN: The witness has just explained what this means and I'm saying isn't that the same as what I've just been talking about.

JUDGE BECHHOEFER: I think the witness may answer that last question.

A (By Mr. Lopez) Would you ask the question again, please?

Q (By Mr. Sinkin) Your explanation of the analyses, doesn't that suggest that what Quadrex was driving at was a safety-related problem where the

approach by Brown & Root was not comprehensive enough and in their view inadequate or whatever, that that's what they were driving at? Here's a safety-related problem, Brown & Root has not adequately addressed it comprehensively?

A I just can't stretch that far. What you're asking me in essence to say is, you know, if that were the case, then every time Quadrex raised any question relative to anything safety-related, it should have been listed under this category. I just can't stretch that far.

In essence you're saying if they made any comment about anything safety-related, that it should have been included here because that has something to do with whether or not it was categorized as safety-related. I certainly can't reach that conclusion. Not if they were, you know, including it under this general category certainly.

Q Would you consider finding 4.6.2.1(o) on page 4-61 as falling within this problem --

MR. FRANTZ: What --

Q (By Mr. Sinkin) -- within this generic finding 3.1(d)?

A (By Mr. Lopez) Well, I note that Quadrex under item 2 of this area includes a reference to that

same question and stated concern in their assessment of that question. So, Quadrex apparently felt there was a relationship.

Q I guess my question was whether you feel there is a relationship?

A (By Dr. Bernsen) Yeah, the Bechtel task force says it should have been classified as safety-related.

Q Turning to the sixth example, operations performed at remote panels -- well, I think here again we have our difference of opinion on whether they're driving at classifications or modes --

A (By Mr. Lopez) Yes.

Q -- so, I won't take our time with that.

Let's go to the final example, systems interactions.

Oh, yes, I forgot to ask you a question on the fifth example, I'm sorry.

This 4.6.2.1(o) is not, if I'm correct, an HVAC finding, is it?

A 4.6.2.1(o)?

Q Right.

A It's in the N series of questions to the nuclear analysis area of questions. That calculation deals with, if you will, exhaust of battery fumes from the room using HVAC exhaust systems. So, in that sense,

yes, it's an HVAC related type problem.

Q Is it captured in the notification that was made on HVAC by HL&P on May the 8th to the NRC? Or is it a different kind of HVAC problem?

A I think it is a slightly different problem in the sense that the primary emphasis of the item that was reported and was evaluated was what you normally consider for HVAC systems relative to cooling, required cooling for environmental conditions in support systems in that sense.

Q Whereas, this is an exhaust?

A More of an exhaust, yes.

Q You think that on May 8th, 1981, there should have been a separate notification to cover 4.6.2.1(o)?

A No.

A (By Dr. Bernsen) No.

JUDGE BECHHOEFER: Why?

DR. BERNSEN: Well, I have -- there's a couple observations. First of all, it's also stated in the Bechtel task force that Brown & Root felt it was not a safety-related calculation. So, we do have a case where they didn't overlook it, they had made a decision. And it is a judgmental area.

But I think in addition to that --

MR. LOPEZ: In addition to that, both the

Brown & Root response and the Quadrex assessment of the response indicate that there was a large margin of safety indicated, that there was -- and they characterize it as probably no system problem, they were concerned about analysis of local concentrations.

So, in essence what they were saying was their primary concern seemed to be with the fact that the calculation had not been identified as a safety-related calculation and a concern relative to the, if you will, the modeling of the concentration of hydrogen.

(No hiatus.)

A (By Dr. Bernsen) If you look at it, there could be two questions. One is is this indicative of a significant breakdown in safety classification; I would say no. Is it indicative of a safety problem and at this stage, there wasn't any indication that it was.

So I think from those two significant safety problem -- from those two standpoints, it doesn't appear to be reportable or even potentially.

JUDGE BECHHOEFER: If you find that, that classification problem to the extent it was a problem with other classification problems such as the HVAC one, does that take on any -- does that have any systemic ramifications?

DR. BERNSEN: I think that there's reasonable basis for concluding that the classification problem was generally or generally essentially entirely related to the HVAC area, and this would be in a very gray area. You'd have to find more than this to broaden it beyond HVAC.

Q (By Mr. Sinkin) The last area, systems interaction, -- well, once again, we seem to have this same adequacy of analysis versus classification problem. Let me see if I have anything to ask. Well, looking at 4.4.2.1(d) on page 4.32, the second sentence is the one containing question H-18, which is referred to in this

systems interaction finding.

Would I be correct that you would simply not consider this as a classification problem and therefore it's not part of the analysis on whether the systems interaction item is notifiable or not?

A (By Mr. Lopez) I don't believe that the question that Quadrex is asking in it's assessment of question H-18 deals with classification or not of HVAC ducting systems; merely whether or not those that were not safety related, which they don't have issue, in fact have been analyzed to see what impact they would have on safety related equipment.

By the way, I don't agree with the assessment, the reason being that Brown & Root had as its design philosophy, that HVAC systems inside of seismic Category I buildings, which is the location of all safety related equipment, would be supported as seismic Category I supports even though they were supporting a non-saftey related system.

And that is the primary emphasis of an evaluation for the impact of failure of non-saftey duct work on safety related equipment.

A (By Mr. Bernsen) In other words, it wasn't necessary because from the standpoint of failure, they were supporting it so that it wouldn't fail.

Q Based on what you know of the information available to the Houston review team on May the 8th, 1981, would that have been available -- did they know that, that Brown & Root -- that this was not a problem because Brown & Root was supporting non-saftey HVAC duct work as if it were safety related?

A (By Mr. Lopez) I don't know whether or not they knew that. It was reported in the Brown & Root design documents and in the FSAR.

A (By Mr. Bernsen) Brown & Root knew it.

A (By Mr. Lopez) Presumably Brown & Root knew it.

JUDGE BECHHOEFER: In 1981, was this so?

MR. LOPEZ: Yes, sir.

Q (By Mr. Sinkin) Because looking at the Brown & Root May 8 response to this item, they responded only to the first sentence and did not respond to the second sentence. Is that correct?

A (By Mr. Lopez) This is the second -- you're talking of the discipline findings?

Q This finding 4.4.2.1(d).

A (By Mr. Lopez) They appear to have been, you know, responding to another problem and I see nothing in there, at least in this summary sheet indicating that they addressed that one in writing.

A (By Dr. Bernsen) There is one other point, and that is that you normally wouldn't do that type of two-over-one impact analysis until later on.

In other words, if you had a non-saftey related HVAC duct over safety related equipment, generally what you'd do is identify those targets after the layout is firm.

A (By Mr. Lopez) I believe they're questioning the term two-over-one. That's a terminology that's used to talk about possible impact of non-seismically supported components impacting safety related components. It's just a generic terminology that we use.

JUDGE LAMB: Category II over Category I?

MR. LOPEZ: That's, in essence, the reason for the acronym. It's easier to say two-over-one.

Q (By Mr. Sinkin) Let me try a hypothetical question and see what happens. Sticking, for a moment, to the -- well, turning to Page 3-6 of the Quadrex report. Based on what we've gone through so far -- well, let me try this first.

R-6, I'm still kind of stuck on R-6. R-6 is that drawing that has a single failure criteria problem in it that was notified eventually. Bechtel determined that that should be notified to the NRC. Is that correct?

A (By Dr. Bernsen) No.
A (By Mr. Lopez) No.
Q That's not correct?
A (By Dr. Bernsen) Bechtel said that it may be potentially reportable.
Q Bechtel identified it as possibly potentially reportable and HL&P then notified it to the NRC. Is that correct?
A (By Dr. Bernsen) That's correct.
A (By Mr. Lopez) That's correct.
Q The process, if I'm not incorrect. Okay. But you do not -- well, looking at Page 3-6 of the Quadrex report, you have seven items offered by Quadrex where the Brown & Root position was either inaccurate or questionable. The first item as we've explored Quadrex's understanding of it was that engineers were unaware of significant safety related designs that they were supposed to perform. That's Quadrex's position and I understand that you didn't necessarily agree with that. But that's what Quadrex was expressing; can we agree on that?
A (By Dr. Bernsen) We can agree on the statement in the Quadrex report.
Q That that's what it meant?
A That's what the report says on page 36.

Q And in item 2, there's a notification to the NRC, a potentially reportable finding. Is that correct?

A Yes.

Q And in item 3, there was a notification to the NRC of a potentially reportable finding. Is that correct?

A Yes.

Q And in item 4, there was a notification to the NRC of a potentially reportable finding. Is that correct?

A Yes.

Q Now, in item 5, there was a notification to the NRC. A potentially reportable finding, but you don't find that that notification fits into this generic. Is that correct? Dealing with R-6.

A Yes.

Q Given that you have one generic finding with those characteristics that we've just gone over, why would you not notify the NRC of the generic problem that Brown & Root does not adequately distinguish between safety related an a non-saftey related items?

A (By Dr. Bernsen) I could think of several reasons. First of all, I don't really know how I would frame, in some logical fashion, that type of report. The NRC is looking for specific deficiencies, and the NRC is

looking for you to indicate what their safety significance is and what you are going to do to resolve the problem and then what you have done to resolve the problem.

The problem report is much better if it's clear, precise, and specific to the issue. I just can't imagine what Region IV would do with a report that says, "My engineer doesn't know how to classify," when I've already reported the safety significant issues that have been identified. It seems redundant and vague, ambiguous, and unnecessary.

Q Mr. Lopez?

A (By Mr. Lopez) Just a moment, please. I think the point that I'd like to make with regard to this is that this particular generic item was one that I had the greatest difficulty in attaching a relationship between the accumulation of these various items, many of which also occur in other discipline findings or other generic findings, under that general categorization.

I found, and I believe -- I'll let Dr. Bernsen speak for himself -- that only the item dealing with the HVAC system was a relatively clear situation relative to the classification systems. And that item had, in fact, been reported. And I believe in dealing with that report, HL&P included in that consideration the question

of whether or not appropriate procedures were in effect and would then be in effect as a result of recurrence control for the designation of safety related equipment.

The other items, as we have testified before, seem to deal more with other issues and because in many instances they dealt with safety related issues, there was a possible tie in the mind of the Quadrex reviewer that it was appropriate to restate or reemphasize their concern.

But I did not see in those other items the deficiencies or potential deficiencies that were eventually reported being in any way related to misclassification problems. And that's the way I felt the generic issue -- that's what I felt the generic issue was attempting to try to raise.

Q But you're unable to link the numerous findings that you could not fit into the classification problem, your inability to fit a number of findings into the classification problem, did not suggest to you that perhaps your understanding of what Quadrex was saying was not what Quadrex indeed intended to say?

A I'd be happy to respond to that. One of the most difficult problems that I've had with this report from the very beginning is finding out whether or not I felt the report was clearly written enough to draw clear

distinctions between particularly the generic findings and the discipline findings and other questions that had been related to it.

So as in this situation and in numerous others, I had difficulty in establishing those links. I could attribute it to my own weakness in investigative skills. I could also attribute it to what I consider to be a poorly written report.

Q If there were a report made to the Nuclear Regulatory Commission on May the 8th, 1981, that said, to use Dr. Bernsen's approach, my engineer does not know how to classify systems into safety related and non-saftey related classifications, and when he classifies them into safety related, does not know how to adequately perform safety related analyses, wouldn't that capture almost every finding here?

A (By Dr. Bernsen) No. It would be a false statement, because it's not supported by the facts. It's just not correct.

Q Do you agree with that?

A (By Mr. Lopez) Yes, I do.

JUDGE BECHHOEFER: Would HL&P have known on May 8 that that wasn't the fact, those facts were not accurate?

DR. BERNSEN: I'm sure that what I tell you

somebody's going to strike, but I can can only surmise that HL&P's engineer would have strongly represented that they knew how to classify, and in fact had done it, and I think that in general, the evidence is clear that they did.

MR. SINKIN: I will move to strike since he prefaced by saying that he can only surmise; it has no value in the record.

JUDGE BECHHOEFER: I guess we will strike it, but I'm going to try again to get something that may not have to be stricken. I would like to know on this general classification question based on what HL&P had before them in May 7th and 8th, 1981, how could they have determined or what basis would they have for saying that there wasn't a potentially reportable deficiency or --

DR. BERNSEN: Let's go back to basics. Now, HL&P was advised and in fact as testified, looked at the discipline findings, because the statement was made and was indicated to them that the discipline findings captured the generic findings. We know they didn't look at the generic findings; therefore, they would not fortunately have been faced with this delimma.

In fact, they then would have been looking at discipline findings and determining whether the individual findings that were represented as most serious

indicated reportable or potentially reportable items. So that we're speculating on an action or an activity that we know won't even be carried out or addressed at the time of the May 8th review.

JUDGE BECHHOEFER: I understand that. But if we were asked to come up with a finding that they were justified in not reporting 3.1(b), I guess it is --

DR. BERNSEN: What I'm trying to get at is by looking at the discipline findings, one is not faced with this same confusion, complexity, ambiguity that you have when you look at the generics.

JUDGE BECHHOEFER: I recognize that. But again, it's not any answer to say that just because they didn't look at it that doesn't mean it's not potentially reportable.

MR. LOPEZ: May I attempt to --

JUDGE BECHHOEFER: This is where I get a problem.

MR. LOPEZ: I guess perhaps looking at it with -- looking at it through a mirror, almost, we're looking at it, we're asked to address it from the perspective of the generic. The way we went about doing that was to go back to the discipline findings and the questions that supported it. What we have heard testified to is that the approach that the HL&P review team and the Brown &

Root engineering personnel that supported them was to take the reverse of that, to look at the discipline findings to determine whether or not they were any safety significant items there.

I think they also, at least I recall, the HL&P witnesses testifying that they had in mind, had reviewed and had in mind the generic issues and, when you think about it, the same -- I believe the same rationale that we find does not support an evidence of a significant quality assurance breakdown with, you know, in the view of 50.55(e), in the discipline findings and the questions does not support that for 3.1(d).

They looked at the discipline findings, had that same evidence available to them since we presumably are trying to relate that information as best we can to information that was available to the Brown & Root and HL&P personnel at the time. They apparently reached the conclusion on the basis of the discipline findings as they've testified.

I am struggling, I guess, in the sense of saying that we -- we were attempting to use the same information that they had available to them, we reached our conclusion; we specifically looked at it relative to 3.1(d) as I've testified I had some difficulty with the fact that all of the elements that are included in 3.1(d)

don't seem to relate to the general topic, but I was still looking at them from the perspective of reportable deficiencies, whether reported our not.

JUDGE BECHHOEFER: I guess three or four portions of 3.1(d) were in fact reported, but if you add the other three, and why wouldn't that make the whole group reportable, particularly where there is one or two -- well, for instance, there's a classification problem, I think, almost admitted in this I guess it was H-23; your testimony itself mentions question H-23 as posing a classification problem.

MR. LOPEZ: I don't believe that's correct. It was identified by Quadrex as a classification problem. I believe we testified on H-23 that there really was no classification problem. That was the one having to do with the sump drainage system. There's a question asked by Quadrex as to whether or not there might be a misclassification. Our review indicated that there was no misclassification.

MR. SINKIN: Mr. Chairman, that was struck.

JUDGE BECHHOEFER: I recognize that. What I'm trying to say is on May 7th, would HL&P have known that there was not a classification problem, because if they wouldn't, then you'd have to lump it in with the remaining parts of 3.1(d) that were in fact reported.

DR. BERNSEN: But Mr. Chairman, once you reduce the discipline findings to those which are in those which are not reportable, and you look at the resolution of the discipline findings, this long list doesn't appear under the topic of of safety classification.

That's the point, that the major problem of safety classification essentially the only one that results from the review of the discipline findings is in the HVAC area. The other findings and the findings as represented, the discipline findings included everything in the generics, the others do not relate to that.

JUDGE BECHHOEFER: Well, as I was saying, I'm trying to figure out why H-23 as of May 8th would not have related to that.

DR. BERNSEN: Where is H-23.

JUDGE BECHHOEFER: That's the sump pump one.

MR. LOPEZ: May I respond? First of all, I recognize that my testimony on page 52, at lines 15 through 23 was struck. However, on the next day, I was asked in additional direct to describe the situation relative to the H-23 problem, including only information that was known or could have been known by the personnel at Brown & Root and HL&P on those times and that was not struck.

So in answer to your question relative to H-23,

the information that I was relying upon in this situation and I think it's perhaps pertinent to the particular issue that we're dealing with here, is that I would view the -- one of the primary purposes of reportability, not only is to notify the NRC problem, but to certainly put both the licensee and the NRC on notice as to some root cause problem.

The purpose is not simply to raise flags about problems, but to try to determine what was the source of that problem, why did it occur, and obviously to take corrective action where that's necessary, either in terms of hardware if that's what's appropriate, but also typically in terms of procedures, where procedural problems were what led to the problem.

I do not find the tie-in to these seven examples were a procedural problem of misclassification was the source of what led to the potential reportability on those items, with the possibly exception of the HVAC item.

So that's why I don't -- even though, you know, I suppose that by virtue of the fact that a number of these items, even though they may be classified under one particular discipline or another, one particular series of questions or another, could be described as related to, you know, different groupings, if you will, breaking

up the problem into various pieces and written up as separate items.

The root cause of the problem, however, is still essentially the same. And I think that's really the issue that we should be trying to address, you know, were the root causes of these items the same. And I don't see, other than the HVAC deficiency, a root cause related to misclassification.

Q (By Mr. Sinkin) Dr. Bernsen, are you aware that notification to the NRC on May 8th regarding HVAC has been covered to finding 4.2.2.1(a) and (b)?

A (By Dr. Bernsen) We do not have the notice of violation in front of us.

Q I'm not notice of violation, I don't want to --

A I'm sorry, the --

Q HL&P notification.

A The notification. We don't have that.

Q If you can turn to the Bechtel task force report, page 5-1. And as a cross reference, turn to Page 4-9, would that refresh your memory? By 5-1 I'm referring to the paragraph, the end of the paragraph about the five findings represent three potentially reportable items, and then there's a chart on page 4-9 of what those are.

A I'm aware of that. What I'm saying is that to

be absolutely certain that I respond to your question, I think I ought to look at the notification.

Q Well, I'll show you the notification. The question was as much to the intent of the notification as the actual words.

MR. GUTTERMAN: May I see what the witness is being shown?

MR. SINKIN: Yes.

THE WITNESS: What was the question.

Q (By Mr. Sinkin) Whether the notification to the Nuclear Regulatory Commission on May 8, 1981 is in fact included findings 4.4.2.1(a) and (b)?

A There's no way I could answer that.

Q Why is that?

A You say whether the notification in fact covered both. I was not a party to the telephone call.

Q You weren't a party to any of this, Dr. Bernsen, but you've been more than -- that's argumentive: take it back.

Do you have any idea what the basis for the task force assessment summary on Page 4-9 that includes these two items?

A No. Okay, I think it was the understanding of the task force and it's our general understanding that that reported, that the report on the HVAC covered those

two findings. If you put in it that perspective, I have no problem. But --

Q That's your understanding that the report did cover that?

A That the reported item covered that. The report that was filed I really can't, at all, determine what was represented in the phone call.

Q I'm sorry, I didn't --

A I cannot determine what was represented by this statement in the phone call.

Q And isn't 4.4.2.1 a classification problem?

MR. FRANTZ: Are you talking about a specific paragraph of 4.4.2.1?

MR. SINKIN: I'm sorry, I forgot the (b), excuse me.

A (By Mr. Bernsen) Yes.

Q (By Mr. Sinkin) And isn't the shielding calculations that were also notified to the NRC a classification problem?

A (By Dr. Bernsen) It's related to a classification problem.

Q Wasn't the problem specifically that the shielding classifications has been classified non-safety related and the feeling of the reviewer was that they should have been classified safety related?

A As I say, it related to classification.

Q So then we have shielding, HVAC and what's left is computer codes. You consider the computer code notification as related to classification of safety related versus non-saftey related?

A No.

A (By Mr. Lopez) No.

Q No?

MR. SINKIN: I have no further questions of these witnesses, Mr. Chairman.

JUDGE BECHHOEFER: Why don't we take a fifteen minute break.

(Brief recess.)

(No hiatus.)

JUDGE BECHHOEFER: Back on the record.

Mr. Pirfo or Mr. Reis?

MR. PIRFO: Mr. Reis.

JUDGE BECHHOEFER: Okay, Mr. Reis.

CROSS-EXAMINATION

BY MR. REIS:

Q Gentlemen, you've heard -- in your review generally, in your review of the records in this proceeding, could you separate out in your mind the records that were available in May of 1981 from records which were generated later?

A (By Mr. Lopez) When you talk about records in this proceeding, I'm not sure, are you talking about --

Q Records you reviewed for your --

A Oh, records I reviewed.

By and large, I could. Most of the documentation that I relied upon was dated material. And I also had some other cross-references like various logs of status and those kinds of things to allow me to determine whether or not, at least in the time frame of April and May of '81, that was possible. If there was other information that I had available to me which I did look at that was either clearly after that date or for which I could not identify any -- you know, clearly

identify that it might have been available at that time, I avoided relying upon that information.

Q Were you aware of how many engineers HL&P had working with Brown & Root in that period?

A I have heard estimates, but that's all I've heard. When we came on board, I was told that the total engineering staff, and I don't know whether or not that included non -- administrative personnel and the like, but that the project personnel at Brown & Root was on the order of twelve to thirteen hundred people. I assume that that is not all engineering, but --

Q Was that the number of HL&P people assigned to -- what I'm talking about are the HL&P people at Brown & Root's engineering facility.

A Oh, I'm sorry, I thought you meant Brown & Root personnel.

The estimates I heard about that were that it was in excess of a hundred.

Q And you've heard Mr. Goldberg's testimony?

A Yes, I did.

Q Looking at the documents that were available in May 1981, beginning of May 1981 and the HL&P staff that was available, could the Quadrex report have been reviewed by HL&P to see what matters were reportable in the two-day period of May 7th-May 8th?

A I believe that it could have been done given the number of personnel that were available for that task.

The clear distinction that I drew between the evaluation that we needed to do and that of what I would have expected to be the situation relative to people making that review was that I think it was appropriate to assume that they had knowledge of the documents that were available more than I might have had given that I was not working with them on a day to day basis. But given that, I believe so.

Q Would that have led to efficiency in the review?

A You mean the fact that they had prior knowledge of many of these items? Certainly, I believe that it would.

MR. REIS: That's all I have.

BOARD EXAMINATION

BY JUDGE LAMB:

Q Gentlemen, if we could look at page 72 of your testimony. Lines 21 to 27, that sentence. You indicate that there are acceptable alternatives to maintaining engineering log books. Did B&R use those alternatives consistently as a matter of policy?

A (By Mr. Lopez) You said as a matter of policy. As a matter of procedure --

Q As a matter of general procedure.

A As a matter of general procedure, I believe that they did.

Q In other words, were all of the B&R engineers required to document assumptions, calculations and such?

A With regard to calculations, they were required to -- the calculation procedure required them to identify the assumptions that they had used, the sources of their input data and the like, yes.

A (By Dr. Bernsen) I think it's useful to recognize that in general, the concept of using individual engineer log books is not really applied to any great extent in the architect engineering activity. We try to produce a set of project documents, calculations, design criteria, things of this sort, and not rely on the typical individual engineer diary or log book which is difficult to control, difficult to review, difficult to distribute and things of this sort. So that in the practice of engineering plants, these individual notebooks, while they might be useful aids for the engineer, are usually not considered to be useful control documents or design documentation.

Q Based on your investigation, were the actions

in this area by the Brown & Root engineers consistent with good industry practice?

A (By Mr. Lopez) Oh, yes, sir, I believe so.

A (By Dr. Bernsen) Yes.

Q Were they consistent with HL&P commitments?

A (By Mr. Lopez) Could you be more specific in terms of what you mean by commitments, sir?

Q Well, whatever commitments might have been made by HL&P to maintain the necessary documentation to support the --

A Say with respect to their quality assurance commitments relative to maintenance of appropriate records and document --

Q Those or design calculations or other things of that type.

A Yes, I believe they fully met those commitments.

Q Now, could you turn to page 66, please. The sentence beginning at line 25 and continuing over to the next page.

A (By Dr. Bernsen) Yes.

Q You indicate there that the rationale for engineering judgment does not need to be documented as long as the design basis itself is documented. In that instance, how could the validity or lack of validity of

the engineering judgment be evaluated subsequently?

A Well, the way I read this and the way I interpret this statement is that we're dealing with the judgment supporting basic plant design criteria, the starting assumptions for the plant. Judgments with regard to optional choices, do you use three trains or two trains, do you use two half-capacity pumps or three or something of this sort, these are starting points for the design process. Those in the area affecting safety are those decisions or criteria that are incorporated into the safety analysis report.

From some perspectives, let's say, perhaps economic or just historical value but not quality value, it might be nice to know why certain optional choices were made. But generally that's not considered as quality assurance information in the Appendix B context. The starting point are the criteria.

The requirement is that the selected criteria, however these decisions were arrived at, does meet the regulatory requirements in the safety-related area. So that we're talking about that type of judgment and not the judgment decisions that are made in accepting, let's say, a construction nonconformance and things like that. We're dealing here with judgments underlying basic design decisions that find their way into the

design criteria.

Q But aren't those part of the design process?

A In a general sense they're -- they predate the final design process. And they're useful. We make lots of studies, we do document studies. We don't treat these as part of the quality records because the quality record starts with the design criteria. That has to be checked against the licensing commitments. So, that's the starting point for the design.

Q I was having some trouble tying that statement that you made in with one that you made on the next page on page 78 at lines 12 to 14. I wonder if you could look at those two and tell me whether they tend to conflict?

A 78, 12 to 14?

Q Page 68.

A Oh, sorry.

Q Yes. The sentence begins on line 9 actually, but I was interested in particularly the part on lines 12 to 14.

A Perhaps some of the problem here is just terminology. In the QA standards and reg guides, design criteria and design input are essentially the same terms. And what we're saying here is that if you use the log book to lay out your criteria, your starting

point, then, of course, that information contained in your log book would be considered important design information. But you can also document your design criteria in other ways and it's more desirable, in fact, and generally practiced that the design criteria would be documented in things like system design descriptions and other things of that nature.

Q I was also especially interested, though, in what I interpreted here as your statement to the effect that one must be able to identify the assumptions with your earlier statement that the judgments don't need to be documented. Those two don't seem to fit.

A Well, the last part of that phrase is assumptions used in preparing the design, not the design criteria or design input. In other words, now we have criteria and now we're going to prepare the design which involves the analysis and the development of the drawings and the specifications. From the time you have your criteria on, then those calculations and analyses need to include any assumptions that are made in carrying out the design process.

Q In other words, in the context of what you're talking about here, am I correct in concluding that you view the design process as beginning with the detailed design of individual parts of the structure as

contrasted with decisions about the types of structures that would be used?

A Essentially, yes.

Q Okay, then it's a matter of definition that I was concerned about.

A Yes.

Q We talked and listened to a lot of detailed things and I would like to, well, go back to some rather broad areas and ask a few questions to just make certain that we have in the record the things we need of that type.

Could you look at HL&P Exhibit 72, please, page 23.

MR. SINKIN: Could you identify what that exhibit is?

JUDGE LAMB: That is the task force comments on Brown & Root -- disposition of Brown & Root and Quadrex comments on draft task force report.

It's Exhibit 72. Would you like to take mine?

MR. GUTTERMAN: I'm sorry. I had it right here.

A (By Dr. Bernsen) What page?

Q (By Judge Lamb) Page 23.

A (By Mr. Lopez) Okay. We're there.

Q Now, looking at item 30 which relates to line

item 167, and in looking at the task force disposition you say that the task force has revised both its assessment in the assigned category to accommodate the Quadrex comment. Does that mean that at that point or that now Bechtel agrees with Quadrex' comments? This has to do with vendors reports.

A (By Dr. Bernsen). It appears that it was revised to put it in agreement with or at least to take into account the Quadrex comment. I unfortunately do not have a copy of the draft task force assessment.

I think that the general practice the task force followed was that if there was any disagreement between what they heard from various parties, then they would favor Quadrex in determining or recommending the action to be taken. In areas where they had the evidence themselves, of course, they'd use their own judgment.

In this case, since the Quadrex comment indicates that they had identified some concerns, the task force without going back to look at the specifics said, okay, then the project should give more attention, more priority attention to this particular area in taking over the job. So that to that extent they agreed that more timely attention should be given to this area.

Q Okay. What I was looking for was the answer to the question of whether that statement amounts to a concession that the Quadrex report was correct with respect to line item 167.

A (By Mr. Lopez) Well, I'd like to comment on that. The Bechtel task force did not have direct access to the documents that were referenced. Since we don't have the draft, I'm not sure what's changed. But I read in the Bechtel task force report that they still indicate the reasonableness of what they thought was the review process and -- well, they said, "B&R's review procedures for vendor documents appear to be reasonable. However, we agree with Quadrex' concerns as identified in the findings relative to the referenced questions. In order to assure the quality of the product, it is imperative to perform an extensive detailed review of vendor documents and identify areas of concern for vendor resolution."

And then apparently they have noted on this disposition draft changed the category from one of 6 to a 4 which is a higher more timing sensitive review. I would assume that that's based upon, you know, the fact that they did not have the base documents in front of them to be able to ascertain, you know, whether or not they were correct or not.

Q I guess I don't understand your comment that they didn't have the base documents in front of them.

A (By Dr. Bernsen) Quadrex in that area looked at some specific vendor documents, including you recall the one we discussed the other day concerning the stress report. Quadrex reported in their assessments certain concerns or certain problems that they had with the review. The task force in receiving the Quadrex response to their original statement said, yes, if Quadrex thinks it's something that's that important, then the project should give this area more attention earlier on than we had originally recommended.

A (By Mr. Lopez) I think -- I don't believe that the Bechtel task force had a copy of that document so they could in their own mind confirm whether or not the concerns, the specific concerns that were being raised were valid or not. That was my point was relative to the Bechtel task force had essentially the Quadrex report and the interviews with the Brown & Root Quadrex personnel, but not the actual review documents.

Q Why were those documents unavailable?

A (By Dr. Bernsen) It just wasn't included in the Bechtel task force review. Their charter and their scope was to look at the Quadrex report, review that and then discuss with HL&P, Brown & Root and Quadrex the

various aspects of the report and then make an evaluation and recommendations on that basis. And that's fairly well outlined in the task force report. They didn't look at the underlying documents because it was recognized that the Bechtel project engineering team was going to review the total engineering effort in the transition period.

Q The question that I was really leading to with this and was wondering about was whether when the decision was made to go with Quadrex to this degree, whether at that point serious consideration was given to notifying the NRC under 50.55(e) or on any other basis?

A Well, let's go back and look at the process. Although this document is dated, say, approximately six months after the task force report was completed, the task force didn't finish their work and their review and reportability evaluations until they had incorporated the comments and completed their report so that they had -- when they looked at the Quadrex response, then they had to -- and concluded they should reclassify that particular finding, they classified it as a 4. If it was considered possibly potentially reportable, it would be classified as a 1. So that they had to reconsider their classification in acknowledging the Quadrex comment so that the -- it's very logical and part of the

process to assume that they -- in fact, the fact that they did make the change in classification indicates that they did relook at the issue.

Q Should consideration have been given at that point to notifying the NRC about that?

A Well, the Bechtel -- as I said, the Bechtel task force didn't believe that it was one of those that might be potentially reportable.

Q Otherwise, it would have been reported classified in a different category?

A Otherwise it would have been classified as a 1, yes.

Q Do you two gentlemen agree with that at this point or not?

A (By Mr. Lopez) Well, certainly at this point, as we identified --

Q Well, looking at what was known since you've tried to separate those things that were known at that time, based on what was known at that time as far as you can tell, in your judgment should that have been given serious consideration?

A You mean serious consideration for potentially reportable --

Q For notifying the NRC.

A I don't believe that that, you know, has

changed the conclusions, this particular dialogue, if you will, with Quadrex.

A (By Dr. Bernsen) No, it wouldn't change.

Q Now, based on your understanding of the requirements and the practices for notifying the NRC under 50.55(e) and other bases, and considering insofar as you have been able to tell what the state of knowledge was on the project at that time, and by that time I mean May 1981, in your judgment were those Quadrex items that were reported to the NRC by HL&P reported reasonably? Were they things which reasonably should have been reported?

A They most certainly were things that reasonably should have been reported. As I've indicated before, there are some that were judgmental and, in fact, one could have justified not reporting them. But by all means I think those that were reported were reasonably reported.

Q Now, were there any other items, looking at the whole Quadrex report and based on knowledge at that time, were there any other items that were not reported that should have been -- of which NRC should have been notified?

A Other than those that had been previously reported --

Q That's right.

A -- that were at least addressed or tangentially addressed in the Quadrex report, our conclusion was no.

Q That's both of you?

A (By Mr. Lopez) That's no from me also.

Q Should any of the generic conclusions or findings have been reported or transmitted to NRC? That is should the NRC have been notified of any of them either as reportable or potentially reportable?

A I don't believe so. I don't think so.

A (By Dr. Bernsen) I think it would have been extremely difficult to -- well, for one thing, we believe that those discipline findings that were reported were all that should have been reported. Obviously, some of the discipline findings are also mentioned in the generic findings. It would have been extremely difficult to take the generic finding and turn it into a meaningful report. And since the specific problems were identified reported through the review of the discipline findings, it would have been really I think meaningless and redundant to have considered the generics.

Q Do either of you feel that the report as a whole or any part of the report should have been

submitted or transmitted as a possible QA breakdown?

A No, I don't -- you look at the specific reporting requirements, the format and the content of a 50.55(e) report. It would be extremely difficult to put this document or any part of that document in as the report, as a 50.55(e) report. Regardless of the number of problems that actually were contained in the report, I would have chosen to take them individually and specifically report them in the normal fashion for reporting 50.55(e) concerns so that the NRC had something specific to deal with.

This report is not -- is not organized, the findings are not really written clearly as findings and it would have been very difficult to use any part of it even in support I think of a 50.55(e) report. So, in that sense, I don't think that I would have used it or any part of it in support of any specific deficiency report.

Q Is that --

A (By Mr. Lopez) That is essentially my feeling.

Q Let me ask you, in trying to evaluate how close a call this might have been in your view, what more would have been necessary? In other words, where was this report or the findings in this report

compared -- what else would you have expected to see before you would have started thinking about reporting parts or all of this report as a QA breakdown? Is that a question that's possible to answer?

A (By Dr. Bernsen) It's difficult. I would prefer to work with typical quality assurance report type documentation, audit findings, corrective action reports, things of that nature that are put together in a fashion that really identifies what the requirement is, what the problem is and it goes through the process of verifying that you, in fact, have a clearly defined situation. That's a much better tool.

This is so subjective and not clearly based upon specifically cited requirements in many cases. It's just -- well, it wasn't put together for that purpose. This is an excellent management tool, internal management tool. I -- well, excellent may be an exaggeration, but a good management tool for the purpose intended. But it's strictly an internal document. It's the kind of thing that gives you some feeling for where you are in the process, where your trouble spots may be. A lot of these things are written as findings and they would have been much better if written as recommendations.

It just isn't the kind of thing that I would

like to start with in trying to determine how to put a report together.

A (By Mr. Lopez) I would like to add -- I concur with what Dr. Bernsen said and I would like to add that particularly with regard to that subparagraph dealing with significant quality assurance program breakdowns, I would feel that what would be needed in such was a very clear definition of, you know, as we normally do in all reportability deficiencies, you know, have that clear trail.

The quality assurance program requires a certain thing to be done. An investigation has uncovered that that was not -- either that element of the program was missing or was not being implemented at all. And particularly with regard to the question of whether or not any absence of an identified deficiency at that point, clearly some indication that there was some potential because of either the pervasiveness of that problem or the potential significance or the high likelihood that it would have led to some safety significant deficiency, even though it might take some time to uncover that deficiency, those would be the kinds of elements that I would expect to find in a report that would be used as a basis for determining that a condition met the significant quality assurance

program breakdown portions of the 50.55(e) reporting responsibilities.

Q In other words, you two gentlemen feel that the specific structure of this report didn't lend itself to that?

A (By Dr. Bernsen) That's right.

A (By Mr. Lopez) That's correct.

Q Now, in your judgment, just looking at this overall, was the reporting action taken by HL&P at that time based on what was known to them in May of 1981, was that reasonable and correct action to take as far as you are concerned?

A I believe so.

A (By Dr. Bernsen) Yes.

Q Were there any actions that you feel should have been taken that were not taken at that time?

A Well, frankly, judging from some other experiences I've had, I was surprised with the degree of action they took and the promptness of the action. In other situations I have known of organizations, not dealing with this, that would take more time to evaluate and investigate before calling it in so that, if anything, my impression is that they reacted as responsively and conservatively as one would have expected.

A (By Mr. Lopez) My comments are the same. I thought the responsiveness to try to do this in a twenty-four-hour time period was something that I thought -- and given the testimony from the HL&P witnesses as to their, if you will, anticipation of the report being delivered and anticipation of a problem, it's clear they were preparing for it.

I think if the report had come in cold, never having been reviewed or no anticipation that there might even be some possibility of that sort of thing, then I certainly would have in my own situation probably been concerned about a twenty-four-hour time period to try to evaluate such a massive document. But given the fact that they had been getting some and had been attempting to try to get Quadrex to group things at least to make that review more efficient, then the twenty-four-hour period was something that they selected to do.

I guess if I was judging it, I don't know whether or not under the same circumstances I would have attempted to do it in the twenty-four hours, that's all.

Q With respect to the documentation of why they did or did not report various things, do you feel that was adequate or in your judgment should that have been done differently?

A (By Dr. Bernsen) I would say in hindsight it might have been helpful to have a little bit more.

Q What form might that have taken?

A (By Mr. Lopez) Before -- are you speaking of the documentation that was available to HL&P or the documentation that they used to document their review?

Q The document -- what I have in mind is -- what I'm asking about is whether they should have done anything differently in documentation of things that -- of reasons why they did or did not report various things.

A (By Dr. Bernsen) Well, as I said, I don't think they needed more at the time. But, yet, at this stage, considering the hearing, it might have been nice to have some additional support. But that's in the category of I'd say nice to have more I think than essential.

Q I guess one of the things I'm wondering is should -- with the decision to report the items that they did, should those and other items have been submitted to the IRC for work-up by them and documentation?

A Well, Frank understands the process better than I. The way I looked at it and as listening to the testimony, it appeared to me and it appears to me that

the first thing that is done generally is there is an engineering evaluation of things. Then when an engineering evaluation is done, if the engineering group, cognizant group considers that there is a problem, then they bring it to the IRC.

If they don't consider it a situation that needs to be evaluated, they don't produce a document. It's only when engineering -- when some engineer identifies something that he thinks should be evaluated. And that review team I believe in a way was functioning like that engineering individual or group.

Now, you might explain a little better.

A (By Mr. Lopez) That's essentially correct, but I think there was also another element that's a little bit different than the normal workings of the IRC. The IRC process certainly as it works now, and I believe it to have been essentially the same at that time, was that an engineering evaluation was performed when someone brought up a potential problem. That evaluation, when there was enough to, in the minds of the personnel making that evaluation, to have it considered by the IRC was brought to the attention of the IRC. They usually scheduled a meeting, did their own evaluation, usually dealing obviously with much fewer or much less volume of information, but, you know,

would do that review.

The IRC would make its determination and then by its processes attempt to notify personnel within the licensing and HL&P management chain in order to affect the notification. That failing, if they're unable to do that, they still had the responsibility to notify the NRC and then obviously notify their management personnel as soon as was practicable.

In this instance, the review team, if you will, embodied both the functions of the engineering evaluation team and the management overview that looked at the data that was provided to determine the adequacy, if you will, of the determination and whether or not it should be called in. So, when they called in the IRC Chairman, they have, in essence, fulfilled that function and advised the IRC Chairman of their decisions and asked them to go ahead and make the telephone notifications.

So, in that sense it was somewhat different. But then again, the review of this many items in that situation was different from the normal situation as well.

(No hiatus.)

Q (By Judge Lamb) Most of your report, your 107 pages of testimony, seems to disagree with various findings in the Quadrex report. Do you disagree with most of the Quadrex report?

A (By Dr. Bernsen) I think that's putting it very strong -- no, I don't disagree with most of the Quadrex report. We did -- I disagree with it when we're dealing with the question of reportability. We have some disagreements with it with regard to the specific observations. As indicated in both the Bechtel task force report and other things that we've done on the project, there were a lot of good recommendations and observations within the Quadrex report as well.

So that I guess maybe our problem is more a concern with the style and the way things are presented rather than in many cases the value of the recommendations that were made and a number of the observations that were made with regard to the status of engineering and the work that needed to be done and some tools that would help improve the efficiency of the process, so that -- and that's a problem, because when -- we had these same difficulties because we were asked questions with regard to reportability and safety related dificiencies, yeah, in that area, it seems like we're arguing with the report, yet the report and Mr. Stanley

himself has not indicated that he felt that there was much reportable in there.

So in that context, we're not really disagreeing with the report. We have problems with the style, we have problems with using it to indicate program breakdowns and significant safety related deficiencies, that's all. And it really didn't purport to do either one.

A (By Mr. Lopez) Further comment is that although the tenor of some of our testimony is relative to whether or not we agree that certain of the recommendations that were being made by Quadrex necessarily involved mandatory quality assurance requirements, to the extent that we disagreed with that was because we have seen effective quality assurance programs used that did not necessarily utilize those recommendations.

Notwithstanding that fact, we took into account that Quadrex was making in some instances very good recommendations. We implemented some of the recommendations which in here we indicate are not mandatory from a quality assurance standpoint because they were good management tools and we affected those. We affected those even though in some -- in many instances other Bechtel projects do not use that same

methodology.

Q (By Judge Lamb) Do you feel that Quadrex either did a poor job or was unreasonable in any respect in connection with its findings?

A (By Dr. Bernsen) I would just charge it up to the time they had to do the work they undertook, primarily. seems like that, as was indicated before by Mr. Goldberg, it probably would have been nice if they had time to recycle through Brown & Root and get some of these things better defined and polished up. But I have no other observations.

A (By Mr. Lopez) I guess the only comment that is that my characterization earlier of a poorly written report was based upon what I felt was really attributed to that very syndrome, that in a normal management review, or for that matter even a quality assurance audit, which this did not purport to be.

I would normally expect that the report to be offered and resolution of whether or not there were items that really were not either misunderstood by the reviewing agency and clearly did not have the same significance that was attributed to them by that agency, because they either misunderstood the information that was given to them or something of that sort.

So my characterization was primarily based upon

the fact that I felt they were making judgments based upon either incorrect information or information that they had not apparently had the opportunity to confirm or validate.

JUDGE LAMB: Thank you, that's all I have.

JUDGE BECHHOEFER: Do you have any?

JUDGE SHON: No.

JUDGE BECHHOEFER: I have a couple.

Q (By Judge Bechhoefer) Following up on Dr. Lamb's series of questions on the dificiency the IRC -- IRC consideration of a deficiency and what happened to the Quadrex report, and perhaps following up some of my questions earlier.

Wasn't it a little unusual that after the review committee had determined that -- had reviewed the Quadrex report and determined that only three items or three items were reportable, they asked the IRC to not only notify NRC but to write up only those three items? Is that not a departure from normal practice?

A (By Mr. Lopez) I'll have to answer your question in two parts. As I tried to indicate to Judge Lamb, there seemed to be, in essence, two steps of the, if you will, the normal or what I would have expected to have been the normal IRC process that in essence were being accomplished at the same time.

In the IRC process, as I understand it, the engineering evaluation that is performed brings to the attention of the IRC committee those items which they feel the committee should review. The committee reviews those and typically documents, you know, makes -- take the appropriate action, documents it and follows through. They do not document -- the IRC committee does not document reviews that are not presented to them for their formal determination. Are you asking then why they were not asked to document the evaluation for the ones that were not reportable?

Q Yes, that's what I'm primarily interested in.

A That would be a little contrary to the practice, although since we are talking at a, you know, a different version of that -- I don't really see that that would change the situation.

The IRC committee intend -- or it documents those items that are presented to it as potentially reportable items.

Q If the review committee were used in lieu of the IRC, would that not require them to make some additional record of why they did not report certain -- at least certain of the items?

A (By Dr. Bernsen) I'd like to look at it just a little different way. The procedure starts out with a

requirement that each engineer on the project or group or whatever, that discovers an item that they think should be considered for reportability, has an obligation to initiate a process. Okay?

Then the first step in that process, after its initiated, is for an engineering review to be performed and then if the engineering review confirms that it may be potentially reportable, it goes to IRC.

At the present time, as I understand the procedure from listening to the discussions here, that if it -- if the engineering group doesn't believe it's potentially reportable, at some point in time, the IRC may look over the paper that the engineering review produced in dispensing with that original notification from the individual that suspected the problem. The thing that starts the process off is a piece of paper that says, "I, or we think you may have a problem."

Now, the source of that information could be anything. It could be a non-conformance report; it could be a review performed by somebody, it could be even hearsay, whatever --

Q Clearly a finding --

A -- that the recipient thinks needs to be the considered. You can consider this review that was done on the 7th and 8th was an initial evaluation of outside

information to consider whether it was even worth initiating this starting piece of paper -- what do they call it?

A (By Mr. Lopez) DEF. In the current procedure, HL&P uses what they call a deficiency evaluation form for this engineering review prior to submittal to the IRC. I honestly can't recall whether or not they were using such a form, you know, in the May '81 time frame.

A (By Dr. Bernsen) I'm just talking about if we're speculating and saying it's a DEF, it's the first step to see if somebody feel the DEF is necessary and that starts the whole process.

As I view it in this case, the review team felt that a DEF only -- or felt it wasn't necessary at that time because all IRC could do in this case is decide it might be not reportable.

Q So you are saying that none of the findings in the Quadrex report, other than the few that were reported, in fact, reported, would give rise to, through engineering evaluation, would even be close enough question for the IRC to have considered it or through a group like the review team acting in lieu of the IRC?

A (By Mr. Lopez) That's a judgment. I don't see anything there, based upon the information I have now, that would lead me to that conclusion.

I'd like to add as well, that although I don't know whether or not the IRC procedures at that time in May of '81 required the use of something like a deficiency evaluation form, the review sheets that were used by the what we're now describing as, I guess the HL&P review team, that identified the item, wrote down in a series of boxes, if you will, for reportability or not reportable or insufficient information, and gave some rationale as to why that decision was reached, formed a means of documenting that review.

In today's process, that presumably would have been a set of deficiency evaluation forms. I don't know whether or not at that point in time such a form, that particular type of form, was called for.

Q Well, even if one assumes that those forms which I guess are the ones attached to the Bechtel evaluation, assuming those forms would be adequate, we have had testimony that other information also went into the decisions. And what I'm trying to determine is whether there should have been some way of recording the other information when -- which went into the determinations, finding by finding.

A I guess I've reached the limits of my speculation on this. It's awfully hard to say at a point in time that you ought to document the reason why you

don't do something. And these were reviewed and if ones that were considered worth reporting were reported and documented and there are the forms that indicate the resolution of each one. It wouldn't be unusual to have no more than that. In fact, it might be normal to have less.

Q I'm not questioning the reported items at this time.

A No, I'm talking about the ones that were rejected. I don't think you normally find a lot of permanent documentation of the rationale for engineers to make decisions that they don't have a problem that warrants carrying to the next step.

Q Would you think that criterion 17 of Appendix B might require something of that sort?

A Well, but that's the starting point is to write some corrective action document. The CAR or what is it called now, is it still a CAR.

A (By Mr. Lopez) No, standard deviation report.

A (By Dr. Bernsen) It used to be HL&P's CAR, is the document that responds to criterion 17. And that document is initiated by QA people in the course of their monitoring auditing, whatever they do, I guess it can be initiated or caused to be initiated by other people in the project if they have a problem they feel should be

considered for correct active action.

But again, the judgment on whether to produce a CAR or not is -- is really not -- let me say, the judgment to not produce a CAR for Frank to look at a piece of paper and say, "You know, I don't think I should write a CAR, that isn't documented. The reasons why you didn't initiate a CAR on every piece of paper you've seen and read will be awfully hard to capture.

Q Are you saying then none of the findings of the Quadrex report, other than the ones that were reported actually, none of those would have been sufficient if they weren't connected with a big report such for an engineer to start a CAR, create a CAR?

A Well, if the review process was conducted some other way, perhaps documentation like that could have been produced. But that would have just delayed the process. I think -- it's hard to answer the question, really, because you're in a different space.

Usually CAR's are written because you have a clearly defined deficiency or a clearly defined program error. The procedural error or something of that sort. There -- this document fits into a different space, a different environment. It's difficult to -- really it is difficult to figure out how one deals with it.

Q I'll ask you the same question I asked Mr.

Goldberg, it means you document the trivial stuff and don't bother with the much more important documents?

A Could I get that one again?

Q I'm saying the same question I asked Mr. Goldberg, does this mean you document the whatever is fairly trivial and you don't document or don't bother to document something that may be much more far reaching, possibly significant?

A I don't think that's the case. That's not what I was trying to imply.

Q I recognize that. But would you think it would have been appropriate if the review team after they made all their decisions to have separated out the ones, the findings they thought were reportable and then sent the remainder of the report for review to the IRC for documentation as appropriate?

A There's just too much hindsight connected with that question. I don't really think that you would use the IRC for that purpose at that time.

A (By Mr. Lopez) May I respond or add to that? I would have expected had that happened for it to be given to the IRC, because in essence the IRC we're talking about at that some time frame, I think essentially now, three people, one representative from engineering, one representative from licensing

department, and typically a representative from quality assurance department.

If they were given this massive report and told to investigate whether or not there were reportable deficiencies in that and had not yet been found, I would have expected them to assign actions to their own engineering organization and to the Brown & Root engineering organization to review the findings one by one, and report back to them as to whether or not they found a basis for reportability. That's what was done on May 7th.

So yes, they could have done that, it would have been a second review to see maybe they might have missed something, perhaps, in that process. But on that basis, you could, you know, always reiterate that and see whether or not you might have, you know, overlooked something in the process.

But in essence, the only way they would have been able to deal with it is really the way that the review team dealt with it, assigned the people that know the information and a large body of those people, to go off and investigate it and bring back report their findings.

Q But they would have documented that, in that case.

A I don't know how much more documentation than the Brown & Root review sheets may have been required by the IRC. But I would imagine that they would have expected some written documentation; perhaps something of the sort of the review sheets that were provided by Brown & Root would have been enough, perhaps they would have asked for more, but I would be merely speculating to judge that.

Q We'll have some witnesses latter on.

A I believe your scheduled to talk to someone about that.

Q I want to turn to a couple of the specifics, specific findings. On page 91, finding 4.1.2.1(b), would you regard this findings in terms of a close call with respect to reportability?

A (By Mr. Lopez) No, Judge Bechhoefer. This one, in my view, wasn't even close. I clearly considered this one to be a question of timing. And I recognized that the NRC witness on this did raise a question in his own mind as to whether or not this might have been a reportable issue or potentially reportable issue or not.

Q That's why I'm asking you for your opinion.

A The reason that I reached that judgment was that in reviewing the technical reference document that identified how these missile generation analyses were

supposed to be performed, and in recognition of the -- as I've testified earlier, the Brown & Root philosophy on plant design by separation to preclude, you know, major interactions of that sort, and also recognizing what I believe to be the general industry practice of performing these analyses after the majority of the plant layout of safety related equipment has in fact reached some relatively mature state of sign and then to deal with any possibly interactions at that time, as a very common practice.

So from that perspective, the fact that the detailed missile analyses, missile hazards analysis, if you will, had not been performed at that time, did not -- that did not trouble me.

Q Were you able to -- I think the staff witness thought that -- well, it says more information would be needed relative to whether the requirements of the TR document had or had not been implemented in construction use drawings. Did you consider that aspect of it?

A I did. And I believe the technical -- I don't know whether or not he reviewed the technical reference document, but in reviewing the technical reference documents myself, the primary emphasis of the hazards analysis is essentially to describe how one would go about doing that analysis once that work began, criteria

were in place, description of how -- the methodology that one would be expected to follow in postulating missiles and seeing what their trajectories might be and seeing what loads they might impose upon either closely located equipment or structural components was in place. They had not begun that analysis.

So if they had not yet begun that work, had criteria in place on how to do it, you know, I did not see, other than a timing question, any significant -- great significance to that.

A (By Dr. Bernsen) It's important to note that you usually don't incorporate any really special provisions in the basic structure for this, because experience indicates that you can deal with the missiles later on if you have them. It's not a major problem to accomodate these internally generated missiles. The fact that that work hadn't started would not at all be surprising at this stage of design. And so I would not consider it anything more than a question of degree of completion of engineering at this stage but not a problem.

Q Would this be true even if the component had been released, quote "released for construction"?

A Yes.

Q Because that's what I think the staff witness

has in mind on this particular one.

A It's perfectly reasonable to take ordinary components by them, install them, worry about potential missiles and then take specific -- make specific provisions if you find that you can't by analysis preclude the missile; the thing that you would like to do maybe for some specific piece of equipment is put a little bit more into the specifications and in fact I guess what we've heard is that that part had been implemented. They had accommodated this in their specifications.

But the analysis of protection of safety related structures is something that you normally do fairly late when things are firm.

Q Even after the component is purchased, installed, if you will?

A Yeah, even after the piece of equipment that might generate the missile has been procured and installed, yes.

A (By Mr. Lopez) One further piece of clarification, the reason that I was suggesting that the philosophy of separation was particularly important in this consideration was that in a plant that might not utilize as much physical separation, then when you got around to finally doing this analysis, you would probably

find that if you had to postulated missiles coming off of say rotating equipment, that if the only thing that stood between that postulated missile and some other safety related component, was air space, then you might in fact have difficulties in being able to demonstrate that that component as a target of the missile would not be degraded.

The resolution of that problem would involve typically would involve putting in some missile barrier, putting in some physical separation. This design started by putting as best they could all the equipment in opposite trains. And that usually is the philosophy of this missile analysis, in separate compartments, already separated by concrete walls. So really only those missiles that could, you know, seriously be considered to be have enough energy to penetrate, you know, reinforced concrete walls would be of some consideration and that is you know, just not at all a consideration relative to internally generated missiles for the kinds of equipment that is normally specified in a power plant.

So that's why I thought that that was significant.

Q Would at least types of considerations have been known to the review team at the time when they were looking over this 4.1.2.1(b).

A (By Dr. Bernsen) Certainly threw their engineer who provided the input, and I suspect several members of the review team.

MR. SINKIN: Objection, Mr. Chairman, speculation; move to strike.

Mr. Chairman, your question was posed as "would it have been known to" as opposed to "available to," and that's the context in which he answered it. If the question is "would they know it," thin it's pure speculation. If the question is "was it available," it may have some weight.

Q (By Judsge Bechhoefer: He's right. Make it "available."

A (By Mr. Lopez) Well, the technical reference document was issued and available and the discussion in the FSAR relative to the necessity for performing those analyses was also available, so yes, that information was.

JUDGE BECHHOEFER: Pardon me for a minute, there's so many sources.

MR. LOPEZ: I can sympathize with you, Judge Bechhoefer.

Q (By Judge Bechhoefer) Go to your assessment of 3.1(b), particularly page 36 of your testimony, to some extent, you talked about this earlier. But in your

answer 39, I wondered what your basis was for stating that Quadrex was concerned with the extent to which B&R was performing some functions rather than whether they were performing the functions at all.

A This is.

Q This is in your question and answer 39.

A (By Mr. Lopez) First let me begin by saying that in looking at Page 3.3 of the Quadrex report, under item 3.1(b), item three, the Quadrex statement as part of the generic finding is that the B&R review of vendor submitted reports is not consistent; sometimes they are very well done and other times they are poorly done, indicating that they recognize that the process was occurring; they were not indicating that they did not see the vendor reports being reviewed, only that they had questions relative to the variability of the reports; they used the terminology, the quality of the reviews. They saw in some instances what they thought were very good technical reviews and others they felt either were more cursory or had missed what they felt were important elements.

So that was the basis for our belief that they were not indicating that they did not see any evidence of a review, only that they questioned the depth of that review. I believe that was also what Mr. Stanley

testified to in this area.

Q Well, that being so, does criterion 7 incorporate implementation side of the program?

A (By Mr. Lopez) Yes.

A (By Dr. Bernsen) Yes.

Q Could this finding be regarded as at least a statement that the implementation aspects of criterion 7 were not being complied with adequately?

A Well, there's two aspects; one is from the, let's say, procedural or programmatic aspects, were they doing it; were they performing a review of vendor furnished information to confirm that the material equipment services could form the procurement documents.

And there was evidence that they were doing it. They had a procedure, they were following the procedure; the question then raised was how good is there review. Now, as I pointed out before, it was common practice in the earlier days and it's still to some extent true, it's certainly true that you contractually hold suppliers responsible for meeting your specified requirements, and then you undertake some level of review, surveillance, checking, spot speaking, whatever is appropriate to give yourself confidence that the vendor is doing what you want him to do.

With regard to design reports, stress reports

and things of this nature, a great deal of reliance in the past has been placed on the competence of the organization, and their own certification, review checking and certification of the their work, and the effort was really related to making sure that the documents you asked for, the design analysis documents you asked for, were in fact provided.

And that they did reflect the component that you were buying. We've learned that it's necessary to strengthen that level of review to assure that you get more accurate documentation, more accurate design analysis more suitable reports. And Brown & Root was learning along with the rest of the industry; so their practice was as Quadrex has said in many other cases that consistent with industry norms, I'm not sure they said it here, but but it was, and it was improving.

So that it's -- it's not really at this stage, based upon the specific evidence, I don't think it's really indicative of a breakdown in the process.

Q Not a breakdown in the implementation of the criterion 7?

A Yes, because it's a kind of a learn by doing. They, as we understand, based on records available to us, had undertaken earlier than Quadrex, a complete review of these stress and environmental qualification reports for

that very purpose, because they wanted to upgrade the quality of them.

(No hiatus.)

Q So, this finding served as a red flag that implementation was not being carried out consistently or properly?

A (By Dr. Bernsen) Well, I guess if -- you know, again, if the finding was valid, fully supported, that might be a different story. But if one looks at the status of the design and the procedures and the process and the actions that they were taking, it doesn't appear to be.

Q On page 42, also answer 42, the last sentence on the page, what do the words "generally understood" mean? By whom?

A By people in the industry, by quality assurance people. That criterion as you read it directly addressed two items, examinations and recommendations, tests of material or products. So, it usually has been applied and generally used in the inspection of products and the processes that are used to produce products. We apply primarily criterion 3 in the design verification area. But, you know, there isn't any problem in applying the appropriate words of 10 to that. Not very many of them fit.

Q By its terms, however, 10 does not exclude design activities; is that correct?

A Well, I think if we go into some of the reg

guides and program descriptions that have been submitted and approved, standard review plan and things of that nature, it becomes pretty clear that this series of criterion from, oh, let's say 8 through 15 were really taken from practices regarding the manufacturing and construction of items and applied to that primarily and not addressing software, software in the broad sense, drawings, specifications, things of that nature.

A (By Mr. Lopez) I might add that even though that may have been the general industry, if you will, implementation or understanding of that, the elements, many of the elements in criterion 10 are addressed in other criterion. That was really the only point that we were making. And I think we've attempted to address the contention not simply on the basis of whether or not it was, you know, referenced the wrong criteria, but whether or not the elements that were being suggested had been violated, you know, were properly dealt with in accordance with any of the criteria that might apply.

A (By Dr. Bernsen) We were not using this as an excuse for not addressing the finding.

Q Right.

Going up a few pages to page 45, answer 47, how long can it take under appropriate QA principles to update design criteria? Is there a point in time when

eventually failure to update criteria would constitute a deficiency?

A Let's see. One way to define this would be to say that if you're producing designs that are not reflecting your commitments, it may be that the design criterion being out of date would be the cause of that. And then clearly that would be a time when it was late in the process.

In other words, what I'm saying is if I get a design result drawing, specification, whatever, that does not address the commitments in force at that time, then I want to find out what the cause is. I may find out, well, the engineer used these criteria and the criteria are not consistent with what was expected to be done at that time. Then that would be lack of timely updating of criteria.

The thing is that the engineers in the iterative process really use a lot of tools besides the document that's called design criteria. We mentioned in this case they were treating the SAR as a design document, but I am sure that the SAR was used as a very strong reference by the engineers in performing their work so that, let's say, the absence of an SDD or a TRD or specific criteria, in the absence of that, the engineer is very likely to go to the safety analysis

report and say, now, what am I committed to do and use that as his starting point for design.

Q So, the fact that some of the design criteria were, say, outdated would not be of too much significance in the context it's used in the Quadrex finding in question?

A I think -- yes, that's -- I think that's correct, just so long as it wasn't causing a deficient product, design product.

JUDGE BECHHOEFER: That's all the questions the Board has.

Mr. Frantz?

MR. FRANTZ: The Applicants have no redirect.

JUDGE BECHHOEFER: Mr. Sinkin?

MR. SINKIN: Mr. Chairman, if I could have maybe five minutes to look over this, it's fairly extensive, I'd appreciate it.

JUDGE BECHHOEFER: I guess we could do that.

(Brief recess taken.)

MR. FRANTZ: In talking with my witness during the break, he indicated that he misunderstood one of your questions, Judge Bechhoefer, regarding criterion 16 and 17 as applied to documenting decisions not to report. He understood your question to apply to criterion 16. I believe he's now prepared to reply to

that question assuming that it's criterion 17 --

JUDGE BECHHOEFER: I asked about 17, which is the records criterion.

MR. FRANTZ: Applying criterion 17, Dr. Bernsen, do you feel there is any need to document decisions not to report under that criterion?

DR. BERNSEN: No, I would -- let's ask the question again. Do I believe that --

MR. FRANTZ: Is there any requirement under criterion 17 of Appendix B to document decisions not to report under 50.55(e)?

DR. BERNSEN: No, I don't believe so.

JUDGE BECHHOEFER: Do you know where the IRC requirement that there be some documentation on that stems from? Both current and back of '81, I think they're equivalent.

DR. BERNSEN: I was thinking that really it's not clear that IRC type processes would necessarily be considered QA records in the Appendix B sense since the records that you have of the corrective action, the records you have of the configuration of the plant, the acceptance of nonconforming conditions are really other than these IRC records so that the IRC record requirement I think really stems from a different set of regulations than Appendix B. Of course, we can meet all

of the requirements of Appendix B without having any IRC documentation.

JUDGE BECHHOEFER: Okay. I guess that's all we have.

Mr. Sinkin?

RECROSS EXAMINATION

BY MR. SINKIN:

Q Gentlemen, you were discussing Applicants' Exhibit 72, the disposition of comments on the task force report, and particularly comment 30 on page 23. In particular, your discussion was focused on the task force's response to Mr. Stanley's comments as reflected on page 23.

My question is that looking at line item 67 as it finally appeared in the final Bechtel task force report, did Bechtel, in fact, follow up with an extensive detailed review of vendor documents?

A (By Mr. Lopez) The answer is yes, we did.

Q Before yesterday had anyone identified that the vendor document referenced in M-49 was not, in fact, a valid vendor report?

A You said had anyone. I had not personally. The information I read in the Brown & Root document of April '82 also identified it as a draft document.

Q Brown & Root in April of 1982 identified this vendor report as a draft document?

A Yes, they did, in that document.

Q Can you tell me what the term draft document meant?

A The only description of it that I saw was a draft document. I can only interpret that that meant that that was not a formally submitted document. And based upon the information that we got from the chief engineer at Hills McCanna, that seemed to match with his statement of the only documents that might have related to those matters.

MR. SINKIN: That's all I have, Mr. Chairman.

JUDGE BECHHOEFER: Mr. Reis?

MR. REIS: Nothing.

MR. FRANTZ: The Applicants have nothing.

JUDGE BECHHOEFER: I guess you're excused.

DR. BERNSEN: Thank you. My wife will appreciate this.

JUDGE BECHHOEFER: I think we're going to go into the motion for reconsideration with respect to Mr. Powell. The only party that doesn't have its opinion on the record as of this moment is the Staff. I guess we're going to start off with the Staff.

MR. PIRFO: Thank you, Mr. Chairman.

JUDGE BECHHOEFER: We're going to give Mr. Sinkin a chance to respond, but I guess the Applicant ought to be able to respond to the Staff as well.

MR. PIRFO: Thank you, Mr. Chairman. We have a very brief response to Mr. Sinkin's motion.

As the Board is aware, when Mr. Sinkin first -- strike that.

When Applicants moved to quash the subpoena of Mr. Powell, we supported that in the position that what Mr. Sinkin had set out as areas to go into were uncontroverted and were -- would simply be cumulative and, therefore, the application for the subpoena for Mr. Powell on its face should not have been issued and, therefore, we favored the motion to quash.

Since that time, Mr. Sinkin has now moved to reconsider and has placed what we feel is new information in front of the Board. And while the Staff does not feel that that information is any more relevant or any less cumulative than the information he presented previously, the Staff, while not supporting the subpoena of Mr. Powell, does not oppose it at this time.

There are two things that the Staff feels we should respond to in Mr. Sinkin's pleading. Firstly, on the first page where Mr. Sinkin says that "The decision of the Powell subpoena was made under pressure because

all parties were trying to get to the argument over NRC witnesses," we think that this is a blatant mischaracterization of what actually happened. Mr. Sinkin had two opportunities in writing to ask for the -- to give his reasons for wanting Mr. Powell and he had the opportunity to make his argument here at the hearing. There was no pressure and there was no lack of opportunity to be heard on this. He simply did not set out enough reasons for the Board to grant -- to deny the motion to quash the subpoena.

Secondly, with regard to the -- at page 5 at the end of Mr. Sinkin's motion to reconsider he states that "While the NRC Staff may well be concerned that Mr. Powell's testimony may be embarrassing to the NRC, that concern is irrelevant to this proceeding." Well, we couldn't agree with him more, but we fail to see how any testimony from Mr. Powell could embarrass the NRC. And this is, if not made out of whole cloth, a total mystery to the Staff at this point.

So, having addressed those two either mischaracterizations or fantasies of Mr. Sinkin's motion, we'll rest at that.

JUDGE BECHHOEFER: Let me ask you one question. I'm going to ask Mr. Sinkin this, too. But what effect, what importance does the Staff attach to

the point raised by the Applicants that if the area of -- the scope of information sought from Mr. Powell was not outlined in the two statements that Mr. Sinkin or CCANP filed earlier, that should be a weight against calling him at this time?

MR. PIRFO: I think he's clearly out of time on this. And quite candidly, I don't know if this is the reason for his statement at the end of his motion, but to avoid any speculation that we would be embarrassed by Mr. Powell's testimony somehow would throw him out as untimely because of this statement that we have something to hide is the reason we backed out. To that extent he's been very successful in including that in there and I fail to see that.

I think he is out of time and I think his request for the subpoena for Mr. Powell at this point should be turned down, the motion to reconsider should be denied.

He is simply -- to the extent he has raised anything new, he has raised these very untimely. It's been argued. He's had the opportunity to present why he needed Mr. Powell and he's now gone back after the subpoenas were quashed and tried to come up with something new and this is, as the Applicants point out in their filing, it is not -- I believe they cite the

Summer case, Central Electric Power Co-op, Inc., with an entirely new thesis. And we couldn't agree with them more on that.

But he has cast -- I think it's clear to the Board what he has -- he has cast a shadow over any possible position the Staff can take on this because he said something that Mr. Powell says is going to be embarrassing to the Staff. I wish I knew what that something were and maybe we would argue that, but I have no idea what he's talking about.

JUDGE BECHHOEFER: Okay. Mr. Sinkin?

MR. PIRFO: The problem I have, it's simply as I view it simple conjecture.

We are a public agency and we're not embarrassed by the truth. If there's something in truth here that's going to embarrass the NRC, I wish I knew what it was. But it's just simply speculation and conjecture on his part.

But we do not want to be placed in the position where it looks as if we're attempting to keep Mr. Powell off the stand for some ulterior motive. We simply feel that his testimony would be cumulative, it would be un -- it would be to facts which are essentially uncontroverted in the record.

And to the extent there is anything new in

there, it's something that Mr. Sinkin has now raised for the first time and therefore improper and that's where we stand on it.

JUDGE BECHHOEFER: Do you think Mr. Powell's testimony might be a useful addition to the record with respect to competence in terms of 50.55(e) reporting?

MR. PIRFO: No, I don't think so. I think we've got -- we have -- the Staff has -- we've got plenty of Staff testimony on that. I realize he may want to get it straight from the horse's mouth, if I can use the vernacular. But I think we've got Mr. Wisenburg as well, we've got plenty of evidence in the record as to this. I think it's cumulative on that. I mean, it might add something. I don't think that something will rise to the level of useful, as you said, Chairman Bechhoefer. I think it's cumulative.

The main reason for arguing against cumulative testimony is so you don't waste time. But I think we're wasting more time with his motions to get him on. If he's so, pardon the expression, "hell bent" on getting him here, the Staff doesn't want to lay down in his way.

JUDGE BECHHOEFER: Mr. Sinkin?

MR. SINKIN: First of all, Mr. Chairman, I was looking for this last night and I couldn't find it

because I had loaned it to the Staff and we had misconnected. But I remembered I had put something in there in Austin about this and I was trying to reconstruct in my mind why I would have said such a thing about the Staff. And I think I know why, but rather than even trying to get back to that, I'd be perfectly happy to withdraw that statement from my motion at this time and allow the Staff to take any position it feels necessary to take in the absence of that statement.

MR. PIRFO: We oppose the motion.

MR. SINKIN: Okay. I don't want to restrain you in any way.

MR. PIRFO: I think he's raised some things out of time. But the fact that -- to the extent he has -- let me put it this way. To the extent there is anything new in his motion, then there's an entirely new thesis and it is untimely. To the extent there is anything in there that is not new that he raised timely, it's already been considered and rejected by the Board.

MR. SINKIN: In our response, Mr. Chairman, just to look briefly at the history of this event, we were first asked to identify witnesses and provide sufficient information to meet the criteria of general relevance for the issuance of the subpoena. We did

that.

We were then asked to give greater specificity as to what we would expect the witnesses to testify to in order to assist the parties in preparing for the case and to give the Board some basis for dealing with motions to quash if there were going to be any. The Applicants then filed a motion to quash and on the day of the hearing that was referred to in the motion, July the 19th, we were responding in depth to the Applicants' motion to quash and the information was being presented that day at a time when we were, indeed, trying to reach the NRC witnesses on some very important arguments as to whether they would be called or not that would have to be delayed for a week if we didn't do them that afternoon.

So, I think there was a time pressure at work. We did present the particular document that we wanted to call the Board's attention to and gave some explanation of it, but we did not have a full period of time for debating this particular point because we were trying very hard to get on to the other matters.

At the time the document was presented, Mr. Axelrad's response was that the document addressed only one item, that the three separate items referenced in Mr. Powell's memorandum were, in fact, all addressed to

one item in the Quadrex report. The Board agreed with Mr. Axelrad before CCANP could provide the more detailed analysis that's provided in the motion for reconsideration. CCANP's position on this part of the Applicants' response was that given more time to understand the document, the Board might well agree with CCANP that there was a matter of substance that should be heard.

Having read through very carefully the Applicants' interpretation of the IRC minutes and spent a great deal of time looking at the IRC meetings, looking at their interpretation, looking at my interpretation, I think the Applicants offer a plausible explanation of what the minutes record. At the same time, the wording of the concern suggested that the other two items that I have called attention to under the computer program were indeed included as matters under review and that the action items below in the memorandum, the action items that are listed by the IRC as things they intend to do, include all three items that we think this report covers.

And I would call the Board's attention to the testimony of the panel here today about the comprehensive approach that was taken on the computer question and that it covered even more findings as far

as they were concerned, as to the concern of those findings, it was encompassed in the resolution of this notification which speaks only of visibility. The notification to the NRC, the telephone minutes record as addressing the visibility of the computer program which dealt only with whether the person using it new whether it was safety-related or not.

The evaluation for reportability went far beyond that simple inquiry into the entire spectrum of issues on computer programming which indeed did encompass the three items that we called attention to. And on the items that the IRC identified as follow-up action, item number 4 says B&R is to define what actions are being taken internally to B&R and why relative to the findings, plural, of the technical assessment recently performed. We believe the term technical assessment reasonably performed clearly refers to the Quadrex report and that Brown & Root is being instructed to provide information on how they're going to address more than one finding, suggesting indeed that the Incident Review Committee considered more than one finding, which is the essence of what we are attempting to get testimony about.

Now, we have no follow-up to that from the IRC available to us through discovery. I haven't seen

anything that follows up on item 4. But I think the intent of the IRC was clearly that Brown & Root go forward to do that kind of more extensive follow-up and that further notifications were not excluded from that review. There could have been further notifications coming out of it.

The Applicants call attention to the fact that at the top of the document it says the IRC was convened to evaluate an item, written in the singular. I think that's essentially meaningless in terms of Quadrex. The IRC was not so precise in its use of this term with respect to the Quadrex report and, for example, the HVAC report to the NRC -- I'm sorry, the report of the IRC covered two findings in HVAC, but when they took it up to discuss, they discussed it as evaluating an item on HVAC. So, I don't think that use of that singularity really means much.

The Applicants take the position that the concerns being examined by the IRC are all encompassed by the notification to the NRC. They also say that each of the three findings I'm calling attention to is related to all or part of the three concerns that the IRC expresses and they conclude that there's nothing to report to the NRC from the other two findings apparently because the concerns expressed in those findings were

expressed in the notification of finding (a).

Our position is the Applicants have an internal inconsistency in their argument. They first want to say that the IRC is not addressing findings (b) and (c), they are only addressing (a). And then they want to say that the concerns being addressed by the IRC take care of (b) and (c). More importantly, the Applicants now argue that the notification of (a) is sufficient to cover the concerns expressed in (b) and (c). If that were true, then, in fact, HL&P views its notification to the NRC on computer codes as also reporting findings 4.2.2.1(b) and (c), a new position, and contrary to everything presented to the Board and parties to date.

The Applicants did not, in fact, report identification of Quadrex findings as such to the NRC. Neither the report or a finding number were in the notifications provided to the Nuclear Regulatory Commission. We have relied in good part on their representations as to what was notified and their representation has been that the notification on computer codes covered only 4.2.2.1(a).

Conversely, the Applicants are saying that (b) and (c) contain some or all of the same concerns as (a), but (a) was subject to notification while (b) and (c)

were not. In fact, a close reading of the two additional findings, which I think we've spent a good bit of time on today, at least on (b), shows that they are not encompassed by the wording of the report to the NRC. As the witnesses testified earlier today, the wording is narrow, it says visibility. That does not cover all of the findings that are at issue in my motion for reconsideration.

A close reading of finding (b) states Brown & Root did not adequately determine the classification of computer codes as either safety or not safety-related because they did not consider the application of the code as the determining factor.

The shielding calculations notification is a similar problem of classification, although it does not encompass the computer code problem, it illustrates the particular type of problem as contrasted to whether you have a document that tells you whether the computer code you're using is classified appropriately. It deals more with the actual classification than information being given to a user.

And item (c) is a concern that the method by which safety-related codes are being verified is inadequate, which doesn't deal with classification as the witnesses said, but is more a concern as to whether

you are verifying your safety-related codes appropriately.

So, we would argue that our interpretation of the minutes is at least as plausible as the Applicants' interpretation of the minutes and that Mr. Powell is the appropriate person to resolve that problem.

(No hiatus.)

Q So whether or not findings 4.2.2.1(b) and (c) are at issue in Phase I which is suggested is not the case in Applicants' motion, I think that was resolved earlier today when it was argued over whether questions on the findings could be asked of the witnesses, we argued that they were clearly linked to the generic findings 3.1(d) 4 and the Board up held that.

JUDGE BECHHOEFER: You mean Phase II.

MR. SINKIN: Did I say Phase I?

JUDGE SHON: Yes.

MR. SINKIN: Time warp. Phase II. As to whether CCANP is raising Mr. Powell's competence for the first time, the issue of competence applies to every Applicant witness with 50.55(e) responsibilities. We resolved that during the questioning of Mr. Goldberg.

And it was demonstrated by the Board permitting question of Mr. Jordan at least in the limited context of the soil issues, not Mr. D.D. Jordan, but Mr. Tom Jordan; more importantly, numerous Applicant witnesses from Mr. Goldberg to Dr. Bernsen have been cross-examined on this point by CCANP, in some cases over the objections of Applicants, without any need for the subject to be even in their direct testimony.

The particular competence is something the Board decided was relevant and witnesses should testify

on that subject and that's at page 20 of the Board's February 26th order.

JUDGE BECHHOEFER: Mr. Sinkin, assuming we thought that the competence question was important and that Mr. Powell could address it, why should we permit a subpoena to be issued for a witness on that subject when the subject wasn't addressed -- mentioned earlier as a reason for -- as a part of CCANP's case and as a reason for calling that particular witness?

MR. SINKIN: Well, the point I was trying to make about 50.55(e) competence is that the Board -- I guess I'm going as much from the Board's order as a reason to call this witness as any reason; the Board said in its order that they wanted to examine the current competence of HL&P in the 50.55(e) area, and as to whether Mr. Wisenburg is an adequate substitute for that, I -- we did address that point in the motion.

We would only add that the fact that the witnesses, the Applicants call a witness on a subject such as the current 50.55(e) program and whether it's appropriate and the people implementing it are competent, the fact that Applicants call a witness on that subject simply cannot be the basis for the ruling that the intervenor can't call a different witness.

Under that standard, the intervenor becomes a

second class party to the proceeding, were --

JUDGE BECHHOEFER: Mr. Sinkin, assuming we recognize this, our order which identified competence as a significant issue, was issued some time before you had to supply what you expected various witnesses of your own to testify to. So what I was driving at is why shouldn't we, assuming that if that subject had been mentioned earlier it would have been possibly sufficient to warrant not quashing the subpoena, why shouldn't we be bound by the statements that you made earlier in considering whether a subpoena should be quashed.

MR. SINKIN: Mr. Chairman, neither the Applicants nor CCANP ever identified any witness as coming to testify on that issue. The Board said witnesses will be expected essentially in their order, will be expected to be able to answer to their competence on 50.55(e). Mr. Goldberg was not identified as coming to testify about the competence of 50.55(e) reporting; but when I went to ask him questions about it, the word said that was appropriate because their order said witnesses coming shall answer to that question.

So I didn't see any need to say I'm going to ask every witness I'm calling about this, they were all subject to answering by the order of the Board, by the simple fact they were coming.

JUDGE BECHHOEFER: Right. Well, isn't there a difference between issuing a subpoena for another witness than permitting witnesses who are here to answer questions on that subject?

MR. SINKIN: Well, what you may be saying is that in order to call Mr. Powell, there would have to be some basis other than just testing his competence? It seems to me that if we --

JUDGE BECHHOEFER: What I'm suggesting is that the basis perhaps should be what you suggested before, perhaps now as you further elaborated on that basis,.

MR. SINKIN: The (a), (b), (c) basis opposed to the competency?

JUDGE BECHHOEFER: Yes.

MR. SINKIN: I would consider if he's called on the (a), (b), (c) basis, that he's answerable to the competence on the 50.55(e), just like any other witness that came.

JUDGE BECHHOEFER: Right. But if we decide the (a), (b), (c) basis isn't enough, why then should we permit him to be called solely on competence, where you haven't specified it earlier?

MR. SINKIN: I guess I would argue it in from point of view of the order, Mr. Chairman. If the order indeed sets out what the Board wants to do, which is

examine the current competence of the Applicant 50.55(e) and the Applicants have chosen to present a given witness but not the witness who could most clearly in our view demonstrate whether that competence is present, because this is the witness that has the responsibility for making the, decisions not reviewing someone else's decisions, then I guess we're arguing that directly from the Board's order, that if (a), (b), (c) is out, then to fulfill the mandate of the Board's order, the witness should be called.

And I think when we were saying in our statements of why the witness should be called, here you have the chairman of the incident review committee obviously a key figure who needs to be questioned, that the obvious implication is one of the reasons he needs to be questioned is precisely because he is the chairman of the incident review committee.

The final point that we have is that in the calling of a hostile witness, prefiled testimony is clearly not possible. And what we view the Applicants is trying to do with the motion to quash is what might appropriately be a motion to strike after the testimony is heard, if that is indeed their feeling about the testimony. But that it's inappropriate to prevent the testimony from being heard and that it prejudices us for

that testimony to be withheld on that basis.

JUDGE BECHHOEFER: Mr. Gutterman or Mr. Frantz.

MR. GUTTERMAN: I guess I'll respond, Mr. Chairman. I guess I'd like to respond to the next to the last point we heard, because it's fresh in everybody's mind. I don't think we are talking -- I don't think so CCANP is talking about getting testimony from Mr. Powell on an issue in this proceeding.

He's talking about calling in one of the Applicants' employees and giving him a test to see whether he's competent. That's not testimony; there's no point to be proven here; there's no alleged facts that's going to be proven by this witness; what we're getting instead is a proposed discovery in essence; he wants to take Mr. Powell's deposition in this proceeding and waste all our time while he administers a test of Mr. Powell's competence.

That's not testimony. There's no fact being proven here. And it puts the Board, and if Mr. Powell were called, it would put him in a very unfair position. It's asking the Board to make a judgment about HL&P's personnel selections, not on the basis of something that this person did wrong in his job, but come in and we'll pick out Applicants personnel who we think should be tested because they're in a position that -- we are not

talking about even a management person here. We're talking about somebody who's well down the chain.

Applicants are calling Mr. Wisenburg as a witness on this point. The Board asked for a witness to testify about Applicants' competence in this area. Mr. Wisenberg reviews personally every decision of the IRC on whether something is or is not reportable; including IRC's in which Mr. Powell acts as chairman and IRC's in which Mr. Powell does not act as chairman and he does not act as chairman on every item that's considered by the IRC. He designates other members of the licensing staff are designated for that role.

I wouldn't want it to be misrepresented that he is the central figure in all this. But Mr. Wisenburg reviews all those decisions. And he'll be here to testify.

I think that's appropriate, that's reasonable; what CCANP is seeking here is not reasonable. It's in the manner of discovery, it's going to just add a cumbersome section to a record that's already grown very large and cumbersome, it's going to be totally cumulative and it's not testimony as to facts. It's an attempt to conduct a test, personnel competence test, in the licensing proceeding. I don't think that's a kind of thing that an ajudicatory proceeding is about.

JUDGE BECHHOEFER: What about the relationship of the IRC to the reporting or non-reporting of the Quadrex report.?

MR. GUTTERMAN: Okay, that gets back to CCANP's proffered document in the first section of the motion for reconsideration.

JUDGE BECHHOEFER: Yes. But it could be considered relevant to both points he raises as well. Be that as it may.

MR. GUTTERMAN: As to -- I don't want to get too sidetracked on this document. I think it speaks for itself, it's obvious what it is; there's no discussion in the whole document about whether anything should be reported.

It's a document that attempted to assign action items after something was reported. It mentions the facts that something has been reported1; it describes what the concerns were that led to that report, and it says here's what people are directed to do to go about figuring out how we resolve this concern. That's all is it is. But I don't think we ought to get sidetracked too much in trying to pars through this document and figure out too much about what it is, because that's not the central point.

The central point is that this is a

manufactured issue to find an excuse to call Mr. Powell; there's no issue in this proceeding about whether the IRC considered the reportability of some part of the Quadrex report after May 8th of 1981; the proceeding is talking about whether HL&P made the right reportability decisions on May 8, 1981.

It would not reflect adversely on the character or competence of HL&P if they had sent the Quadrex report or parts of it to the IRC for review after May 8th; they didn't consider it necessary, it wasn't done; but that's not an issue in this proceeding. If HL&P had done it, there would be no reason to hear about that other than as a positive factor.

This is a manufactured issue that's been created to justify calling a witness after the fact whether the initial reason for calling him was rejected. And you could see that by looking at the documents that led to our arguing the motion to quash in the first place, what CCANP was contending that Mr. Powell would prove would testify to is exactly what Mr. Goldberg has already testified to, that Mr. Goldberg, Mr. Robertson and Dr. Sumpter were the three people who reviewed the Quadrex report for HL&P and played the decisions about reportability; that they directed Mr. Powell to report the three items that they felt were reportable; that was

his testimony, that's what CCANP originally said Mr. Powell would testify to.

Now we have this manufactured issue of oh, the IRC reviewed something after then and Mr. -- actually, there's not even a citation in CCANP's motion for reconsideration to any testimony; what CCANP says they're going to controvert is Applicants' motion to quash.

Applicants motion to quash the subpoena stated that other than the three items which were reported, the IRC did not review the Quadrex report. Applicants were offering to stipulate in effect to the facts that CCANP alleged originally in their specification of what they expected Mr. Powell to testify to.

That's all we were doing. It wasn't a statement that we feel our case depends on this fact. We were merely pointing out there's no issue in controversy that Mr. Powell's being called to testify about and I think that's the essential point. There is just no issue in controversy that Mr. Powell will be testifying about. It's an attempt at discovery and to fish and nothing more, and it's going to be a total waste of this Board's time and all of the participants time to have to listen to it. And that's our position.

JUDGE BECHHOEFER: What about the question whether the computer code report that was made included

one, two, or even five separate findings.

MR. GUTTERMAN: I think you can look at Mr. Goldberg'S testimony. He does at one point say that finding A was reported, but he also says that what was reported to the NRC is essentially what was in the document that was shown to the witnesses today, the IRC, Mr. Powell's telephone minutes; it's repeated right in Mr. Goldberg's testimony on pages 23 and 24, answer 33, the report was that the verification program lacked visability the user as to whether or not the program versions in use had been verified. The essential of that description is pointing out to the Commission that we have doubts about whether the computer programs that had been used were properly verified.

And if you go through the copies of the reports, the interim and final reports, the Board received copies of, all along, you can see the broad scope with which that was dealt. You could see that the Applicants went back and re-verified the safety related computer programs, very broad scope, reviewed the calculations that involved using computer programs to see whether they might be affected. All of the concerns addressed in these Quadrex findings would have been resolved, were resolved by dealing with that one report.

The Applicants on May 8th were not trying to

report specific Quadrex findings; they were trying to report deficiencies that they had identified through the use of the Quadrex report. That's the essential point. And the concerns that we're talking about, about the computer programs, are clearly encompassed within the report that was made. And if anybody has any doubt about that, you can just look at the interim records and the final report that dealt with this issue. Clearly they addressed all of these concerns and there was never any amendment that said, "Oh, we have something to add to the scope of this report."

It's just not the nature of the industry that when something is reported in a 50.55(e) that the initial report clearly define the full paramaters of the item, especially when you are having your initial report as a potentially reportable. You haven't done thorough analysis of the whole thing, you've identified a concern and you tell the Commission about the concern, and then you are required to submit written reports on a 30 day report and if that can't finalize and resolve the whole thing, you periodically submit additional reports, explaining the state of your investigations, the scope of the concern and how you're resolving.

It's not true just to this computer codes item, it's true of virtually every item that's reported under

50.55(e).

JUDGE BECHHOEFER: What about the documentation question of non-reportable items, which there have been a number of questions, some of which by us.

MR. GUTTERMAN: I've heard a number of those questions and as Mr. Goldberg testified, Mr. Wisenburg is very well aware of what's in his files, he's licensing manager, he's going to personally review those files before he testifies so that he'll be in a good position with recent review to testify to the Board about the level of documentation that was maintained back then and is maintained now, about items reviewed by the IRC.

I don't see why Mr. Powell would be a better witness for that or why it would be helpful to incumber the record by calling yet another witness who's going to testify to the same things.

Mr. Chairman, Mr. Reis has made available to me something I didn't have available myself that I should have and I apologize. And that's just one of the interim reports that was filed under this computer code verification issue, back in August of 1981. So this is like the -- the second interim report. And if I could just hand that up to the Board so you can -- to refresh your recollection on the scope with which this was treated, I think you'll see that I was representing it

fairly.

JUDGE BECHHOEFER: I looked at them back in Washington but I didn't recall it.

MR. REIS: It isn't just one, it's two -- isn't just two, it's two and one. As the Board's aware, after there's a telephone notification, there's the 30 day report that scopes it out and then --

JUDGE BECHHOEFER: I think that was early June, some date in June, which I had someplace.

(No hiatus.)

MR. SINKIN: I do have a response, Mr. Chairman.

MR. REIS: Mr. Chairman, let me make a brief statement.

Because of the Board's pretrial order, we didn't feel that these matters were at issue. Because we now have questions involving the scope, the Staff will reproduce the file on each of the 50.55(e)'s on the reported matters and introduce them during its case.

MR. SINKIN: As I said, Mr. Chairman, I did have a brief response to the document you were shown.

JUDGE BECHHOEFER: Yes.

MR. SINKIN: On page 2 of the August 27th, 1981 response, it states that "In addition to the assessment of Brown & Root's previous usage of computer programs." Now, that would be the item that was reported. It's not visible, the user wouldn't know whether it was safety-related or non-safety-related, so you have to go back and be sure a program wasn't inappropriately used.

"Procedural requirements are being revised and/or established to strengthen Brown & Root's existing program for the control, usage and application of computer codes." I view those three terms as (a), (b) and (c). That's exactly what we're -- actually it's

(a), (c) and (b), I think, if you go in the proper order.

The application of the computer codes is brought up in one finding, the control of their usage is brought up in another finding, and their actual usage as to whether you have done a safety-related or non-safety-related calculation is in another finding. So, it seems like in the response they are going into all three items. It's not clear that they reported all three items, but in the response they are going into all three items.

That's the point that I was struck with in the minutes of the IRC meeting.

MR. GUTTERMAN: Well, Mr. Chairman, I think Mr. Sinkin's argument really shows that the Applicants thought they reported it all.

MR. REIS: Why were they dealing with it all?

MR. SINKIN: If the Applicants wants to represent that they reported the three findings, that's fine.

JUDGE BECHHOEFER: We have made a decision. We will not reconsider with respect to Mr. Powell. The only loophole that we will leave is if Mr. Wisenburg is unable to answer various questions on things like documentation. We might reconsider on that, but we

fully expect Mr. Wisenburg to be able to answer the question. So, we will not subpoena Mr. Powell at this time.

MR. PIRFO: Mr. Chairman, may I approach and just get that book back?

JUDGE BECHHOEFER: Yes.

We will suggest that given the Staff's offer to provide some documents, it might be useful to have those by the time Mr. Wisenburg testifies.

MR. REIS: We'll try and reproduce them tomorrow afternoon.

MR. PIRFO: Unless the Applicants would --

MR. REIS: Unless the Applicants would rather take them and reproduce them.

JUDGE BECHHOEFER: I don't think Mr. Wisenburg is scheduled for the next day or two. In fact, he's not scheduled until next week sometime.

MR. GUTTERMAN: Let's figure out what we're going to produce. What I'd suggest we produce --

JUDGE BECHHOEFER: I guess we can go off the record for the moment.

(Discussion off the record.)

JUDGE BECHHOEFER: We'll recess until 9:00 o'clock tomorrow.

(Hearing recessed at 6:35 p.m.)

CERTIFICATE OF OFFICIAL REPORTERS

This is to certify that the attached proceedings before the UNITED STATES NUCLEAR COMMISSION in the matter of:

NAME OF PROCEEDING: EVIDENTIARY HEARING
HOUSTON LIGHTING AND POWER COMPANY, ET AL (SOUTH TEXAS PROJECT, UNITS 1 AND 2)

DOCKET NO.: STN 50-498-OL
STN 50-499-OL

PLACE: HOUSTON, TX

DATE: Friday, August 2, 1985

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

R. Patrick Tate, CSR

Susan R. Goldstein, CSR

Official Reporters