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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

ENCLOSURE 5

In the Matter of:

MEETING BETWEEN NRC STAFF AND CYGNA
(Open Meeting)

Location: Bethesda, Maryland

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

MEERING BETWEEN NRC STAFF AND CYGNA

Nuclear Regulatory Commission
7735 Old Georgetown Road
Bethesda, Maryland
Room 1713

July 3, 1984

The above entitled meeting was held pursuant to notice, at 9:00 a.m.

LIST OF ATTENDEES:

J. George
J. Spraul
P. T. Kuo
S. B. Burwell
D. Terao
R. Buchmann
E. Rogin
N. Williams
J. Minichiello

PROCEEDINGS

MR. BURWELL: My name is Spottswell Burwell. We are--this is a meeting between the staff and CYGNA to seek--the principal purpose is to seek clarification on some questions that were asked by the staff in a letter dated March 30, 1984.

In addition, we would like to briefly go over the list of questions in that letter to have some feel for where these fall relative to CYGNA's effort to respond.

The third item on the agenda is there are several questions that have been raised in the staff's mind as a result of the CYGNA testimony at the last hearing, and we would like to see some clarification on this.

With that, Nancy, do you have any further agenda items or any changes that you would like?

MS. WILLIAMS: No, I think that follows right in line with the list that I've come prepared to discuss. I have reviewed the discussions in our last meeting and pulled out what I think are the open items.

MR. BURWELL: Just a moment. Let me find my--okay. With that, I believe the first item on the agenda was the question in our March 30, 1984 letter.

This would be question three, dealing with observation PI-00-02. Would that be a suitable place to start?

MS. WILLIAMS: PI-00-002, the Butwell's, or the--

MR. BURWELL: This is related to the 20% increase in the upset and emergency. Am I on the wrong page?

MR. BACHMANN: PI-00-02 is the 20%.

MR. BURWELL: Yes, okay.

MS. WILLIAMS: And 00-01 is the weld mismatch. Yes.

MR. BURWELL: 00-01. Okay. Either one. I assumed, Mr. Terao has indicated to me that the question before us was PI-00-01.

MS. WILLIAMS: Yes. I would like to go through both, actually, to make sure.

MR. BURWELL: I think you are required to go through both just briefly, anyway. They are parts of-- both of them, I need a little education on, but let's go on.

MS. WILLIAMS: Okay. Starting with PO-00-01, dealing with the Gerth Buttweld weld mismatch, in my letter dated April 24, 1984, from CYGNA to J.V. George of Texas Utilities, we have proposed a scope of follow-up work which is in line with the transcripts from the Thursday, April 19th meeting.

Basically, what we are proposing to do is limiting the review scope to three and four-inch schedule 40 piping.

Further, we were proposing to limit it to high energy piping and those which span buildings where seismic anchor motion is a consideration.

I believe we briefly discussed that in a meeting last time. I also understand there's been one brief discussion between Dave Terao and John Minichiello on our proposed follow-on review scope.

And I'd like to just make sure that what we're proposing to do with those limitations would satisfy the concerns that were expressed in the Thursday meeting between the staff and CYGNA.

MR. TERAO: I think on this particular issue, what we've done is, we've narrowed the scope down considerably to a relatively few areas of electric piping, which, as you indicated, is three and four-inch schedule 40 high energy piping. I think the--

MR. BURWELL: In addition, we are speaking to this break pipe.

MR. TERAO: And these apply to the Buttweld's between straight piping, correct. I think one--the only area that I still have a concern in from the issue is the code requirements for the stress intensification factor, which is needed for the fatigue evaluation.

So from that standpoint, the only open concern is the use of high stress intensification factor for fatigue.

I wasn't sure exactly how you are going to proceed to address this issue, but you could address it from either two standpoints.

One is from a stress standpoint and one is from a cyclic standpoint. If a system does not have a large number of stress cycles, then it can be justified that a larger stress intensification factor is not necessarily needed.

So perhaps we should discuss a little bit more exactly how you're going to be addressing this issue, and I think I would like a little more clarification on why you were selecting high energy piping and piping that spans between buildings.

Perhaps that just needs a little more clarification.

MS. WILLIAMS: Okay. John, do you want to--

MR. MINICHIELLO: The basis for our selection of high energy and spanning pipe was the basis of equation 10 and 11 of Class II in the code, which is equation 10, being thermal expansion, plus seismic anchor motion stresses, equation 11 being dead weight plus thermal expansion plus seismic anchor motion stresses.

What we were intending to do was to choose a cross-section of piping problems which would exhibit either the highest thermal expansion stresses or the

highest seismic anchor motion stresses, high being which spanned buildings would exhibit the higher seismic anchor motion stresses because you would get the motion of the buildings out of phase.

The high energy piping was chosen as being number one, the most critical piping in the plant. Number two, the piping which would exhibit the higher temperatures.

So we limited the scope to that. We had planned on looking at it initially on a stress basis, taking that sample of problems and looking at the stresses in the butt welds, ratioing them up by a factor of 1.8, and seeing if they were still acceptable.

So that was our initial--that was the basis of this April 24, 1984 letter.

MS. WILLIAMS: We do get a listing of these stress problems that span the buildings, so that we have a feel for the scope, although we don't recall the specific number right now.

We think it's somewhere around 50, stress problems which span buildings, and from that, you would then go and evaluate those that are high energy lines.

We don't know what that number would be yet; we haven't pursued it before we want to talk with you first.

MR. BACHMANN: Do we have a copy of the review?

MS. WILLIAMS: No, but --

MR. BACHMANN: May we have a copy?

MS. WILLIAMS: You can--yeah, can you get it xeroxed here or after the meeting, certainly you can get a copy of this.

MR. BURWELL: That does not contain contract information, does it?

MS. WILLIAMS: It contains some NR estimates which is why we didn't release it before. It's really an outdated letter at this point in time, although it does list the items that we committed to at the end of this Thursday meeting we had with you. I can black out the NR estimates, for that matter.

MR. BURWELL: It's your choice. We have no need to know them, and our estimates on those specific items, I don't think.

MS. WILLIAMS: We had told you in that meeting that we would resubmit a letter to yourselves as well, and I propose to do that after this meeting where we've firmed up the welded attachment scope and the butt weld scope.

MR. BURWELL: Would you help me a little bit understanding the scope? Because I thought I heard Dave say that he was principally interested in stress

intensification factor for fatigue. You seem to be talking about the seismic loading.

And I didn't relate the two. Am I missing something? You do include the seismic in the fatigue loading?

MR. TERAO: I think what John was saying, that maybe you could clarify for the record, I'm not sure how it was dated, but I think what John was saying was in equation ten, which considers thermal and seismic anchor point displacement, not the seismic inertia of loading, in equation 11, which includes weight, thermal, and seismic anchor point loading, not the inertial loadings. Those are the loadings I needed for fatigue.

MR. MINICHIELLO: I apologize.

MR. BURWELL: Well, I apologize for not knowing the code better than that.

MR. TERAO: I think the only thing I would like to say, I think the way you're proceeding seems appropriate.

One thing I would like to note is that, I guess, in our eyes, this was not a major issue and we would not like to see a disproportionate amount of time spent on this particular issue, maybe compared to some of the other issues.

When you said that there were 50 systems to look at, I am not sure that you're implying that you would look at all 50 of them.

I certainly hope, if it requires a lot of time, that we should discuss it before you proceed and spend too much time on this particular issue.

MS. WILLIAMS: Let me ask this, then. We are talking somewhere in the order of at least a week down at the site for reviewing these problems.

It's a function of how difficult it is to pull the documentation together. We did not feel this was a problem coming in to our presentation of the results of Phases I and II.

And we've provided our basis for acceptance of what Gibbs & Hill has done in the observation review record. If there is a specific point that you feel isn't addressed, it is not necessary to go to the extent of doing this kind of review.

I would like to discuss that right now, because we could go back to the observation review record and review that again, or perhaps enhance that in some way if there is something we're not addressing.

But by the same token, it's not a one-day effort to do this.

MR. MINICHIELLO: The issue on--not the issue, but

the approach on taking the number of cycles. That's certainly a valid approach.

It would involve collecting cyclic information data on Texas.

MS. WILLIAMS: To the extent it's available.

MR. MINICHIELLO: To the extent it's available, and perhaps making some estimates on that now. That would take less time, but you would then have to take that data, go back into the code, in Class I, actually, and work back through what that would give you for a stress intensification factor, working with in Class I.

It's a more elegant way of approaching the problem, but it does involve sitting down and going through the systems, that of three and four schedule points, and saying, "Okay. How many cycles do we have at these systems?"

It's almost six-to-one, half a dozen to another, which way you want to approach the problem. We felt that this was a little straightforward, and I think that's why we proposed it.

MS. WILLIAMS: To go back to that Thursday meeting, if I recall correctly, your concern was the location of butt welds and whether you agreed it was likely they would be somewhere in the mid-span of long straight runs, where there were low moment regions, which was

our basis for saying we did not think it's a problem, the other regions being governed by other hardware safety stress intensification factors.

MR. TERAO: But from that April meeting, I thought you had at least looked to some extent at the effect of the thermal moments in the piping system to determine at least that for thermal, that they almost tend to be governing.

Or maybe I'm--the meeting was a while ago, so my memory is a little hazy on that. I tried to remember exactly what was left over from that meeting, but for some reason in my mind I seem to recall it was only really from a seismic standpoint and not thermal.

MS. WILLIAMS: Why don't you go back through that logic, John, just to reiterate on what our basis for closing observation was, perhaps, and start from there.

MR. MINICHIELLO: It was actually the other way around, the only reason being --

MS. WILLIAMS: Go through the whole thing.

MR. MINICHIELLO: We had narrowed our concern down to three and four-inch schedules of pipe. That was explained in the observation, and I believe the Commission read that and agreed that, yes, we can narrow it down to three and four-inch schedule of pipe.

We then went through and compared the code of

record to the later code, 1981, I believe, winter, 1981.

We made a comparison between equation eight on the code of record and equation eight on the 1981 code. 1981 code uses stress indices for equation eight.

The stress indices for butt weld are one. There is no--the B-2 index is one.

MR. TERAO: Isn't that equation nine?

MR. MINICHIELLO: It's also equation eight--eight and nine. Actually, I think they have almost dropped equation eight for nine.

For a butt weld, this is the later code, for a butt weld, the code defines B-1 and B-2 as follows. If you compare these two equations--

MS. WILLIAMS: It's not a document.

MR. MINICHIELLO: -- to the equations from the code of record, if you give the number verbally--okay.

MS. WILLIAMS: Just refer to the equation, what code, and what we do with them.

MR. MINICHIELLO: Sorry about that. Very well. I'm not used to this. Winter 1981 code, equation eight. B-1 is .5, B-2 is 1.0 for a butt weld.

Winter 1981, equation nine, same B-1, same B-2. If you compare equation eight from the 1981 code to equation eight from the code of record, you find that

the 1981 code is actually less restrictive than the code of record.

If you compare equation nine from the 1981 code to equation nine from the code of record, you find that the later code is less restrictive.

Therefore, based on that, we determined that there was no need to look at dead weight or seismic inertia loadings, but to concern ourselves with dead weight or seismic inertial loadings for the three and four-inch schedule piping.

MR. TERAO: Just a point of clarification. When you said the later code was less restrictive, are you referring to the straight pipe butt welds?

MR. MINICHIELLO: Yes. Yes.

MR. TERAO: Not the code in general?

MR. MINICHIELLO: No.

MR. TERAO: Just straight pipe butt welds.

MR. MINICHIELLO: I am trying to make this point only for butt welds at this point. So therefore, our concern was only for thermal expansion, seismic anchor motion, stresses, for three and four-inch schedule 40 piping.

We had found that Gibbs & Hill uses appropriate stress intensification factors at reducers, at taper transition joints, and at elbows.

Therefore, the only place where their use of a lower stress intensification factor would be a concern is when you had a butt weld in the middle of straight runs of pipe.

We determined that for thermal expansion loading and seismic anchor motion loading that those would typically not be highly loaded regions.

Based on that, we felt that the observation was closed.

MR. TERAO: Okay. Now it's coming back to me.

MR. MINICHIELLO: That was the whole rationale we went through to close the observation.

MR. TERAO: Okay. And I think from that meeting, from our April meeting, I thought that what you were going to do was get some quantification of some of those moment, straight pipe versus an elbow, just some numbers to justify that basis.

MS. WILLIAMS: Which requires going back through those problems.

MR. TERAO: Right. But not necessarily all 50.

MS. WILLIAMS: I see what you're saying. So you're looking for some sample which could be considered representative --

MR. TERAO: Right.

MS. WILLIAMS: -- to provide some quantification on

this but not necessarily looking at all 50 problems, but we should keep an eye toward choosing those problems which would be representative or envelope.

MR. TERAO: Right. That would seem appropriate.

MS. WILLIAMS: There is no basis for choosing an enveloping case without looking at all the problem.

MR. BURWELL: Could we go off the record a moment?

(Whereupon, a brief recess ensued.)

MR. TERAO: I forgot where we left off.

MR. BURWELL: We were discussing, I believe, taking some type of survey to have an indication of the location or moment at butt weld junctures between two straight pieces of pipe, again restricting our piping to schedule three and four pipe, schedule 40, three and four-inch schedule 40 pipe.

MS. WILLIAMS: Right.

MR. TERAO: Okay. I seem to recall that from the April discussion, the moments that were noted came from the RHR piping, which was not a schedule three and four pipe.

And at that meeting we noted that what we wanted was some type of quantification for size three and four schedule 40 piping.

So that was, in my mind, the only open issue from this item.

MS. WILLIAMS: Okay. And the only thing we're saying is, I don't know as we can limit the time frame, if you will, associated with doing it, given that we have to go through the stress problems to do that.

I understand your point. And that is the only way that I think we can quantify it.

MR. BURWELL: Point of clarification on my part, all right? All of the butt welds in the pipe identified in this stress problem?

MS. WILLIAMS: No.

MR. BURWELL: No. Okay. I didn't think so.

MS. WILLIAMS: In fact, we were just discussing that on the plane coming out here.

MR. BURWELL: So --

MS. WILLIAMS: We would have to go to the appropriate document with maybe the DRPs or SPOPs drawings, depending on which one they keep up to date in the installation.

MR. BURWELL: Yes.

MS. WILLIAMS: And use those to serve as the basis for selecting the runs of pipe. We were also discussing, while we were off the record, that perhaps the high temperature lines of those problems which span buildings, and then those problems total which contain three and four-inch schedule 40 piping will probably

turn out to be a fairly low number of pipes.

It's really just the scoping of it, the narrowing it down that takes some time, which is reviewing the stress problems to make that determination.

Texas does have some computer sorts that help us do that, and we've asked them for some of these sorts. And we don't have any problem doing that.

We'll just pursue it from that angle and take your other suggestion, which is trying to get something which is representative, not necessarily all.

MR. BURWELL: I don't think I have any other questions on this particular item.

MS. WILLIAMS: The next one I have along the same discipline is the welded attachments. I believe that's PI-00-02, observation number NRC's one and two report.

I would like to have John go back and explain how Gibbs & Hill did their original analysis of the welded attachments, because as I went back and reviewed this transcript from the Thursday meeting, there are a couple of points that I don't think really came out.

It may or may not have any bearing on your thinking, but it would probably be a good refresher for all of us so that we have a consistent baseline anyway.

And then we can go into our logic for accepting what they did, which is really different than their

logic in the first place. But I think it would be a good thing to go through, if you don't mind taking the time.

MR. BURWELL: Fine.

MR. MINICHIELLO: I'd like to discuss this in the context of the total record and what it says at that time. I think it's important to focus on that. Okay.

In the code of record, there are four equations in NR, ND, which relate to piping. Equation eight is basically a check of dead weight and pressure.

Equation nine is a check of dead weight, pressure, and occasional loadings, upset or emergency conditions.

Equation ten, as Dave pointed out in the previous question, is basically a check of your thermal expansion/fatigue effects. In equation 11 is basically a sum of equation eight and equation ten.

Now in reviewing what Gibbs & Hill has done for welded attachments, we can make the following notes. For their normal operating condition comparisons, which would be equation eight and equation ten or eleven, Gibbs & Hill has utilized the allowables directly from the code of record without any change.

MR. BURWELL: Eight, ten, and eleven.

MR. MINICHIELLO: That's correct. They have added to the piping stresses the appropriate stresses from

the local stress analysis, which is a program called CYLNOZ.

This method that they have used to consider localized stresses for normal operating conditions is in agreement with industry practice for plants designed in this time frame.

Now four, equation nine, which is both nine upset and nine emergency, Gibbs & Hill has increased the allowables from the code of record to slightly higher values--approximately 20%.

The intent of Gibbs & Hill is to meet the code caveat in NC 36-45, which tells the designer to limit localized bending effects.

Now in attempting to do that, Gibbs & Hill turned to guidance to other parts of the code, so that if you look at the allowable that Gibbs & Hill has used for equation nine upset, they've used an allowable of 1.5 S_H.

That is a classic code allowable for primary local membrane plus primary bending, and that is what Gibbs & Hill is looking at in their equation nine upset condition.

If you look at the vessel allowables for that code of record and even for later codes now, 1.5 S_H is what a vessel designer would use if a vessel designer were

trying to look at the localized stresses around a nozzle to his vessel.

So again, Gibbs & Hill, while not using the piping allowable--because there is no set number to use--turned to guidance to other sections of the code and I think used a very appropriate allowable.

Now for emergency conditions, they have increased the allowable again 20%, but their rationale for that is to limit localized bending effects, realizing that they've done a very detailed analysis for welded attachments.

So their feeling is--I believe their feeling was--that if we look at vessel design, we have some increase to work with.

Certainly we should also have an increase under emergency conditions, and they felt 20% was a reasonable increase.

Again, their purpose is to meet the intents of the code, to limit localized bending. When we looked at the stress levels in the RHR system for emergency conditions, we looked at it and said, "My God, they're about 50% of the allowable or 60% of the allowable. Their stress levels are low, there is no direct guidance in the code of record as to what stress level to use for an emergency condition for piping with local

attachments." We did not feel it was a definite problem.

We felt that what they had done was acceptable. Now as a third point, the code of record in NC 36-45 does discuss thermal gradients, but it provides no guidance to the designer as to how to consider them or what to do with them.

All it talks about is minimizing, similar to the way it talks about minimizing localized bending effects.

I think an important thing to note is that thermal gradients are not a normal consideration in doing Class II and III design.

It doesn't mean they don't exist but they are not normally considered in doing design work in Class II and III.

Again, I feel what Gibba & Hill has done is in keeping with the industry practice for plants designed in that time frame.

And on that basis, we felt that they met the intent of the code of record, they were not being unconservative, and certainly for emergency conditions, based on the numbers we saw, there really would not be a problem within the plant.

I think the most important thing to note is that

under normal conditions, normal operating conditions, they used precisely the allowables in the code of record. No increase.

All they did was add in the increased stresses, and they kept themselves to the same allowables. Based on that and also a comparison with allowables from later codes, but primarily based on that line of thinking, CYGNA closed out the observation.

MR. TERAO: I think you explained that very well, and the way you explained it, I could agree with you on why this issue was considered closed by CYGNA.

In fact, if I were to have read this write-up, I probably would have accepted the fact that the increased allowable is probably justified because it conforms with standard industry practice and the code of record.

But from what we know now and what the staff knows today, specifically with Comanche Peak, and not necessarily with other plants, I think it's appropriate to explain our concern in a little different context.

In other words, if we look at this issue as an isolated issue, I could accept what you're saying and accept the justification that you've given.

But knowing what we know from Comanche Peak, I think we should look at it on a different perspective,

and this is what I'll explain right now. The use of welded attachments is commonly used in all nuclear plants.

But the use of trunnions versus use of shear lugs is not, let's say, accepted practice within the industry.

I agree that other plants do use trunnions, but I also recognize that other plants try--not all plants, but plants sometimes that I'm familiar with try to avoid the use of trunnions and instead use shear lugs.

I think we pointed this out at the last April meeting. What's a little different at Comanche Peak is that the use of the trunnions is the accepted--appears to be the accepted means and where trunnions are not acceptable for their analysis, then they would go to a shear lug.

Whereas in my mind, the industry practice is to use shear lugs, and where shear lugs cannot be used, they would then have to go to a trunnion.

From our operating experience, we've found that where pipes tend to fail are at welded attachments and specifically at trunnions.

Okay. Now I think that's a foundation for the staff's concern for the extensive use of trunnions, and I think the extensive use of trunnions is something

unique to Comanche Peak. Now I will admit that in the older days, maybe when piping was designed to be 31-1, there may have been more use of trunnions in those days.

But now when the code is allowed higher stresses and the analysis has become more refined, there is a decrease in the margins allowed to piping, the tensile strength of piping.

So in my mind, there needs to be some type of caution when an extensive use of trunnions is used in a plant.

Now what may seem to be a totally unrelated item, but again, it is tied into this item, is the issue that came up at the April hearing.

This was related to the use of dual snubbers as moment restraints. Now the use of dual snubbers as moment restraints requires the use of trunnions.

As I recall from the hearing, the conclusion for that particular issue was that the use of modeling of dual restraints as a single restraint is accepted practice.

And as of today, I would tend to agree with that. It is accepted practice, but again, it isn't so much the modeling itself of the dual restraints as the single restraint that is the issue.

The issue is the design considerations that go along with it. For example, when we talk to several other architect engineers, they may use dual trunnions, dual snubbers with trunnions but they would account for an unequal load distribution.

And one company would take the entire load from a single restraint and apply it to both trunnions. In other words, you would get 100% of the single load per trunnion.

Another company uses a 75-25 distribution of the load. What I have seen of the calculations at Comanche Peak, they assume a 50-50 load distribution.

So in my mind, it's not the issue of the modeling of the dual trunnion restraints that is at issue; it's the design considerations that go along with it.

So here again, we have a case where it appears that Comanche Peak uses less conservative assumptions in their design considerations for trunnions.

And this could have a cumulative effect when you're allowed a 20% increase over the code plus not considering the unequal load distribution, the trunnions themselves can see a potential increase in the load, much more than just the 20% that they allow for the stress increase.

So I think these two considerations still leave a

doubt in my mind on whether or not there is ample design margin in these trunnions.

I would like to point out that this unequal load distribution is described in NUREG CR 21-75, entitled "Snubber Sensitivity Study," and the NUREG CR was based on actual snubber testing of dual snubber assemblies to determine exactly what the effect of a single versus dual snubber arrangement are.

And the tests were performed by ETEC--that's Energy, Technology, Engineering Center--where they actually use two--well, they use hydraulic, mechanical, and rigid structs in a full-scale testing to show what the load distribution is.

And the main conclusion from the testing was that the snubber and clearances have the most significant effect on the load responses in the snubbers, and that when the end clearances, when the fitting end clearances are approximately--when they're matched, where there is zero, there is an equal load distribution.

But when the clearances--when there is a differential in the clearances of approximately .02 inches, that there is about a 40-60 load distribution.

And when the differential and fitting clearance increases to .05, there is approximately a 30-70 load

distribution.

So as a result of the testing, the staff did revise in its standard review plan, Section 393, to address this issue.

And the July 1981 Standard Review Plan states, "The snubber end fitting clearance and lost motion must be minimized and should be considered when calculating snubber reaction loads and stresses which are based on a linear analysis of the system of component.

This is especially important in multiple snubber applications where mismatch of end fitting clearance has a greater effect on the load sharing of these snubbers than does the mismatch of activation level or release rate.

Equal load sharing of multiple support snubbers should not be assumed if mismatch in end fitting clearance exists.

So what this really implies is that unless you can justify in the field by either measuring the end fitting clearance or having a very strict tolerance in the snubber lost motion, that it may not be appropriate to use a 50-50 load distribution.

So overall, maybe in summary, our overall concern is not so much the 20% increase in the stress, but has, let's say, it has broadened from what we've learned at

the hearings, to really--to the extent that we're concerned with the overall design margin in these trunnions, considering design considerations as well as the allowable stress increase.

I realize I've said a mouthful. Perhaps you have any comments?

MR. BURWELL: I have a question. As I understand it, your concern would be in the case of using shear lugs, you would not be concerned with the use of the 20% increase in allowable.

Is that a correct statement?

MR. TERAO: I haven't addressed the shear lugs, but even with shear lugs, from what I understand of the standard industry practices, when you use shear lugs, you tend to use four shear lugs, but you don't divide the load by four.

Usually what's customary is to take the entire load on two of the shear lugs.

MS. WILLIAMS: We agree.

MR. BURWELL: But then assuming they took the load on two of the lugs, then a 20% increase could reasonably be accepted as appropriate?

MR. TERAO: Well, in that case, I would probably narrow the scope down to just those shear lugs where it would not meet the equivalency of code case N-318.

It would be a much narrower scope.

MS. WILLIAMS: In that case you are talking about how we narrowed it down for our original discussion on the 20% bump factor, not given this other --

MR. TERAO: Tht's correct.

MS. WILLIAMS: -- concern that you've just expressed.

MR. TERAO: That's right.

MS. WILLIAMS: Could we caucus for just a minute?

MR. BURWELL: Yes, I think that would be wise.

(Briefly off the record.)

MR. BURWELL: Since we've returned, we have new people in the room, Mr. George of Texas Utilities, and his wife--Carol, or is it Carolyn? Carol? Thank you.

Okay. Would you all like to go first? Dave, would you like to make any further statement before we proceed?

MR. TERAO: No, I have no further statement.

MR. BACHMANN: Okay. Just to clarify where we were when we left, then, the staff's concern is, are these trunnions under-designed, and if they're not, how do we know they are not?

MS. WILLIAMS: Okay. The reason that we requested a caucus was because I really wanted to address the issue in the most efficient manner.

And I say that because we have done some follow-on reviews for Phase III that has some bearing on what we're talking about here.

And I'd like to minimize any kind of extraneous studies that we would do for Phase II if there's bearing on Phase III, particularly in the case of these double trunnions we have already gone through and determined how many there are in the plant and try to address some different issues associated with them in Phase III.

So we went back and made a list of everything associated with welded attachments out of those Phases II and III.

And we're trying to take a look at what those things meant together in addressing your concerns you brought forth today.

We've learned a lot going through and looking at other systems in Phase III, and have gone into a much greater level of detail into welded attachment overall.

I've come up with a list of five things which spans both phases and includes the things that you've just brought forth today.

The first is the question on double trunnions and the loading issues. I'll say for the record now that it's our understanding that Gibbs & Hill splits the

load 50-50 when inputting the loads to to evaluate the stresses.

There is the question on the 20% bump factor. I just want to underscore that that's for emergency only. And the understanding, I think, that we've reached today is we don't consider that to be so much a problem.

I think we've explained in detail why. I'll leave it on the list, but overall, I don't think that's a problem.

What that also says to me, though, is what we discussed in the Thursday meeting some time back, is not what we're talking about now.

There's other factors involved and I believe that the proposed scope there has little or no bearing on what we're talking about, welded attachments as a subject, in general.

We will keep that in mind when addressing the welded attachments for the emergency condition and, as you say, things that don't comply with 318.

From a scoping standpoint, I don't think that that's a big issue.

MR. BURWELL: Would we be correct, or would you be correct in keeping the correction on the trunnions separate from your observation, keep 01 and 02?

Is that a good way of thinking of it or not?

MS. WILLIAMS: Well, I think what I'm progressing into here is one topic called welded attachments and how are they treated at Comanche Peak, and is that appropriate.

MR. BURWELL: Fine.

MS. WILLIAMS: It seems that the most efficient way to do that is look at all the subjects together and that observation unto itself really doesn't strike me as the issue so much as some of these other concerns.

And I don't mean to belittle that point, but I think that what Dave's bringing forth on the loads and some of the stuff that I'm going to go through now from Phase III is the focus of the subject called welded attachments and what does that mean to the design at Comanche Peak.

The 20% is a consideration in going through that evaluation.

Now to bring in a couple of points from Phase III, some of which we've addressed and some of which we're in the process of reviewing right now.

One of them was Gibbs & Hill's application of welded attachments and break exclusion zones. We requested that Gibbs & Hill go through and identify all welded attachments in break exclusion zones.

We did not feel that they had addressed MEB 3-1 in an appropriate manner. They are in the process right now of going back and reanalyzing those that are questionable with the revised interpretation of MEB 3-1.

There are a couple of letters in circulation, one of which was in the overnight package to you, I believe was our interpretation of MEB 3-1.

MR. BURWELL: I think I saw something, but I did not have time to study it.

MS. WILLIAMS: What was not included in that package is the fact that Gibbs & Hill concurs with that interpretation and is going back and reevaluating the supports that are borderline.

Now they're doing that, using the CYLNOZ program, and we believe that there are significant conservatisms in that program, which we have not discussed.

This is also something we're discussing with Gibbs & Hill. We believe that there are other analytical methodologies that can be applied that will give more realistic results.

Now how much margin there is in the analytical methods versus how much they exceed the allowables, we have not addressed that yet.

But I think it's important to note that there are some conservativisms in the analytical methods.

MR. TERAO: Is that item four, or is that related to item three?

MS. WILLIAMS: It's related to them all, really. That's an aside. Perhaps I should leave that 'til the end.

So to reiterate, that was item three, which is break exclusion zones. It is being taken care of.

Item four is what we refer to as zone of influence, which is where they have two trunnions attached to a pipe at one node point in the stress analysis.

And now we're not talking about ones that are diametrically opposed such as the double trunnion that you're referring to, Dave, but rather how they go about analyzing the effects of trunnions which are adjacent to each other at one node point in the stress analysis.

MR. TERAO: Do you give an example? I'm not sure I understand.

MS. WILLIAMS: It's there. At one point on the pipe, they may have one horizontal trunnions and one vertical trunnions, so they're 90 degrees apart.

And there's a point at which the two edges of the trunnions are relatively close, and that's obviously a function of the trunnion diameter and the pipe diameter.

MR. BURWELL: Okay.

MS. WILLIAMS: Do you want a picture?

MR. TERAO: Just to put this in the record.

MS. WILLIAMS: I'm drawing a picture of a pipe, looking into it.

MR. BURWELL: You have a picture of a cross-section of a pipe with trunnions going off of the pipe at 90 degrees from each other.

MS. WILLIAMS: And here is one trunnion horizontal, one trunnion vertical, joining the pipe at the same place along the length of the pipe and our question goes to the combined effects of these trunnions relative to each other.

MR. TERAO: Okay. I understand.

MS. WILLIAMS: And now the fifth question that we're looking at is a variation of this where there is one trunnion attached to the pipe and another trunnion attached to the trunnion, where in this case, we are addressing the loads that Gibbs & Hill is using to calculate the local stresses to the trunnion, which is attached to the pipe.

And they have also gone back and identified how many cases there are of this nature, and we're evaluating the effects.

MR. TERAO: Do you have a name for that?

MS. WILLIAMS: Um --

MR. TERAO: What do you call it?

MS. WILLIAMS: We have a name for it, but I--we call it "piggybacking" the trunnion. Not a very technical term.

MR. BURWELL: Is that part of four or five?

MS. WILLIAMS: This is all in what we're looking at on the main steam and component boiling water in Phase III.

So as we sit here and talk about trunnions, and we know what we're doing in Phase III, it makes a lot of sense to me to be looking at it all as one picture called welded attachments and how are they being addressed, rather than separating it out and going off and doing individual studies.

MR. BURWELL: Right.

MS. WILLIAMS: And then on the conservative side, you know, I have addressed five areas that are potential negatives.

There is then the fact that CYLNOZ is a conservative program. These things need to be balanced and addressed.

And we're certainly getting data out of Phase III to be able to do that. Knowing what your concerns are better, Dave, I think this probably fits in line with the kinds of things that you're looking at as a general

application at Comanche Peak. So we're certainly keeping an eye to that, and you've helped us today to understand more about what your concerns are. And I see now that they fall in line with the kinds of questions we're coming up with in Phase III.

From a timing standpoint, we're very close to conclusing our evaluation in Phase III, and what I would suggest is, perhaps, that we carefully go through this list of five items to make sure that both ourselves and yourselves understand them and believe that that's a complete list of concerns that if we come out of our Phase III review with a conclusion on this matter, that you would feel we covered the things that are issues in your mind.

MR. BACHMANN: Let me understand that the information that you've understood that Dave requires would be presented as part of the Phase III package and not separately or beforehand, but when you actually finished the Phase III report, is that correct? Is that what is being proposed?

MS. WILLIAMS: That's what's being proposed. However, we can excerpt the one portion on the welded attachments to make reading easier for yourselves.

The Phase III report, unfortunately, is five volumes long.

MR. BACHMANN: Well, I meant it would come out at the time that Phase III report is submitted and not as a separate item.

This is just for our information, not because we want to go one way or the other.

MS. WILLIAMS: Yes, I think that's the most efficient way, from our standpoint. And we're writing the report right now.

There is just certain studies which are ongoing both at Gibbs & Hill and our shop right now. But we're talking a week before we arrive at some conclusions on these things, and then we write them up.

Everything that we can document and finalize at this point in time, we are. And we're very close to having the bulk of it written, certain issues waiting for the evaluations.

The one thing that is not necessarily specifically addressed in the concise manner that you've presented it, Dave, would be the division of the loads on the trunnions.

And that was the phone call we were making to determine if that's how Gibbs & Hill was handling it, the 50-50 split.

So since we have all the data and analyses for the trunnions at the same node point, which would be the

case on these that are 180 degrees apart, we can fold that into the evaluation very easily without having to do a separate study.

MR. BURWELL: Let me get straight exactly what you were proposing. I thought you were proposing that we take a quick and early look at that portion. Or were you not?

MS. WILLIAMS: From your scheduling standpoint in getting the SER out, you'll probably want to focus in on that.

And I wanted you to know that welded attachments was a subject that is being reviewed in quite a bit of detail for Phase III.

So I didn't want to go back in Phase II and either go off on a tangent that wasn't appropriate to address all your concerns, which I think is where we were headed prior to this meeting.

Then I also wanted to know that we were addressing it in Phase III and would be picking up your concerns and that we had addressed some similar concerns of our own and feel that --

MR. BURWELL: Fine. Then you were not proposing we take an early look; you were just offering us knowledge that there would be more information forthcoming on this in Phase III. Okay. So that clarifies my

thinking in that --

MR. BACHMANN: The review of our observation will be essentially closed, but our concern will remain open, pending receipt of the information of Phase III.

MR. BURWELL: We will not hold up the SER waiting on Phase III.

MS. WILLIAMS: Okay. That's your decision.

MR. BACHMANN: There will be a notation. There will be a notation in the SER saying the concern was thus and so, you know, but this information will be provided in Phase III, and at that time, the staff will resolve its concern, or words to that effect.

MS. WILLIAMS: Okay. But now what we were discussing last time, or where I think that we got off track, was this discussion of the 20% bump factor and its importance to the welded attachment design.

Where we're at now is welded attachments in general and how they apply the loads and everything that goes along with the evaluation of welded attachments.

So it is not my intention to go back and readdress the 20% bump factors. I want to make sure that that's clear.

If it's necessary to do that, we can, although I think John's explanation of it is on the record at this point in time.

question. Is our list, in your mind, inclusive? Is there anything else hanging out in the wind, as welded attachments, as we believe that we know a lot more about how they've applied the design in various aspects of the plant at this point in time and have come up with this list.

MR. TERAO: I'm sure that you've seen a lot more out in the field than I have. So I guess on that, we'd have to rely on what you've seen out in the field. But no, I have nothing more to add to the list.

MR. BURWELL: Okay. Are we ready to shift on to another subject?

MR. BACHMANN: We'd like to take one topic out of turn here.

MR. BURWELL: We have Mr. Spraul, who we would like to send back to work.

MS. WILLIAMS: Okay. You pick it.

MR. BURWELL: I am not entirely clear--and maybe my memory just needs refreshing--but there was a question seven relating to the 120 degree --

MR. TERAO: 180 degree.

MR. BURWELL: 180 degree conversion of the snubbers, which you determined was permitted by a construction procedure.

I'm not sure where we ended up exactly at the end

of our April the 19th meeting.

MR. BACHMANN: Okay, we're talking --

MR. BURWELL: Is that one of the items that you people are doing something further on?

MR. BACHMANN: Let's clarify here. We're talking about observation WD-02-02, the snubbers installed 180 degrees different from the way they supposedly were supposed to be installed.

MS. WILLIAMS: Then my understanding of that question was, is it appropriate to contain that type information in procedures, and how would one go into the field and assess the adequacy of the as-built design when there's no reference to the procedure on the drawings, so you wouldn't know where to go access the information.

MR. SPRAUL: Let me just put the question in a different format, perhaps. Do we, the NRC, have assurance from your CYGNA review that the as-built documentation reflects the as-built condition of the plant?

MS. WILLIAMS: And obviously if it's contained in a procedure, the as-built document or the drawing does not.

However, it is permitted by a procedure, and the question is, is that appropriate?

MR. SPRAUL: Yes.

MS. WILLIAMS: I had that down on my life from a time frame question. It was my intention to address that in the Phase IV walk-downs, which are scheduled for the third week in July for two weeks, which will take the second half of July to do.

That is the only piece of information that I am aware of at this point in time which is contained in a procedure--let me take that back for a minute.

I am aware of three pieces of information which are contained in procedures which could conceivably either affect design or affect installation which would appear differently on the drawings.

And those are the snubber inversion, where we found it was contained in a procedure. The second one is the Hilty (phonetic) anchor bolt installation where there is procedure CEI-20, which provides the craft the information to that calculate the required embedment length based on total length and the embedment length is not always shown on the drawing or is not always accurate on the drawing.

It's a similar set of circumstances, though, where you go to a procedure to determine whether the installation is appropriate or not.

It's not something that you would detect in just

looking at the pipe support out in the field, because obviously you can't measure embedment lengths, but it is another piece of information that has to do with the as-built condition of the pipe support.

And then the third thing is cinching U-bolts which has an impact on the analysis and not necessarily on any assessment of the as-built condition because it will look the drawing.

MR. SPRAUL: Excuse me. What?

MS. WILLIAMS: The cinching of anchor bolts, where the cinching is contained in an installation procedure, and it has an obvious impact on the analysis that's really a different circumstance than the first two that I've mentioned.

I believe that the first two go more to the question you're asking on the appropriateness of the as-built documentation.

I have discussed that since with our QA people. Give the hierarchy of documents in that specifications and drawings are at the top of that list, and procedures are a lower tier document, it doesn't appear appropriate that there isn't a reference to the procedure on the drawings.

It was my intention, however, to take another look at that as we go through the walk-downs for Phase IV,

with an eye toward that kind of thing, so that I could make sure that to our experience that was the only examples of it and be able to make a statement to that effect.

Now that time frame may not quite coincide with what you're talking about here for your SER, and that was my question to you.

I can make a statement on those two, as I just have, but I haven't made an assessment as to whether there is any type of impact that requires corrective action on Texas Utilities' part.

MR. SPRAUL: I would propose that we carry this over into the Phase IV review, perhaps close it out here on the basis that we will examine what CYGNA comes up with in their Phase IV report.

MR. BACHMANN: Well, let me ask this question.

MR. BURWELL: Is that entirely clear, though, that you are intending to comment on that, this problem of as-built documentation, shall we say, not being complete with information that does influence design? Did I lose you?

MS. WILLIAMS: No, you didn't lose me, but I'm thinking about the choice of words, because I'm not sure I agree that it affects design.

MR. BURWELL: Okay. I will back off with that.

Okay. I think we're talking about the same thing.

MS. WILLIAMS: Okay. Yes, we were going to make an assessment of the information that's in the insulation procedures versus the information that's on the drawing and whether it's clearly necessary to have any cross reference between them, but we do think that it is not a matter that the installation is incorrect or that there is any problem with the design or anything that in any way indicates a safety impact, but rather it's a documentation question with cross-referencing, so it's easy for one to go into the field and have all the information at their fingertips to say yes, this matches.

And that's an appropriate place to have it documented.

MR. BACHMANN: Let me ask this question just so we can get it on the record in one place. Did you note any other situations that were like this during your walk-down part of the IAP?

In other words, did you find any other places where an installed piece of gear or component was different, its installed state was different from the design drawing, and then you had to go to a procedure to find out that it followed the procedure, even though it was not indicated on the drawing?

MS. WILLIAMS: No.

MR. BACHMANN: Or is this the only one?

MS. WILLIAMS: Those two examples are the only examples that we have, one being the anchor bolts and the other being the snubbers.

MR. BACHMANN: And then also just to clarify again, in Phase IV, I assume we're talking the component cooling water system, or mainstream line?

MS. WILLIAMS: We're --

MR. BACHMANN: Which?

MS. WILLIAMS: We're taking a sample of both, primarily due to accessibility.

MR. BACHMANN: Right. And this will be walk-downs.

MS. WILLIAMS: Yes.

MR. BACHMANN: And we will be sensitized to this particular type of situation where the design drawing may not be complete in itself, but the procedure may have to be referenced?

MS. WILLIAMS: Yes.

MR. SPRAUL: Sounds reasonable to me. Can I go back to work?

MR. TERAO: I think you can go back to work.

MR. BURWELL: Thank you, Jack. Sorry to tie you up. That was stuff that was not in your alley. Okay. Where do we need to shift to now? Okay, off the

record, please.

(Whereupon, a brief discussion ensued.)

MR. BURWELL: I think Dave has one more item here.

MR. TERAO: This item is related to the non-standard or unconventional pipe support designs. Did you have any questions that you wanted me to address on that particular issue?

MS. WILLIAMS: Okay. I went back through the transcript, and I think that my understanding of it was we would keep an eye towards your global question about how can you argue standard industry practice, yet you've got some non-standard supports, and try and get a general feel for the Comanche Peak design and how many non-standard supports there are, and carefully evaluate those that are non-standard supports, such that we could give you some kind of conclusiary statement on the pipe supports, knowing that.

MR. TERAO: Yes, I think that's basically correct. Our comments about the unconventional and non-standard supports was that we wanted you to keep that in mind while you're reviewing your Phase III supports, mainly because we want you to at least keep in the back of your mind what the effect could be for these non-standard supports on the design assumptions and design procedures.

In other words, there is many assumptions that are made in doing the design analysis, doing a piping analysis, and even doing support analysis.

And many of these design assumptions are what we consider standard industry practice. So our concern is really when you start deviating from what is commonly accepted as standard design and start getting into the realm of unconventional design, our concern is whether or not the unconventional designs can still be analyzed, using these same standard industry practice.

And that is something that should be kept in the back of your mind. One thing that we noted in the NC-N-45211 document is on design verification.

In Section 6.2 on extent, it says, "The extent of the design verification required is a function of the importance of the safety of the item under construction, the complexity of the design, the degree of standardization, the state of the art, and the similarity with previously proven designs."

I guess my interpretation of that section says that when you have these unconventional designs, one should apply more review of that item as part of the design verification.

And even though CYGNA, in this respect, is an independent design verification of these components,

but in another extent, it's also important for the design organization--say Gibbs & Hill--to have followed this particular portion of the ANSI document.

I recognize that that was not the implementation of--the design verification was not within your original scope of the IAP, so that was not something that you had particularly looked into.

But again, your independent assessment program does fall under that realm.

MS. WILLIAMS: I'd like to ask a few questions.

MR. TERAO: Sure.

MS. WILLIAMS: If you're done. Design verification control is being done under Phase IV, and you're correct in saying it was not done under Phase II from the standpoint of ANSI N-45211.

But I'd like to ask whether you have any particular examples in mind when you're thinking of non-standard assumptions.

And I say that because although the designs themselves may be non-standard, you're still using the same weld calcs, the same general approaches to designing it, and you're still doing STRUDL analysis if it's a frame.

And you might disagree that it's not an efficient design, but they're still going through the same design

process. Now, I think what you're saying is, there is potentially more room for error, and therefore you ought to keep an eye toward this in doing your design verification, as such, we should be looking at percent verification and percent non-standard designs or something along those lines.

But it would be helpful if there was something in the back of your mind that you know is really a different type of design assumption that would cause a problem.

MR. TERAO: Yes. In fact, I'll give you several examples. One is the trunnions themselves. Even though, as I had mentioned earlier, the use of the trunnions are used in other plants, what is really not standard or a little unconventional is to use them so exclusively.

So one would have to question whether design considerations are appropriate for trunnion design.

But that's not really a very unconventional approach, but that just touches on the basic philosophy of our concern.

But some of the more unique concerns would include, for example, the use of the tubular steel. I know we've had many discussions of punching shear, but one has to keep in mind that the AISC code and the ASME

code were really developed on a consensus of design which did not include tube steel at the time.

Really, the use of tube steel is first mentioned in the AISE code in the seventh edition, and what the seventh edition basically says is that it was starting to be used at that time, and the AISC code believed that the use of the equations were still appropriate for tube steel, and they didn't see any problem with using the AISC code for it.

And, of course, the ASME Section III, Appendix 17, excerpted the pertinent portions of the AISC code for its design.

But the concern with tube steel with punching shear is a unique, is unique to tube steel, that one cannot find either in AISC or with ASME.

So that would be another design consideration that you would have to consider--I'm not saying that you would have to use the AWS D11, but it's a unique design consideration for tube steel.

MS. WILLIAMS: Okay, let's stop on that one for a minute. We had considerable discussion on that one at the hearings.

Now there are examples in the calculations where they've done punching shear evaluations, that being MPSI and Grenell.

There are examples where they haven't, where you would argue, "Well, it's a localized effect, and perhaps the engineer exercised some engineering judgment."

And then we have to stand back and look at all the calculations and say, "Yes, they've consistently used good judgment."

And we have some level of assurance that that will not be a problem. But further yet, we did develop some guidelines that Dr. Biorkman (phonetic) was discussing in the hearings.

And what that basically did was develop some relationships between the tube steel size and wall thickness and attachment sizes, so that one could do a quick evaluation, using some comparisons of those dimensions to determine whether that's a problem or not.

Now you can also argue that a designer who's done this and done punching shear calculations for some period of time would, by experience, know the kinds of ratios of sizes that would cause him to have to go look at punching shear and whether that's a problem.

Do you agree with our presentation in the hearings on that relationship? Because we did discuss that at considerable length with Mr. Doyle.

And it--well, let me stop there and get your reaction to that one.

MR. TERAO: Well, right now, I was just giving examples of where an unconventional design you would have to use other--you would have to question the design considerations to make sure that when you use a unique design or unconventional design, that you do have design considerations to go along with it.

I was not implying at all that they don't consider it.

MS. WILLIAMS: Okay.

MR. TERAO: But I'm only giving examples. And what you're pointing out is, yes, for tube steel there were certain unique or there were certain just specific design considerations that were given toward tube steel.

That's the type of frame of mind that I would like being used to address this particular issue.

MS. WILLIAMS: Okay. So you'd like to really see some of what I've just discussed laid out in writing so that you had some feeling for what we saw and how we addressed it, and if we ever saw designer suggestion, what consistency they were correct in their assumptions?

MR. TERAO: Right. And maybe I could just give a

couple more examples, just so you'll at least understand what our concern is.

Another has to do with the Richmond inserts. Have you run across any of those in your Phase III design?

MS. WILLIAMS: Yes, we have.

MR. TERAO: I don't really see that there's a problem with Richmond inserts, just like there is no problem with the modeling of dual function restraints, in other words, just the Richmond inserts alone, taken by themselves, there's no problem.

But it has to do with the design considerations that go along with it. And one of design considerations is the use of the tube steel with the holes in it as anchorage for the Richmond insert.

And one thing that has been pointed out is when you have the axial tortion in that tube steel with the Richmond insert through it, you can induce a bolt-bending in there.

Of course, no code that I'm aware of has been allowable for both bending, either tension or shear. So again, it's a different approach that may impact the design considerations.

I also would like to point out that I'm aware that Texas Utilities has addressed this in one of their motions for summary disposition, so I'm not, again,

implying that you should go off and do your own independent evaluation of it. I'm only giving these as examples.

MS. WILLIAMS: Okay.

MR. TERAO: And again, we've already touched upon the use of large tubular structural frames in pipe supports where concerns such as self-weight excitation, self-weight seismic excitation could be a new concern compared to when standard component standard supports or short cantilever structures are used.

So again, that's the same type of a concern. But you have addressed that, too.

MS. WILLIAMS: These things we have addressed in the review and we have formulated opinions. I think I'm getting the gist of your list that I can think right now of other examples of the types of things you're getting at.

Is it perhaps more the fact that we don't or haven't in the past explicitly addressed this in the report?

Because we can do that. We have addressed them in the design review. Our check lists are much more detailed in Phase III, but I recognize you people are dealing with a Phase I and II report, which was not as heavily documented.

And we did not have this type of discussion in it. It is well documented in the Phase III report, and I can certainly make sure that there's some discussion of it in the text of the result section.

Would that help address what your concerns are with non-standard designs if we were to make some?

MR. TERAO: Yes, I think it would help quite a bit to know where, in your mind, you have found what is considered unconventional design and how you've addressed it.

MR. BACHMANN: Let me clarify, and please correct me if I'm wrong, but we are reviewing this particular thing, this particular area of concern under the design review criteria aspects.

MS. WILLIAMS: CYGNA's design review criteria?

MR. BACHMANN: Yes.

MS. WILLIAMS: You would expect that these types of considerations would be addressed in the criteria document?

MR. BACHMANN: Right. In the part of the report that looked at the criteria.

MS. WILLIAMS: You could do it there.

MR. BACHMANN: Sure.

MS. WILLIAMS: I guess my first impression is, that wouldn't be my first choice of where to put it. The

reason for that is the criteria is a little more general than that.

And as we go through and do the review, then our reviewers make notes of all of these, what may be considered to be non-standard designs or omissions from the designs, or whatever the case may be.

And then we have to stand back and make an assessment as to what that means in a technical evaluation of the support.

So this comes out at a later stage in the development of the criteria document.

MR. BACHMANN: Well, I guess what I was saying is that somewhere along the line, when the people go out to review these things, they're given instructions.

MS. WILLIAMS: Uh-huh.

MR. BACHMANN: On what to look for and what to review. And I suppose that's what I was considering as the review criteria.

MS. WILLIAMS: I see. That would be what I call the check list. These items now show up in the left-hand side of the check list, which is what the reviewers use to do their review.

MR. BACHMANN: Were they given instructions in some way that this was items that they should pay particular attention to?

MS. WILLIAMS: Yes.

MR. BACHMANN: But that's doesn't show in the draft final report that we --

MS. WILLIAMS: That's right. And that's what I was saying. You're sitting with the report in Phases I and II, which is much less heavily documented than what we're dealing with in Phase III as a result of the hearings and the types of questions that were posed, and the level of detail of the questions that were posed.

That does not imply that we didn't look at these things in Phase I and II, but it does say that they're not documented in the check list.

As a result of the hearings and what we've learned, the Phase III check lists are much more detailed, and these items are specifically addressed in the check list.

MR. BACHMANN: Well, let me ask you this, then. Would you be able to provide us this examples or maybe more than examples, the type of guidance that concern these areas as they were used in Phases I and II?

MS. WILLIAMS: Type of guidance, I can --

MR. BACHMANN: In other words, I get the impression from what I just heard you tell Dave was that the people were aware of these non-standard designs when

they went to do their reviews in Phases I and II.

MS. WILLIAMS: Or they became aware as tney learned about the design at Comanche Peak.

MR. BACHMANN: Can that be somehow documented that this was taken into account in Phases I and II, in much the manner that you explained just now, without waiting for Phase III, is what I'm asking.

MS. WILLIAMS: Yes, actually, we --

MR. BACHMANN: In other words, we're looking at Phases I and II from your draft final report.

MS. WILLIAMS: Chairman Block asked us at one point in time to go back and reevaluate the check list using a more literal interpretation of our criteria.

MR. BACHMANN: Uh-huh.

MS. WILLIAMS: And what we did was mark them up with these types of comments on them and attach some of the hand-done calculations.

Now, they're just handwritten documents internal to CYGNA, but we did do that and they were never requested in the hearings.

But it does address things like punching shear in the Phase II supports.

MR. BACHMANN: Well, I guess what we would--what I would like, being the lawyer for this particular phase, and to make this, I suppose one might say, legally

sufficient is, is there any way, without going to a tremendous amount of effort, but relatively quickly, providing perhaps a letter to us, some sort of documentation that these concerns that we have about the non-standard design were taken into account during Phases I and II, just precisely what you just mentioned to us, and so that we don't have to wait until Phase III comes out, but let us know what you did do in Phases I and II to account for the non-standard design when you actually did the review.

MS. WILLIAMS: Yes. That's something we have documentation for, and I can certainly put in order.

MR. BACHMANN: If you can provide us with that, I think that may allay much of our concern as to what was actually--what was done, not what you're going to do, but what was done in Phases I and II.

MS. WILLIAMS: That's simple enough to do.

MR. BURWELL: Is that simple enough to do?

MS. WILLIAMS: Well, we've done it.

MR. BURWELL: You've done it. Okay.

MS. WILLIAMS: It sounds like you don't even want the documentation for it so much as a statement from us.

MR. BACHMANN: A fairly detailed statement, of course, as to what you just said. Not much more

detailed from what you've just said to us here, but I would like it on the record that this, indeed, had been taken into account, even though it doesn't show in the IAE report.

MS. WILLIAMS: There's no problem.

MR. BACHMANN: Either that or if you plan on issuing another IAE final report, that should be put in there.

However it is, it should be on record that these concerns should be documented that you did indeed take these concerns into account during the Phases I and II.

MS. WILLIAMS: I can put it in a letter to minimize my own work, my preference would be to put it in the final version of the report.

But from a timeliness standpoint, in getting the SER out, which I know everyone wants to do, I'll gladly put it in a letter.

MR. BACHMANN: And maybe address your comments back to Dave.

MR. BURWELL: Think so? Okay. Would you excuse me?

MS. WILLIAMS: Sure.

MR. BACHMANN: Better go off the record. Off the record.

MR. BURWELL: Off the record.

P R O C E E D I N G S

MR. TERAO: I thought from the April discussion we had at Cygna that this was going to be addressed as Phase III.

MS. WILLIAMS: We have a much better example now, to make statements to, and we are going to be addressing it certainly much more thoroughly documented.

MR. TERAO: That would seem acceptable to me, now I don't know how lawyers or management might this issue handle.

MR. BACHMANN: I believe that we could take care of this with fair assurance that we would get all of this in part of Phase III. Therefore, I think that we can

statements that I made and information immediately like you said, the Phase III will be coming out fairly shortly.

MR. WILLIAMS: Sounds good to me.

MR. TERAO: I think a lot of the concern of those issues will be addressed at the hearing. I think that is where a lot of it came out where it was addressed by Cygna. It addresses the concern.

MR. BURWELL: Ok. Does that close that one?

MR. TERAO: Yes.

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MR. BURWELL: I was unable to reach PC-12-QUO on the phone just a minute ago.

MR. BACHMAN: So, may I make a suggestion. Do we need to be on the record for this?

MR. BURWELL: Let's go off the record for just a moment.

(Off the record discussion.)

MR. BURWELL: Under a new subject, back in the hearings I seem to remember that Cygna had either done some analysis or had gone through some analysis concerning the U-bolt lock frame type of support. I understood that from the hearing that either you or Gibbs & Hill were going to do further analysis on an improved bonay(ph) model. Has that been carried any further by your or Gibbs & Hill? Could you bring me up to date on that?

MS. WILLIAMS: Ok. There's a couple of issues associated with that particular design. There is the question on the adequacy of the clip angles with regard to tension on the U-bolt. Then there is the thermal lock up system with regards to the pipe and zero clearance on the box frame. The clip angles, I understand has been addressed by Texas Utilities by redesigning at the suggestion of Dr. Iotti who has been consulting. Now, that is somewhat hearsay in that I haven't gone back and looked at the drawings. I believe we have another

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example of that similar design in Phase III and that we did find that we were designing it. Is that right John?

MR. MINICHIELLO: Yes.

MS. WILLIAMS: Ok. What they are redesigning is the clip-angle U-bolt combination, but not necessarily the box number zero clearance and the thermal expansion question. We have not perceived the finite element analysis any further because that we felt that those results were adequate. The ones that we were saying amesh was two force on the U-bolt analysis which we stopped working on because Westinghouse was doing the analysis and testing program for Texas. The report is not get issued. We have some preliminary results from that that we are reviewing.

At this point and time, I had not planned on putting any further effort into the box plan thermal lock up issue. However, we do have to go back through our evaluations and putting together red zero or the official red zero of the Phase I and II report. If we find any problems with that at that point and time, we would certainly do it. We would not just turn our heads to it and not address it. But, I am not aware of any problems with it at this point and time.

While we're on that, the U-bolt was a question that I had to make sure that I understand the additional

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responsibilities here. We are not doing analysis, but we are reviewing what Texas Utilities has requested Westinghouse to do. And, it will probably not appear on the Phase III report, but rather the Phase IV, simply because the results aren't in from the testing program. The preliminary results we have seen. We are going over, and I am sure there will be some questions and answers that will have to take place between ourselves and Texas and Westinghouse on it.

MR. BURWELL: There may be some information on that in the motion for summary disposition.

MS. WILLIAMS: The stability motion?

MR. BURWELL: Yes.

MS. WILLIAMS: We have that, in fact we went over that one on the plane. What impact that will have, though, just to make sure that we are all on board here is all the type of supports that use U-bolts to maintain stability are obviously effected by the Westinghouse report, so we won't be making statement on that particular issue at this point and time. But, we are not going to hold up the Phase III report because of it.

MR. BURWELL: I was really interested in that situation, and you've explained that very well.

MS. WILLIAMS: Is the thermal lock up still a problem in those box streams? The clip angles were an

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obvious problem at the time of the hearing. We went into this discussion wheter it is adequate or functional versus whether it meets the code. That problem has gone away because of this action to redesign the support.

MR. TERAO: I don't recall if that was one of the items that was being addressed in the motion for summary disposition. I don't think it is.

MR. MINICHIELLO: I believe it is. I believe I saw the affidavit by John Finneran and Dr. Iotti on component cooling water system zero gap frames. They talked about not only the stability, but also the stresses on the frames themselves. In fact, I've seen the counts in the back of them. There is an affidavit, because I was reading it on the plane coming up.

MR. TERAO: You're right. I recall now.

MS. WILLIAMS: To the extent that we have the affidavits, we don't have a complete list, but those that we do have we are reviewing in the context of our report. We have questions, we are asking Texas.

MR. BACHMANN: We've got some minor, relatively minor questions and then I think we can break for lunch. We will come back on the structual capabilities of the

MR. BURWELL: Ok. On two observations, DC-02-02 and DC-02-03, which I have here if you would like to see.

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Cygna closed these observations because these concerned the use of later codes specified.

MR. BACHMANN: Specified in the ASR.

MR. BURWELL: And, I believed you closed these because a review determined that in the first case, there was no design impact. In the second case, the updated code was technically appropriate, and the FSAR change reflecting the updated code has been made. The principal thing that I am not straight on, and perhaps it is that I am muddy is that the code of record from 1974 through one addendum. Back in the Cygna report, initially submitted I had the impression that there was a mixup, and it would change either on the hearing or as a, a, either change in the hearing and in fact, I think perhaps the applicants' letter commenting on the Cygna report may have flagged that out. Is that involved with these two observations? Can you straighten me out on that at all?

MS. WILLIAMS: No. It is not involved with these two observations. We did use the right code of record during the review. The clarification that was made in the hearings was in design criteria documents where it was typed incorrectly at the top of one of the pages. It is not indicative of the fact that we used the incorrect code for comparison during of course, doing the review. But, the design criteria did not reflect the

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Proper code version. I can embarrassingly tell you why that happened. That is because we the data for design criteria and adapted it to the Comanche Peak one, and it just didn't get picked up in proofing. But, it was not in any way associated with the fact that we were using the wrong code for the review.

MR. BURWELL: Thank you.

(Off the record discussion.)

MR. BURWELL: Back on April 19, we discussed your electrical reviews, specifically the reviews on the circuitry on the valve. And, I guess it is my understanding that you guys are going to go back and take a look at the circuitry on valve, what is it 8211.

MS. WILLIAMS: 8811.

MR. BURWELL: Yes. That's correct. One of our questions related to that concerns the inclusion in the reg. guide of 01-06 branch of technical position, as they apply to that valve. Picked up earlier, I thought those two referred to the valve. So, if you will include that in that review if it is appropriate to the summary.

MS. WILLIAMS: Yes. We are doing that. It is not a very big effort. I am just scheduling it around the other work, and at this point and time I hope it will be done by next Wednesday.

(Off the record discussion.)

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MR. BURWELL: I guess, at this point, we would like to discuss some of the things that came up in the hearing as they relate to the cable thread supports. I guess the first question related to the safety factor on the poles that we use to fasten the supports to the structure At the hearing, I believe that you people went through an analysis that shows because Gibbs and Hill had to design the cable tray supports for a factor of 4, had designed the cable tray supports, the anchor bolt for holding the cable tray supports to the wall were designed with a sack (phonetic) factor of safety 4 or the OBE than one considered from the standpoint of the factor of safety of the SSE, the safety factor has been eroded to something in the range of 3 or slightly better. We would like to get some feel, if possible, for, I guess we are looking for an expression on the liability in ratio and showing analysis, and some indication of a view on on reviewing these things of the impact of other conservatism in the analysis. How that would better justify the erosion to the fact of a safety of three. I will say, at the offset that we do not have the particular concern for argument against the safety factors of three as to accessibility. We would like a clearer understanding, however, of how extensive this is and how reliabile is your factor of safety. Is

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that too broad of a question. If it is I'm going to kick it over to P.T. here and let him see if he can be a little more specific.

MR. KUO: No, Spot, I think that you made it reasonably clear. If your people feel a need to clarify at this point, I'll do that.

MS. WILLIAMS: Let me try and answer it, and then to the extent that you want clarification just stop me. What we did, and I didn't bring my pre-trial testimony with me is very reliable to the question. It is also plant wide. What we did was not to take just the trays that we looked at and evaluate what the reduction in safety factor would be from the required core, but rather we looked at it from the enveloping sense because we wanted to get the characterization of the whole. The calculations have been checked. In that case, I say that they are reliable.

MR. KUO: If I may interrupt. How did you do it? You said that you looked at the sum in an enveloping sense. Can you just go back on that?

MS. WILLIAMS: Ok. I'll have to look at my testimony on that.

MR. BURWELL: Sure.

MR. TERAO: If I may, I would like to clarify one point here. I think what Nancy is getting ready to do,

is what I told you just a few minutes ago. I don't know if that is what you are looking for, but I think what you are looking for is more related to the actual calculations to the supports?

MR. KUO: If Nancy is just going over whatever is in the pre-filed testimony, we had an earlier discussion before we came here, I think I know pretty much what is in there now. But, I guess what I am looking for is some indication from you people as to how extensive the scope of this safety factor involved in these excess heat calculation. In other words, if I can give you an example, I have 100 bolts there, and I have only 10 bolts that have a safety factor of 3. The rest have a safety factor of 4. Or, I have 50 bolts that have a safety factor of 3. That kind of a feeling is what we would like to have if you can.

MS. WILLIAMS: Ok. Let me see if I can do that with this information here. The only thing that I will be able to do from this information is tell you how many buildings at what elevation are effected. What that will do is, we are only talking about two buildings, the top elevation, which is basically the kind of thing that we are talking about is not wide spread across the plant. I'm not sure if I can extract that right off, but let me take a shot here.

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MR. BACHMANN: Do you want to take a short break here?

MS. WILLIAMS: That would be fine.

MR. BURWELL: Fine. Of the record.

(Brief recess.)

MS. WILLIAMS: Ok. As you probably noted going through this evaluation of record 5-3 of my testimony there is a base assumption where calculating using a safety factor of 3, that we wanted to array that and determine what exceptions there were to that. However, if you go back and looking at the maximum OBE and comparing it to the SSE knowing that the OBE meets the safety factor of four. The worst case cut you will come up with is the upper two elevations of the buildings.

MR. KUO: Of what buildings?

MS. WILLIAMS: Of all the buildings. But, I want to emphasize evaluation. I am sitting here looking at the numbers. And, it is not any way reflective of the number of cable trays that exist at those elevations which in many cases is very few. In a few cases, none, to my knowledge. And, you have to look at it in that light. To have to quantify it we would have to go and look at the number of trays.

MR. KUO: Is it too much trouble to check on those trays?

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MS. WILLIAMS: I guess I would do that by going into the plant and taking a look at it. That would be the quickest way.

MR. KUO: But, just a general feeling based on what you know now, approximately how, what kind of percentage we are talking about on the cable trays.

MS. WILLIAMS: Let me prep this statement by saying.

MR. KUO: It doesn't have to be very accurate.

MS. WILLIAMS: It won't be. But, I want to prep my statement by saying one thing, that my recollection of going back through the calculations on the cable trays and comparing it to the building accelerations to do some other assessments. There were a couple of other elevations of no cable trays in them, and if Gibbs and Hill had eliminated those elevations from the design in accelerations that they were using, because they had that information at the time. So, you can see figure you are going to exclude some. Now, if I were to take a guess on the number, I think there were 5%, somewhere, not very high. Your cable trays tend to be down to lower elevations in general. There are some up there, so, some place else might be 10%, but its low.

MR. KUO: For those cable trays on those two elevations, not every, both that have a safety factor of

three, however the worst case is that they both have a factor of three. Am I correct?

MS. WILLIAMS: That's correct.

MR. KUO: But, a lot would be higher than that. That is a 5 or 10% cable tray to adoration.

MS. WILLIAMS: Yes. We think that if you were to go back and look at the actual loads and the tray span, because you probably have more lightly loaded trays up in that elevation. A lot of considerations are going to the type of analysis as the Gibbs and Hill did, that your worst case is three and it should be better than that.

MR. BURWELL: Now, these analysis were done whether the tray was, shall we say one step, two step, three step, four step, five step. Do you understand what I am saying. The trays were designed, as I remember, they were designed, the design analysis was designed upon the most complex standard deisgn.

MS. WILLIAMS: Yes. It is done as an enveloping analysis.

MR. BURWELL: It is done as an enveloping analysis. Alright. Therefore, many of these trays are much smaller than an evelope, well inside of the envelope. I guess the conclusion, I'll look at it another way. The conclusion, in your table on page 2, we know that the trays

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on any of these elevations should be at a safety of four for the OBE accelerations in the .

MS. WILLIAMS: That's right.

MR. BURWELL: It leads to a safety factor of four. If that is the case, then we know an acceleration which the highest one I see is 5.447G.0BE and that the SSE, if the SSE is less than that at some other location would not the cable, would not the bolts also be for an acceleration less than that.

MS. WILLIAMS: Yes. That's correct.

MR. BURWELL: So, there would be also no places, I think I count, one, two, three, four, five, six of these which are not four.

MS. WILLIAMS: That exceed 5.447.

MR. BURWELL: No. I add another one, 67.

MS. WILLIAMS: Approximately. Approximately speaking in the upper two elevations.

MR. BURWELL: The upper two elevations in every case. Ok. Now, you can go on to the next page. But, that's the idea, and if that were true, there would be a very low number less than four.

MS. WILLIAMS: Yes. There tends to be less trays at those elevations.

MR. KUO: Would this take a lot of effort for you to say, to identify for each of these two elevations that

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we are talking about. How many trays are there.

MS. WILLIAMS: Yes. It would take a lot of effort I'll tell you why. It is because, to trace the documents through, the path you have to start with the cable tray layouts you are going to identify as trays is a many step process. It is not a five minute job. The second thing is, to go in an look at them, which would be the most expedient way to count is not all accessible, for painting, for insulation and things in the way, that kind of thing. You can walk through and get a general feeling. You can walk through the elevations and get a feeling for, well, I'm in the middle of the building and I'm down near the spinning room and there is a lot of them. You can get a general feeling for how highly loaded the trays are in the upper elevations of the building. Or, you can get a feel for the type of components that are bieng fed by cable in the upper elevations of the building, so you get a feel for the number of components that you are talking about. There is no direct routes to identifying that.

MR. KUO: I understand. Now, for a given cable tray it involves many bolts. Do you have a feel how many bolts there that may have a maximum load?

MS. WILLIAMS: Well, I can tell you how many bolts some of the standard cable tray designs utilize, which is

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varying from two bolts. There are statistic reports up to roughly 8-10 bolts, somewhere along those lines. They aren't as complex in type supports in their designs.

MR. KUO: Yes. You have eight bolts in a given cable tray. Not all eight bolts have the maximum load on it. Not all of them will have a safety factor of three. There may be one or two, the rest being a safety factor of four or higher, because the loadings are not, are proportionately lower because of the kind of duration there. Do you have a feel, that is what I am looking for?

MS. WILLIAMS: I can tell you my experience in the calculations I have looked at. In general, what you end up with is one bolt in a particular region, due to the loading conditions, that seems to see more of the load. I have never seen a case where anything was so grossly loaded that all bolts were in question as to their tension and acclamation.

MR. KUO: That's on your finding.

MR. BURWELL: Ok. Do you want to go on to that second one?

(Pause.)

MR. BURWELL: At the hearing, I believe Dr. Bjorkman indicated that the use of 1.6 factor in conduction with some of the code allowable stress values results in a condition where the yield strength of certain components

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may be exceeded for the SSE mode combinations. Have you any feel for where this condition occurred, how often this occurs, or some explanation of the controlling case?

MS. WILLIAMS: I am going to go on my recollection, I will tell you to the best of my knowledge what I know.

MR. BURWELL: That's fine.

MR. BACHMANN: Excuse me, before you do, would it help if I drew up the transcript as I ask the question.

MS. WILLIAMS: I recall the question, and I recall the cable we are talking about. We have discussed to an extent, and I will tell you what, to the best of my recollection how. I believe that when one takes a further look at that, there were no examples of where it exceeded .9FY. In other words, there was not a problem.

MR. BURWELL: FY

MS. WILLIAMS: As to my recollection. Ther is a letter by Gibbs and Hill attesting to that. At this point and time, we have not reviewed it. We went back and looked at data as a result of listening to the discussions of hearings. We weren't prepared to comment on it at the time of the hearings, although we did feel at one point this was not a realistic factor. And, had run the numbers at that point in time. I think we made some statements that one of the values might have impression of concrete could have been exceeded. Again, this

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is just to the best of my recollection. Gibbs and Hill wrote a letter that they had gone through and checked the numbers against the code, and that they were, in fact, ok. We have that letter in-house. It is in terms of what we are going to.

MR. BURWELL: And, that will appear in your Phase IV report?

MS. WILLIAMS: Yes.

MR. BURWELL: It will be documented?

MS. WILLIAMS: Yes.

MR. KUO: But, there is no case that the stresses exceed the yield strength?

MS. WILLIAMS: I don't believe so.

MR. BURWELL: Lets go on to the next question. In the course of the hearing, you justified the damping values used for the design of cable trays with welded connections based on a site and code test results. The seismic testing of electrical cables of the support system. The question was raised in the hearing about the inter-relationship between the test structures and the cable tray supports at Comanche Peak as to whether or not the use of the Encode, whether or not the encode test data would be represenative of the cable trays used at Comanche Peak. Can you address that any further at this point?

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MS. WILLIAMS: I can try and clarify it. I don't know it will provide what you are looking for. They use four and five percent damping over ESSE. Which, they could have used four and seven percent, but in fact they did an OBE design anyways. You are dealing with four percent OBE, which is a bolt construct damping value. The question came up, is it appropriate for the bolt construction damping value for the cable tray support system, or did one use the welded structure damping value? We believe that it was acceptable to use the bolted structure damping value. The reference we cited was the mechanical report, but it is not the only report availble like that. What I think comes out in the technical report is that they found the damping values on some of the results that they obtained were not so much a function of the components, in the design of the cable tray system, so much as the fact that the cable tray system as a whole, given the cables sitting in the trays and all of the characteristics of the system. Not just looking at the supports, per se, produce very high damping levels. So, when you start to look at the cable trays as a system, you have to consider that you have U-shaped hangars hanging these trays. You have got trays and then you have got cables in these trays. Things that are obviously similar in the Eco test report and what they

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have at Comanche Peak are the tray type. In fact, the cables on the trays and the connections on the trays, and the tray supports. The thing one might argue that is dissimilar is that just the support itself and channel sections instead of unistrut. Or, channel sections instead of angle sections. But, that is only one facet of the tray in this system, and you start to look at them the test results do show that the cables in the tray have a large impact on damping value. The ability of trays to dissipate energy. If you think about that on the trays' wing, if you envision the fact that they would have an impact on the trays. The test did show that. They did empty trays and full trays and different types of connections.

MR. KUO: Am I correct to say that the only reason that you cite a report is to justify the use of four percent damping for bolted structures versus some damping for welded structures. You actually use some of the higher damping results from the anchor test.

MS. WILLIAMS: Your first statement. To justify support by use of four percent.

MR. KUO: That's the only reason you cite this in your report?

MS. WILLIAMS: That's right. We probably wouldn't have turned to the ENCOL report if it weren't for answer-

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ing Mr. Walsh's question in wanting to come up with some example for him. Because, when we did the review, we found nothing wrong with four percent. When we did the hearing, we brought forth some examples of why we thought that that was an adequate number because he was questioning the bolted versus welded structures.

MR. KUO: You did not use any of the higher damping values resulting from this ENCOL test?

MS. WILLIAMS: That's correct.

MR. BURWELL: Nor did the applicant.

MS. WILLIAMS: Nor did Texas Utilities.

MR. BURWELL: I think the dispute was whether it should have been two or three percent as oppossed to four.

MS. WILLIAMS: The report goes up as high as twenty or twenty five, but you know.

MR. BURWELL: Before we get on structure, I had a couple of little nits that I wanted to touch base with you.

MR. BACHMANN: There is a question that we provided in the March 30 letter that appears to still be pending. And, there are two questions, one of them I think is going to be one of your nits.

MR. BURWELL: Yes. Both of them are.

MR. BACHMANN: Were those both questions four and five?

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MR. BURWELL: Ok. Back in 50, there was a cable tray in your design criteria for cable trays, there was an Exhibit 4.3-1. You supplemented that on the stand, I think. Do you happen to remember how it got into the record, because I haven't been able to find it for the last few days. I thought it was there on February 19th or 20th.

MS. WILLIAMS: I remember doing that when we took the stand. Then we did it again here, on Thursday meeting. We are talking about the cable tray allowables?

MR. BURWELL: Yes. That's in this proceeding?

MS. WILLIAMS: I thought it was vugraph.

MR. BURWELL: Great. Now I know what you are going to put on the record. Fine. That's what I'm looking for. Thank you.

MR. BACHMANN: Do we suggest that that should be included in the final final report?

MS. WILLIAMS: Yes, we will.

MR. BURWELL: Well, it is my understanding that on the record you said that this would be included in the final report.

MS. WILLIAMS: That's right. It will be.

MR. BURWELL: And, while we are talking about that, when you respond to our questions, are you going to respond only in the final report, or are you going to send

us a letter with some of that stuff earlier, or what?

MR. BACHMANN: What questions are we referring to?

MR. BURWELL: The March 30th, for example.

MR. BACHMANN: I thought we were answering them today.

MS. WILLIAMS: I only have two on my list right now that I think that I owe you. Other than the fact that they will be adopted into zero, official reg. zero of the Phase I and II report. Some of these are being wrapped into Phase III which we would have to make note of, for example, the welded attachment.

MR. BACHMANN: I have a note that, maybe it isn't the same one, on section 3.2.3 of.... on the valves, the interlogs and all that stuff, the addition of the staff guidelines and the different valves. Are those the two that you are talking about?

MS. WILLIAMS: That one will be well mismatched. The first question which we addressed today, which was a.

MR. BACHMANN: Right. I think you said next Wednesday for the valve?

MS. WILLIAMS: That's when I am to get the reviewers summary of it. It doesn't require much more than marking up the checklist and the criteria document on it. I can summarize that in a letter that would be open to you.

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MR. BACHMANN: Ok. On the weld mismatch. When do you anticipate that? I don't have a due date on that.

MS. WILLIAMS: That's right. I didn't give you one. It is not a very big effort. I should think that we would be able to address that one next week and get the writeup together the following week. We had estimated one person per week to do that, I am just trying to balance that off with trying to get the Phase III report out the door. I will put someone on that one next week.

MR. BACHMANN: I assume that on that one, Dave you will be sort of available to answer any questions I may have about getting that information. The weld mismatch ratio?

MS. WILLIAMS: I think that we are ready to roll on that one. I'm going to check my notes.

MR. TERAO: Yes. Don't worry about it.

MR. BACHMANN: Right.

MR. TERAO: I said don't worry about it.

MS. WILLIAMS: We are just going to do the three and four inch schedule as we discussed back in that last Thursday meeting, and we are going to do just a sample of high temperature.

MR. BURWELL: Ok. I think I have another nit here then. Please clarify the situation on the preparation of

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drawings for the construction of cable tray supports, or do they actually prepare these on site so that you can go to the document control center down there and draw those documents.

MS. WILLIAMS: Yes. We can draw various kinds of documents and installation instructions. We are getting into that now, but we did not do that in Phase II.

MR. BURWELL: Ok. But, in other words, you can go and these cable tray supports have individual cable tray support numbers? Just like the pipe support numbers, that you can go, and with that number secure the drawings for it.

MS. WILLIAMS: Yes. You do have to take various steps in linking the number with the drawings because it is just the way they are identified. But, there are unique numbers, ther are FSE drawings for the construction there are travelers who are for craft to use in performing the construction, and then there are our inspection reports in all of those documents in the field package.

MR. BURWELL: Thank you.

(End of tape.)

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MR. BURWELL: Did you have a further question?

MR. KUO: No, I don't have anymore.

MR. BURWELL: Dave?

MR. BACHMANN: Okay. We, we still have a few general questions in the document control area to cover. I don't think we have anymore questions in the piping support stress area or the structural -- at least my list is complete except for --

MR. BURWELL: Okay, fine.

MR. BACHMANN: -- some document control (inaudible).

MR. BURWELL: In the document control area, the first question we had related to the --

MR. BACHMANN: Could we, Spot, could you just --

MR. BURWELL: Sure. Off the record, please.

(OFF THE RECORD).

MS. WILLIAMS: There are two studies that we referenced in our Phase 1 and 2 report, and one is self-weight excitation study (Phonetic) and one is the support stiffness (Phonetic) study which we did not review at the time of our Phase 1 and 2 reports. You know the two I'm talking about right now?

MR. TERAO: That was referenced in the SIT report?

MS. WILLIAMS: Yes, that is correct. So, we did not review them in Phase 1 and 2. There was some line of questioning as whether Cygna reviewed them or whether Cygna should have reviewed them. And we said, well, we did not review them because the staff was reviewing them at the time.

We really wanted to know if these had been accepted, officially, at this point in time, and (inaudible) you can answer that.

MR. TERAO: Should have been thinking about this last week. For the self-weight excitation study, really what was done in the SIT report was, again, a sampling study.

And from the sampling study that we did on the self-weight excitation, well, I should have brought the SIT report, but, basically, I think I concluded that there was no excessive overstress. I think there were some increases but not anything that exceeded the allowable.

So, the SIT report accepted that sample or accepted the use of the ignoring multiples, ignoring support excitation based on that sample, but I think in our conclusions of what we're aiming towards is

perhaps additional assurance from you if you see a support where self-weight excitation could be a concern that was not specifically addressed. I think we would like to know about that.

And I think the same thing applies to generic stiffnesses. From our review of the generic stiffnesses, the SIT Report was based on a sampling study. And, again, I believe that they found certain increases but nothing considered significant where over-stress conditions could be found.

So, again, the SIT Report is based on a limited sampling. Now, from our recent discussions with the applicant on its motions for summary disposition with respect to generic stiffnesses, I think the staff has some concerns that perhaps the SIT Report from its sampling was not able to identify.

And these concerns are still open with the staff. So, I think with respect to the generic stiffnesses, I think we have a potential concern that isn't completely resolved under the studies that we viewed and the SIT Report. And, again, we would look towards your guidance. If, if you see any, for example, unconventional supports that could result in excessive flexibity in the, in the support stiffness, again, it's the nonstandard concept that would affect

the analysis results.

So, both, both the items that you mentioned were addressed in the SIT Report but you have to realize that the sampling study in the SIT Report was very limited.

MS. WILLIAMS: Okay. So, you're looking for us to, in view of the scope that we're evaluating in detail with the knowledge of these studies that had been done, to note, if any, exceptions to the results in these reports?

Cause I'll tell you why I'm asking it. The self-weight excitation study as it stands, there's just not enough information for us to draw conclusions on, but we don't want to do any rework. We certainly don't want to go back over what you people have done. It just doesn't seem necessary.

We presume that you have been through with Texas Utilities developing that sample and that there must have been calculations to back it up and these sorts of things, but there's no sense us making Texas redevelop or get copies of the same things that you've already reviewed, but we can certainly keep on eye in the work that we're doing with the knowledge of what was done to identify any exceptions that may be of concern, which makes a lot more sense to us.

If you want us to review the reports, fine, but we just don't have enough information at this point in time. And we have not gone to Texas and said, you know, turn over your calculations that back up the self-weight excitation study. All we have is a three page write-up on it.

There's some comparison tables on what we looked at, too, I might add. It's just that you can't tell the before and after effects looking at the summary charts that we have. So, so, we can't get a lot out of the comparison, but we can read the conclusions and we do understand the method used.

MR. BURWELL: Do you want to take a further look at that? I talked with Chin (Phonetic), Dr. Chin.

MS. WILLIAMS: If you've looked at it, we don't particularly feel it's necessary to go back and recreate the wheel and we're not saying that we want to do that. I just want you to know --

MR. BURWELL: Yes, I understand.

MS. WILLIAMS: -- what we're, will and will not say about that. That's all.

MR. TERAO: Can we caucus for just a minute here?

UNIDENTIFIED SPEAKER: Off the record,

please.

(OFF THE RECORD).

MR. TERAO: All right. Perhaps I, I feel a little explanation is in order here. On the self-weight excitation issue, the SIT Report was based on a sampling study, and the sampling study was, as I had indicated before, but again it was only based on the sample that the SIT had looked at.

The question is really should you continue asking about the supports in Phase 3 and 4 and the question of support, support self-weight excitation. I think what I'd like to do is at least explain why we think it's still an issue.

When, when plants rely on structural steel, structural building steel as an attachment to a support, it seems to me that it was, it's customary that the pipe support itself was a relatively either short piece of auxillary steel or a component standard support which is relatively short.

And those attachments when attached to building steel by industry, common industry practice do not require self-weight excitation type of analysis. It's rather obvious that the loads induced on those rather small components with respect to the piping seismic load is relatively small, but the building,

the structural building steel typically is analyzed for both the piping loads and its own self-weight excitation. And that analysis is typically done by the structural group rather than a mechanical group.

When a mechanical group then takes on the responsibility to do a pipe support analysis and does not rely on structural building steel but develops its own steel such as large frame structures, then the question is can he then extend the pipe support design considerations to the large structural steel, large structural steel frame.

I think any logic will tell us that you can't do that. There is no reason I can think of of why you should neglect structural self-weight excitation in a, especially in a smaller large frame when you don't neglect it in a large steel structure, large member steel steel structures, let's say.

And maybe this is, again, it could fall into the realm of non-standard or unconventional design when you rely on tubular steel members to function both as a pipe support and as the auxillary, and as the building steel to which it was originally supposed to be attached to or the way that it's attached to in other plants.

So, I, I would then have to say that where

it's not obvious that self-weight excitation is a concern or it's not obvious that self-weight excitation is not a concern, that it should be, it should be addressed. It should be either pursued or if a generic study is there, it should be reviewed to see that the study itself can envelope that situation.

But aside from that, I, the way I, I would read the, the ASME Code and NF, I believe in NF-31-11 and 31-12.2, it states rather explicitedly in the ASME Code that the designer must consider the effects of earthquakes and designing component supports.

Is there any questions on the self-weight excitation?

MS. WILLIAMS: Well, we believe it, it should be considered and that's why we asked the question in Phase 2 and then were led to the, the report. I don't disagree with you from a technical standpoint whatsoever. Our question is really our role in this particular technical matter since it has been apparently reviewed previously, and we didn't want to duplicate effort if it wasn't necessary.

MR. TERAO: Okay. Well, although in, in this particular case there may not be any reason to believe that the support load increase would contradict the conclusions in this SIT Report, but on the other hand,

if you did review different supports than what the SIT team had looked at, the staff would have had further assurance on the conclusion that, that the self-weight excitations are not, will not result in any safety concern.

So, I, I think the only thing I can say at this time is we must recognize that the SIT Report was only based on a sampling study and any further assurances we would have would certainly tend to support our conclusions.

MS. WILLIAMS: Did you develop the sample or did Texas develop the sample? Do you know how that was done or --

MR. TERAO: Do you recall, Spot?

MR. BURWELL: No, not on that one.

MS. WILLIAMS: Okay.

MR. BURWELL: Maybe we can get a conversation between Cygna and Dr. Chen, if it would be helpful to you. I think that was in his area and he followed that.

MS. WILLIAMS: Okay. Well, we don't really necessarily want to redo what's already been done or what you've done, but if you're saying, okay, we've done this report and if you have other data that you want to add to that, fine, Cygna, in which case that

will certainly be readily available to you, but if we do that, we're not going to go back and review the report or comment on its validity across the board for the plant. That's the only thing.

It would give you more information, that you could sit there with your knowledge of the self-weight excitation study and draw your own conclusions from, but it wouldn't be a verbal conclusion on that particular subject from Cygna because you've got more information on that, having been involved in that study from day one. That's basically what we're saying, but as far as providing other information that you could fold into that review, that's a perfectly logical step for us to, to have identified during the course of our Phase 3 review, but it's kind of another sideline for us to go off and, and look at that study that was done when you people are so much more intimately familiar with it.

MR. GEORG: Spot, is it appropriate for me to give some input into that?

MR. BURWELL: All right.

MR. GEORG: The SIT Report was based on six months of fairly extensive and exhaustive studies of all the (inaudible) allegations because this is one part of it. And that although the sampling study is certainly not based on the (inaudible), the choices were

based to envelope and encompass all of these concerns.

So, I would highly recommend that Mr. Bosnak and others in the Mechanical Engineering Branch (inaudible) along with Texas Utilities was involved in that study, and I, and I certainly would hope that we would research the validity of that (inaudible) before you launch Cynga off into additional costs of Texas Utilities to give you further assurance as to what your conclusions were in the SIT Report. It's Texas Utility's view (inaudible) conclusions are very valid, not really any concern there.

So, I think it's a very important issue, at least to us, you know, what, what is enough assurance.

MR. BURWELL: I agree, I, I think. If I understood it, what you were saying to me, what Cygna was saying to me was that you were not going to launch into any study on this matter. Was I correct?

MS. WILLIAMS: That's correct.

MR. BURWELL: Then we'll take a further look at it, but certainly at the moment, I see no need to launch into a further study of it, but we'll consider it and get back to you if we change our mind.

MS. WILLIAMS: Okay. That sounds good. I

presume the stiffness study, likewise, has had a lot of work done behind it.

MR. BURWELL: The stiffness study, I believe, the summary disposition, request for motion for summary disposition, has a very large body of new information in it. And for that reason would be, the technical, the technical data in the motion for summary disposition would tend to either put that to bed or not put that to bed.

MS. WILLIAMS: Okay, but that's a similar set of circumstances where there's been a lot of work done. There's been several parties involved in it. There s reports being generated and there's several different parties looking at those reports. So, --

MR. BURWELL: I would not look for Cygna to go off into a research program on generic stiffness.

MS. WILLIAMS: Good.

MR. BURWELL: If, I think that's what you were asking.

MS. WILLIAMS: That's right. We don't want to rereview what ten other parties are already reviewing. And that's basically it. But we also don't want to walk into the hearings and be told that we didn't do our job because we didn't look at these things. And that's all we're trying to indicate.

MR. BURWELL: The only thing I can recommend to you is that you try and keep up with it (inaudible).

MS. WILLIAMS: So that we're familiar with what's going on.

MR. BURWELL: So, and, so that you understand the relationship between what's going on in that area and what's going on with your, your efforts.

MR. GEORGE: Spot, Joe George, again, here one, one second, if I may input into that. We have, indeed, brought Ebasco, who's yet another party, into these, these issues, and we've done exhaustive studies to support these summary dispositions (inaudible) some 16 to 18 of them, dealing with all the launch allegations (inaudible) and the last interface meeting concerning these with NRC. There's still some open items dealing with that. And I have asked and directed Ebasco people to continue with doing whatever is necessary to satisfy NRC's concerns to support that particular issue that we submitted for summary disposition as far as (inaudible).

So, Mr. Burwell, I would hope that Cygna would not be (inaudible) work on that.

MR. BURWELL: I think that's just what I did.

MR. GEORGE: That would be my input. We're committed to supply everything that NRC/NRR requires

to support these issues, and, and, obviously, if they cannot support it and all avenues are exhausted (inaudible), then the applicant would be in a position where we'd take whatever action on our own part (inaudible).

It is our position, obviously, if you've read the summary disposition, that this is absolutely not a problem.

MR. BURWELL: Okay. Now, we seem to be consuming a lot of your time. Let's, well, let me, yes, let's go to that one. Let's see. As of last night, I think I received a report from you people concerning a review of the Document Control Center and its satellites.

MS. WILLIAMS: That's correct.

MR. BURWELL: And I have not had a chance to, an opportunity to study that and, therefore, I think it's a little bit early for me to ask questions or comment very much on that area.

MR. BACHMANN: May I ask a question in this area? (Inaudible) of the March 30 letter. Okay. Do you have a copy of it handy (Inaudible). Okay. What, what I'd just like to sort of get on the record one way or another is there is essentially two parts to that question.

MR. BURWELL: Okay. Right. That's what I was going to, next.

MR. BACHMANN: Okay.

MR. BURWELL: Okay. The second part of that question relates to design verification prior to the document control tracking group or the Document Control Center, becoming sufficiently accurate and relates to (inaudible) what is it, what is the design verification program to the last part? I mean what is the design verification program to assure that the as-built condition does, in fact, conform to the design and vice versa.

Now, in our question we asked, how did we state it? Anyway, in any event, at the last meeting we discussed that, the relationship between the up-to-date documents becoming available and the as-built verification of the plant.

And I believe, is this a part of your Phase 3 revision or is this, is Cygna doing anything about this or is this strictly the applicant's -- let me see if I can't say it another way.

If I understand,the applicant has the responsibility of verifying across the board that everything is constructed to the final design. I think it is also in Cygna's program somewhere that

Cygna verify or check on some selected sample basis, that the applicant has done this. Is not this the case?

MS. WILLIAMS: We aren't doing that by our walk-downs. We're --

MR. BURWELL: By your, right. Okay.

MS. WILLIAMS: That's correct.

MR. BURWELL: All right.

MS. WILLIAMS: And there are more walk-downs in Phase 4. We already did walk-downs in Phase 1.

MR. BURWELL: Yes. Okay. Yes, thank you for the organization.

MR. GEORGE: Might I try to help clear that up, please? The applicant's response to Judge Bloch's December 28th concern and order dealing with a number of issues and some of which were the (inaudible) concerns. Others were the design QA aspects of our program.

And we developed a plan that will, we think it will prevail in showing the judge all aspects of this is really okay. We presented that plan to him, the Ebasco and Dr. Iotti (Phonetic) and others as part of the researchers group (inaudible) summary dispositions and all are part of that and the so-called Phase 3 of Cygna was a third party review of that

plan that we submitted in response to his December 20th order.

So, Cygna's role in, in dealing with what we will be presenting is to review that as a third party and (inaudible) know exactly what's happening. So, if they're checking our response to the December 28th order (inaudible).

MS. WILLIAMS: Are we checking all aspects of that program now? We have our scope but I don't know, in that I haven't gone back and checked, whether the scope that we layed out for Phase 3 entirely runs a check on everything that you people are doing. That might be true. I just don't know.

MR. GEORGE: Not the entire program.

MS. WILLIAMS: Okay.

MR. BURWELL: That was the point I thought I was making.

MS. WILLIAMS: Well, we're not overseeing everything that Texas Utilities and Dr. Iotti and everybody is doing, although we might run into certain facets of that because of the hardware scope that we're doing the checks on. It, it may or may not be 100% overlap. I just don't know if that's true.

For example, the U-bolts here, doing a study on that. And, yes, we're reviewing the study, but we

don't perceive our role as checking whether they did everything they said they were going to do in their get well plan. At least that's not our objective as stated in the proposal.

MR. BURWELL: You are correct.

MR. BACHMANN: Let me raise some questions here primarily for the record and also for some of our reviewers who are not here.

There is a concern in the staff about the Document Control System in the sense that Cygna went out and took a snapshot of the system with the computerization of design changes virtually complete or complete to the satellites (inaudible).

The plant has been pretty much built when that occurred or had been pretty much built. Do you feel it's within Cygna's scope or perhaps I should just ask you for your reactions, what feelings Cygna has, what beliefs Cygna has as to the parts of the plant that were constructed using the old manual system prior to the computerization.

There seems to be a concern in the technical staff of the NRC that we now know the, we now feel pretty good about the system but a large chunk of the plant was built before the new system was put into effect.

Do you feel that was within your scope? Is it something that you could comment on, any observations, small (inaudible) that you would like to make in that area?

MS. WILLIAMS: Yes, I can comment on that. I would take it discipline by discipline so as not to confuse manuals and computerized and various systems. To take the pipe supports, for an example, because that seems to be something that everyone is focusing on which is still a manual system at this point in time.

They have certain inherent checks built into them as part of the vendor certification program. People may or may not like the irritative process that Texas has chosen to construct the plant, but we think that by the time we finish Phase 4 we will have looked at a pretty good sample, in that we're talking about over 100 supports to run checks on, how well that process is working.

And what we're finding today as far as the field installation goes, that in pipe supports they kept a pretty good handle on keeping the number of changes associated with the pipe supports at any one time down to a minimum.

Yes, they irritated several times on doing

their "as-built checks" on them. There were irritations between changes in the stress analysis and pipe supports, but at any point in time we didn't find an absorbanant number of changes outstanding against the pipe support drawings. And then there is always that final check where they do incorporate all of the changes to the drawings and the walk-downs that we did in Phase 1 indicated that we had a very good result in terms of matching the drawings.

Then there's just this discussion of whether it's appropriate that instructions or procedures are referenced in the drawings or not. As far as the supports matching the drawings, it was not a problem when we went out in the field.

We have not found a number of design changes for the piping to be unmanageable. So, I would say that once you walk through and, yes, it is part of our review to be looking at that process with the pipe supports to understand that process and to run into the field and check how well the end product of that process matches the drawing, we're doing that. And we're doing that for three systems.

Now, cable trays, they vary in the number of design changes, and we're going to be looking at how well that process with the (inaudible) is working

in the field when we get down there for Phase 4.

The electrical, we went through and in Phase 1 went down to level of details of checking the terminations of each of the cables into the control panels, each wire. We went down to considerable detail on those, and we had good results.

To date, we haven't found anything that did not match with the analysis, and we are tracking it through that entire path. We'll have more data when we come out of Phase 4.

So far there's nothing we found that would cause us to have concern that the plant is not constructed in accordance with the latest drawings, but we still have to do the Phase 4 walk-down another week, another two weeks.

MR. BURWELL: The Phase 4 walk-down includes electrical power --

MS. WILLIAMS: Yes.

MR. BURWELL: -- design? Implementation of the control design?

MS. WILLIAMS: Yes.

MR. BURWELL: Any structural other than cable trays?

MS. WILLIAMS: Just cable trays.

MR. BURWELL: Just cable trays?

MS. WILLIAMS: That's right. We're taking a pretty good sample of the cable trays across the board, too, in terms of types.

MR. BACHMANN: Now, this walk-down will, I assume, will encompass areas where components were assembled, constructed, whatever. Design drawings were used prior to the computerization of the design control system?

MS. WILLIAMS: Yes. There was a point in time at which all drawings were tracked manually. So, you can't avoid that.

MR. BACHMANN: So, in other words, this, this Phase 4 or by the completion of Phase 4, we'll have a good picture on how the document control system performed prior to the computerization, considering that a lot of this stuff was put in before everything got put on the computer?

MS. WILLIAMS: You could extrapolate that from the technical results. I don't know as I would word it that way. I don't think I would make a statement on how it performed. I would make a statement on whether everything was constructed in accordance with the latest revision of drawings.

Now, you could extrapolate that to say, yes, the Document Control Center is performing, but that's

not actually what, what we're assessing. Indirectly, yes, you're assessing that.

(CHATTER)

MS. WILLIAMS: There's, there's a couple of other things. I, I don't know. This particular subject has gone around quite a few times. And the more I learn about Comanche, the smarter I get on how things are done, but in the electrical area a lot of that you can check by functional testing, the circuitry and that kind of thing.

So, that's why I say you have to divide this by disciplines. The pipe supports, there just weren't a lot of design changes at any different point in time. What happens in a lot of these discussions is we talk in generalities. And it really doesn't flow that way. And we will be able to take each group of drawings to the extent that we looked at them and make some kind of assessment as to how well the construction was followed through on to match the design.

MR. BACHMANN: Unfortunately, some of the concerns raised by the technical staff to us were also couched in generalities, and my response in that matter is not inappropriate.

MR. BURWELL: Okay. I had one other small item and then I'm going to let you all run.

At the hearing, okay. Let's see. At the hearing on, in the, when the, when your report came in in November, you had certain conclusions in Section 1.6 up front and then you indicated and you changed that implicitedly of the hearing in February.

MS. WILLIAMS: That's right. And then Judge Bloch asked us if we wanted to change it again.

MR. BURWELL: And then Judge Bloch, right, and that's kind of the way it sits I think as to Cygna.

MS. WILLIAMS: I have a mark up on my desk.

MR. BURWELL: (Inaudible).

MR. BACHMANN: Would you, would you like to read that statement into the record now?

MS. WILLIAMS: No.

MR. BURWELL: All right. I just wondered whether you'd reached a final (inaudible).

MS. WILLIAMS: That's, that's really a very good question because we're trying to get out the (inaudible) of the report. And I'm not really prepared to answer at this point in time. The only thing I could tell you is we're not going to turn around and, and do a 180 on our conclusions. It's to me really a matter of how their focused and statements and our feelings on the quality level of what we looked at and this sort of thing, and the specifics are not going to change. I

think it's a matter of how I handle the words and, and doing that carefully since it's being looked at by lawyers and not engineers.

MR. BURWELL: Okay. That, that was everything I had, I believe.

MS. WILLIAMS: Let me check my list here.

MR. BACHMANN: If you want to take a short break and then --

MS. WILLIAMS: Oh, I do have --

MR. BACHMANN: -- come back and say anything.

MS. WILLIAMS: Well, I just have one real quick thing right here. I just want to make sure that we're in agreement on what's being done.

The Thursday meeting back in April that we went through, we sent a letter to Texas utilities saying we're going to do these five or six items.

MR. BURWELL: You were going to get, give us a copy or clean up a copy or whatever and --

MS. WILLIAMS: Well, that's right except I think it's changed considerably out of this discussion. That's why they wanted --

MR. BACHMANN: I don't think we need that letter anymore.

MS. WILLIAMS: No, I don't think so. That's what I wanted to go through right now and summarize and

then if there's any disagreement with that, --

MR. BURWELL: Fine. That would be moved up, if you would.

MS. WILLIAMS: Okay. Going, referring to that, we said that we were going to follow-up on the Document Control Center Satellite System and the DCTG computerized data base for the verification activities that they had conducted on site.

We have done the Document Control Center audit, and the report, as you know, they've, was just issued. We also have done the DCTG audit, and I'm in the process of preparing that report right now.

The second item we had on that was the Gerth Butwells (Phonetic) where we have agreed to limit the scope as we discussed today.

The third item we had said we would do is welded attachments is no longer applicable. We will not be doing it as stated here. We rather discussed it in the context of Phase 3 and welded attachments, in general, and folding in Dave's questions on that and concerns. So, that one is no longer applicable.

The fourth item in that letter was simply the revision of the Exhibit 4.3-1 for the cable trays and that will appear in the final report.

Item five for the cable tray supports dealt

with the walk-down. And I had some question in my mind as to whether that was in Phase 4 or in Phase 1 and 2, whether you wanted us to go check that for the, the Phase 2 scope or wait till Phase 4. And I think that what I understand now is that you know we're getting into that Phase 4 now. You asked me if I understood that there was field drawings for the cable tray supports and how they went about it. And I generally stated, yes, there are field drawings are travelers. They're inspection reports, and we are just getting into that in the, in the July walk-down through Phase 4.

MR. BURWELL: Now, for the record, though, I think you have stated that your walk-down in Phase 1 on the spent fuel cool was based on the generic (inaudible).

MS. WILLIAMS: That's correct.

MR. BURWELL: Not construction costs.

MS. WILLIAMS: That's correct. It was not for the same purpose of linking the analysis and design documentation QC that we're talking about, the full blown IDVP for Phase 4 that we're doing.

MR. BURWELL: Yes, right.

MS. WILLIAMS: That's right.

MR. BURWELL: And I guess my, my, okay. I

guess what you're telling me now is you will give us further assurance on the as-built condition of the cable trays by doing further work in, in Phase 4?

MS. WILLIAMS: Yes, you said further. I agree, a big difference --

MR. BURWELL: Additional inspection of cable trays.

MS. WILLIAMS: -- because we didn't do an analytical review of the spent fuel cool cooling system.

MR. BURWELL: All right.

MS. WILLIAMS: If you remember, that was part of Phase 1 where we weren't checking the calculations. So, you don't get that link that you're looking for with the design installation and so on. It's really a different animal.

MR. BURWELL: Good.

MS. WILLIAMS: Okay. Then item six was the electrical, and that's what will be done Wednesday on the valve 8811-B. And item seven was the procedures and how appropriate is it that they be referenced on the drawings. I cited all the samples that I know of today, and we said that we would be considering that as we document the walk-down system in the upcoming July walk-downs.

And, and that's all I have. So, there's really only, only two, three items, I guess, I owe you in terms of documentation which should be in the near future.

MR. BURWELL: Okay. Well, I sure thank you for coming and (inaudible) respect, I'll look at it as being a very productive meeting, although I wish I had been a little bit better prepared.

MS. WILLIAMS: Was very helpful for us, too, and I was glad we got the opportunity to discuss that and ask questions.

On the DCC audit, I, Maybe it would be good -- you're going to be reading this, I presume. Perhaps I could just highlight for you.

MR. BURWELL: That would be --

MS. WILLIAMS: If that, if that would direct your, your reading of it at all or if you would like you want to read it and then talk to us, that's fine. I don't, we did station a person at each satellite. I wanted to, to say that. And we do have some recommendations for Texas Utilities coming out of it.

When you start to look at the statistics and the numbers in the report, you're going to see that we found CMCs and DCAs that were missing from satellites. The reason that we didn't say the system

was unacceptable is because we found it to be functional. And we did take considerable time, this case, in chasing documents down to the document holders. We went another step into the system, whereas before we just went to central DCC and then we went to the satellites. We now went to the recipients. We took it a third step back and tracked down the packages in the field to see how well the dissemination of documents was working from the satellite even if they didn't have the hard copies. Were they going to get the hard copies? And we did find that, that it was working as a system.

So, it's a slightly different approach to the review than what we took before. We do find the system to be a good system in design, but just a little more homework to do on, cleaning things up.

And that's what the recommendations are in the (inaudible).

MR. BURWELL: Well, I certainly thank you, and hope you have a nice flight back. With that, I guess the meeting is closed.

(Whereupon, the meeting was closed).

CERTIFICATE OF PROCEEDINGS

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

In the matter of:
MEETING BETWEEN NRC STAFF AND CYGNA
(Open Meeting)

Date of Proceeding: July 3, 1984

Place of Proceeding: Bethesda, Maryland

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

Joe Newman
Official Reporter - Typed

Joe Newman/NSB
Official Reporter - Signature