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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

[redacted]

In the Matter of:

DIABLO CANYON MEETING WITH LICENSEE

DISCUSSION OF PG&E SUBMITTAL ON PIPING AND SUPPORTS

Location: Bethesda, Maryland

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DIABLO CANYON MEETING WITH LICENSEE

DISCUSSION OF PG&E SUBMITTAL ON PIPING AND SUPPORTS

Nuclear Regulatory Commission
Room P-118
Phillips Building
Bethesda, Maryland

Monday, July 2, 1984

The Commission met, pursuant to notice, at 8:30 a.m.

PRESENTERS AND ATTENDEES SEATED AT COMMISSION TABLE:

DR. CLOUD
DR. COOPER
M. HARTZMAN
B. SAFFELL
B. BOSNAK
J. KNIGHT
R. VOLLMER
D. EISENHUT
H. SCHIERLING
R. LOCKE
S. SKIDMORE
M. JACOBSON
M. TRESLER
R. OMAN
L. SHIPLEY
H. FRIEND
G. MANEATIS
B. NORTON

C.R.
NRC/66
Tape 1

P R O C E E D I N G S

MR. EISENHUT: Why don't we go ahead and get started this morning. I'm Darrell Eisenhut, Director of the Division of Licensing. And this is a meeting on the Diablo Canyon Project. It's a follow-up meeting in response to a letter that I sent to PG&E dated June 20th, where we requested some additional information regarding piping and supports.

It was related to our continuing evaluation of information on seven technical license conditions that were in the order modifying the license, dated April 18th. In that letter, we had requested, first, a reply from PG&E and, secondly, the opportunity to have a meeting with you to discuss those matters to make sure we all understood the answers very well.

Today's meeting is being transcribed. A transcript is being taken. So, as you go through and identify your,-as you go through the discussion, I ask that each of you identify yourself for the record.

This is a meeting between the NRC and PG&E. If there are members of the public or interested organizations present, at the end of the meeting they'll be given an opportunity to make a comment.

Basically, with that simple introduction,

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I do understand that PG&E does have an agenda presentation to go through. Before I turn it over to PG&E, I want to introduce a couple of the principle people on the staff.

Hans Schierling,on my right, is the project manager for Diablo Canyon, that is the NRC's project manager, having overall responsibility for the project. On my left is Richard Vollmer who's the Director of the Division of Engineering. And on his left is Jim Knight who's an Assistant Director in that division and responsible for the overall review of the engineering aspects of Diablo Canyon.

With that as a simple thing, Dick, did you have any comments you want to make? Why don't I turn over to George Maneatis, who, I guess, will be introducing the people as you go through it and will (inaudible) presentations to make.

MR. MANEATIS: Thank you, Mr. Eisenhut. Good morning, I'm George Maneatis, Executive Vice President, Facilities and Electric Resources Development for Pacific Gas and Electric Company.

With me this morning are Howard Friend of Bechtel, the Diablo Canyon project completion manager; Bruce Norton, our licensing attorney, other members of the Diablo Canyon project and representatives from the

independent design verification program.

We are pleased today to respond to any questions you may have regarding information we have recently submitted to the staff on matters relating to the issuance of a full power license for Diablo Canyon.

As you are aware, we provided you with our initial responses to the low power license condition regarding piping and piping supports earlier this month. Subsequently, we responded to your June 20th request for additional information on this subject.

To facilitate our discussion today, we have prepared a brief presentation on recent project activities related to piping and piping support issues. Larry Shipley of the Diablo Canyon project will review the status of our efforts to achieve full compliance with the low power license condition relating to piping.

Dr. Cloud of the Independent Design Verification Program will discuss the programmatic aspects and conclusions of the IDVP piping and piping support reviews. Howard Friend will describe the recent changes in the design authority and responsibilities of the on-site project engineering group.

He'll be followed by Bob Oman, Assistant

Project Engineer for Systems, who'll describe how on-site and home office engineering activities will be conducted as a result of the recent changes.

Finally, Mike Jacobson, Project Quality Assurance Engineer and Steve Skidmore, PG&E's Manager of Quality Assurance, will review the quality programs applicable to this work. And to, so you can follow our presentations, I'm going to pass out the agenda, if you might pass them down --

We are also prepared to address any questions you may have on our previous submittals or on our presentations this morning. We hope the discussions today will provide the staff the information they'll require to issue their safety evaluation reports in early July.

With that, I'll turn the meeting over to Larry Shipley. Larry?

MR. SHIPLEY: Thank you, George. My discussion today will center and focus on the seven items in licensing, in the licensing condition, with particular attention paid to license conditions Items 2 and 3. I'll be glad to answer any questions related to areas that I, that I don't cover in sufficient detail, but I, I would intend to keep my marks, remarks rather brief.

We prepared and submitted during early June responses to licensing conditions 1 through 7. We belief that the staff's concerns have been fully addressed on Item 1, which is the small bore strudel (Phonetic) review; Item 4 which is the thermal gap issue; Item 5, the hot piping walk-downs; Item 6, the DP and TC program; and Item 9, the technical issues concerning pipe supports.

A final report that will close minor open items that were contained in our previous submittals were Items 1 and 6, is currently under preparation and will be submitted tomorrow, July 3rd.

License condition Items 2 and 3 have been a subject of considerable discussion between the project and the NRC staff, as well as the, the audit teams over the past two weeks. The criteria for the selection of proximity restraints was resolved with the staff during an NRC audit in San Francisco on July 21st.

UNIDENTIFIED SPEAKERS: June.

MR. SHIPLEY: Excuse me, June the 21st. I have a slide that will show some of the salient points of that criterion. And Barkley (Phonetic) tells me it's part of the agenda, but perhaps if we all looked up here.

MR. MANEATIS: It's attached to the agenda.

MR. SHIPLEY: Previously, our criteria that we submitted in, in early June had a differentiation between the criteria for piping larger than, with a diameter larger than eight inches. In fact, with a diameter between two and eight inches.

Further, the, the criteria for small bore was an exclusion of the review for proximity restraint criteria for small bores. That criteria has now been modified to reflect the following:

Previously, this category had a 5D criteria. This category had a 5D criteria. That is rigid next to anchor, at 5D. It is now 10D.

The snubber next to rigid had a, in the, in the greater than eight inch had a 5D -- sorry, had a 3D criteria. It is now 5D. The snubber next to anchor had a 3D criteria. It is now 5D. And in the two to eight inch size, two and a half to eight inch size, 10D previously was 5D.

So, for the large bore there has been some considerable changes with regard to the criteria. Let me just take minute and explain what, what these changes mean.

These reviews originally were for, as the title of the slide says, proximity criteria. And it

had to do primarily with a concern of locture (Phonetic) in between adjacent supports and anchors.

If you'll, if you'll consider for a moment a one inch pipe, the, the proximity criteria for, for small bore requires that it be ten diameters when it's adjacent to an anchor. And ten diameters for a one inch pipe is clearly ten inches.

On the other hand, if you take and, and, and I think we, we can all understand that, that ten inches is rather close. If you take an eighteen inch pipe, you find that the criteria then yields, 10D criteria yields a 15 foot proximity distance which is a very long way in most, most of the piping systems we have. So, the, very seldom do you have a straight run of pipe that is 15 feet long without having a restraint in it.

So, we believe that the 10D criteria, especially in the, in the larger sizes of the large bore pipe is extremely conservative and, nonetheless, we have, we have employed that criteria for the review on Diablo Canyon.

MR. SCHIERLING: Larry?

MR. SHIPLEY: Yes.

MR. SCHIERLING: One request. For the record, could you please take one of the diagrams and

mark it up previous and current because while you were going through, it wasn't quite obvious for anyone else not here reading the record of what you were referring to?

MR. SHIPLEY: Certainly. I'll be glad to.

MR. BOSNAK: And, Larry, while you're on the subject, I guess for the record, I want to be sure that we're going to get the clarifications that we're, that we discussed with respect to, you know, this, this particular item on the computer analyzed small bore piping, the definition of an anchor, that it does include in certain cases the couple branch (Phonetic) connection.

MR. SHIPLEY: Yes. (Inaudible) as, as you say, the, the review of small bore rigids and snubbers adjacent to anchors will include all cases other than will exclude decouple branch connections for piping qualifed by span rules. Everything else will be included.

The review and indentifcation of all rigids and snubbers for piping associated with the revised criteria has now been completed. A walk-down to measure the gaps that all rigid restraints identified by this 10D criteria is well underway, and the

additional shimming, any additional shimming that is required as a result of these reviews will be completed on or about July 13, 1984, but will certainly be complete before ascension above 5% power.

In our June 11th submittal covering license condition Item 1, we identified 15 of the very complex small bore strudel analyses that have not yet been completed. The review of these 15 are now complete, and they have been shown to meet all licensing conditions.

Thus, in total, we've completed the review of all the small bore analyzed pipe supports, analyzed by computer that is, as required by license condition 1 and no physical modifications have resulted from these additional reviews.

In our submittal of June 1, concerning license condition 6, we identified an in-process review of piping and several supports. This review is now complete and the piping was shown to be qual, piping and supports were shown to be qualified in the as-built condition. The information, as I stated previously on both Items 1 and 6, this updated information will be provided in our submittal tomorrow.

MR. VOLLMER: Larry, going back, I think you said the status of completion of review of these

systems, the new criteria, is that review complete, did you say?

MR. SHIPLEY: The review is complete, yes.

MR. VOLLMER: The review is complete.

MR. SHIPLEY: And, and the walk-down --

MR. VOLLMER: Is underway.

MR. SHIPLEY: -- to identify where shimming is required, is underway.

MR. KNIGHT: Larry, either now or later in your presentation, will you be comparing or could you for my purposes give me a summation of physical changes that have taken place as a result of going through the license conditions?

MR. SHIPLEY: Yes.

MR. KNIGHT: There was, from time to time there had been, you know, there was a mention perhaps of one small bore support that was modified.

MR. FRIEND: Why don't we let the presentation go forward. You can get your thoughts down on that and make a few notes and then comment to Jim later rather than right this minute.

MR. KNIGHT: Okay.

MR. FRIEND: Unless you're ready right this minute.

MR. KNIGHT: Any time before we finish is

fine.

MR. SHIPLEY: Fine.

MR. MANEATIS: Any other questions of Larry?

MR. VOLLMER: Yes, while, while we're here. Would you lay out exactly what the scope of material that you expect us to receive tomorrow, that you expect to transmit to us tomorrow.

MR. SHIPLEY: I would expect minor revisions to, to, almost all of the, the seven items in the license condition. Some will provide more updated information. Some will provide some minor revisions and criteria commitments and so forth.

MR. SAFFELL: Does this include, Larry, a revision to the license condition 2 and 3 submittal already?

MR. SHIPLEY: Yes, it will.

MR. VOLLMER: Can you expect, then, that with the submittal tomorrow that this will be the complete, the completion of all the material that you owe us dealing with license conditions specifically?

MR. SHIPLEY: I, I'd say with one exception. I, we would probably need to amend that with a number of shims needed to be installed at, at some previous time, but I, the commitment is clearly there that we will do that as required.

MR. MANEATIS: Any other questions of Larry?

MR. SAFFELL: Larry, what, when you went through say for the large bore piping, I'm trying, I don't recall the number of snubbers that were included originally, but do you, how many additionally were added, now come within the sphere of that by going from the 5D to the 10D?

MR. SHIPLEY: Okay. As it, as it turns out, the criteria that we used actually was from, excuse me, from --

MR. SAFFELL: Near anchors I'm thinking of, specifically.

MR. SHIPLEY: Okay. I can get that number --

MR. SAFFELL: Okay. Fine.

MR. SHIPLEY: I've got it here, but it'll take a moment to dig it out.

MR. SAFFELL: No, then let's go on --

MR. SHIPLEY: Okay.

MR. FRIEND: That's two things (inaudible) keeping track of what you owe.

MR. SAFFELL: Or that, that kind of thing will be in your submittal. I thought if you had that number at hand, --

MR. SHIPLEY: I do have it. It will just take

a second to get it.

MR. SAFFELL: Okay. We can do it later.

MR. MANEATIS: Okay. Our next presenter is Dr. Cloud of the IDVP.

DR. CLOUD: Oh, thanks, George. I have just a couple of brief points to make following our meeting of two weeks ago.

THE IDVP believes that the conclusions of our independent verifications of the Diablo Canyon plant design are adequately supported by both our review of the methodology and of the sample of work that we covered.

In that connection, first I would note that in the review of the corrective action program for piping and supports, no generic issues or instances of violation of the licensing criteria were found. In the piping review, three generic issues were identified.

These generic issues were subsequently considered for all of the piping in the Diablo Canyon Unit 1 plant. Now, our conviction that our conclusions are fully supported by the completed review work is based primarily on three general considerations.

First, the methodology and the criteria employed by the DCP were reviewed and found to meet the licensing requirements. In addition, all of the

determinations made by the IDVP, both during the first phase of the work which included the independent calculations and in the second place, where we did reviews of the corrective action program. These determinations were addressed and resolved by the DCP and subsequently reverified by the IDVP.

Secondly, the piping and the supports we found were very conservatively designed and constructed. In general, there's a significant design margin in all the piping supports that's due to this basic design approach.

(Inaudible) the IDVP conclusion which is given in Section 625 of the IDVP final report is that Diablo Canyon does meet the licensing requirements which is not to say that there may not be instances remaining where licensing criteria may not be fully met.

However, we are confident that if such instances exist, that they will be of a local nature and that they will not be significant. Now, let me elaborate briefly with respect to the issue of methodology.

The major considerations in the development of the IDVP methodology and our review of the project methodology for the conduct of the design verification

program are as follows.

The IDVP reviewed step by step all of the design criteria and all of the design methodology. The IDVP reviewed and questioned in detail each aspect of a significant sample of the piping and pipe support design. And this review was performed on individual analyses and based upon extensive documented checklists.

Each checklist contained about 100 check points that had to be signed off by the reviewer. All the items that were identified in the review were documented and the resolution of these items.

Now, the NRC went through some of that work a couple of weeks ago. In addition to that, the Teledyne (Phonetic) engineers monitored this process. It performed reviews of some of our, of the RFCA (Phon) work and, and they participated in the assessment and resolution of many of the items.

Third, the project engineering program was extensively documented, in procedures, instructions and design criteria memorandum. This documentation and its engineering content were separately reviewed by the IDVP.

The next point is that there were several revisions of the seismic spectrum, the thermal operat-

ing modes and an early revision of methodology when the project was formed. This led to the piping and pipe support analysis being revised several times herein, the design process.

The IDVP came to the conclusion that this was a strength of the design. The initial analysis and all the subsequent revisions required an analysis and review by at least two engineers. Then our review of the different revisions of the same calculations confirmed that the revision process, as implemented, was, in fact, effective in correcting discrepancies.

It was repeatedly found that outdated inputs and minor mathematical and modeling errors were updated and subsequent revisions (inaudible) given calculation. In many cases the differences were primarily in approximation techniques and were not sufficiently different to be unrepresentative of the actual conditions being modeled.

The pipe support designs were originally based upon a uniform and homogeneous methodology as compared, for example, to other aspects of the plant design. And the significance of this to the IDVP in our sampling process was that it was possible, as has been discussed here many times, that relatively few piping systems and supports are, in fact,

representative of the entire class and insures that correction of generic issues serves to upgrade the entire category of that class of equipment.

Turning to the basic conservatism in the piping design, the second reason for conviction is that our conclusions remain valid are that, in fact, these structures are designed in a conservative way. A typical support is constructed of wide blange (Phonetic) members, and it's a relatively rare case that a pipe stresses approach the allowable values.

Another thing that hasn't been widely discussed is that a major contributing factor in this connection is the requirement which was in place from the beginning, that the pipe supports be designed to have a minimum natural frequency.

In other words, the designs were in many cases controlled by flexibility considerations rather than strength considerations. And as a result, it was generally the surplus of structural strengths.

And, finally, I would add at the end that throughout the various phases of the independent design review, the IDVP has been acutely aware of its responsibility to determine and address any and all issues, design practices or actual designs that would violate the licensing criteria and compromise the health

and safety of the public in any way or (inaudible).

With this in mind, the IDVP often expanded its sampling in order to fully address all the significant issues. For example, in our independent calculations in the first phase of the program, we took two, we found it necessary or desirable to take the complete second piping sample after we finished the first during the review of the corrective action.

Following our meeting of two weeks ago, we went back and, and counted up on a point by point basis all the places where our sample had expanded. We found that on the basis of the completion samples, which were an expansion, that we had about a 45 percent sample expansion on that basis.

If, in fact, however, we count up all the reviews that we did and compare them to our initial programmatic commitments, given an ITRA, then the sample was nearly doubled.

And, finally, I think it's worthwhile to mention the NRC inspection that we had two weeks ago. Prior to the inspection, your people, the NRC staff, reviewed the IDVP technical reports and noted all the items that we identified.

During the meeting these individual items were examined in detail as well as substantial

quantities of work, upon which the reports were based. It's clear that the reports were merely summaries of a vast body of work. And we believe that in all cases the documentation provided and the subsequent discussions would allow the, hopefully, allow the, your staff to understand and concur with our conclusions.

So, to sum it up, based upon our work, the work that we've done and to the best of our reviews, it was and is the conclusion of the IDVP, as we stated in our final report, that the design of the piping and supports satisfies the licensing criteria.

That's what I had to say. Thank you very much.

MR. VOLLMER: Dr. Cloud, I'd like to ask you to expand in one area on, I think, since the very early meetings of IDVP, the subject of a sampling size, sampling expansion was something that we discussed in great detail. And I wonder if you could perhaps give for the record, again, a little bit more of the initial philosophy of the, how the sample size is established and what, what the criteria was for meeting or not meeting criteria and then perhaps indicate why you felt the statiscal sampling wasn't necessarily appropriate for this particular process and the way you

went, went forward with either, either increasing your sample size or making judgments or how you make judgments of the sample size should not be increased, I think is a better way of phrasing it?

DR. CLOUD: Sure. Okay. First of all, you have to go back to the basic philosophy that we established at the outset of the design of the verification program. And we said that our, our first and primary objective would be to do, to, to do a review that would lead us to an indepth understanding of the basic quality of the engineering work that was performed in the design of Diablo Canyon.

And we felt that the best way for us to get a good understanding of the basic engineering work would be to make an indepth review of the process, the methodology that was used. Then once we understood what was used and what or what was supposed to be used, then we would confirm that that methodology was implemented by doing a review of the sample.

And we chose this approach because some of the people on our team have, in fact, spent their life designing and analyzing nuclear power plants. And we felt that we knew how to do it. Okay.

Now, as to the size of the (inaudible), we felt that our objective in choosing a sample was to

confirm our understanding of the methodology and to confirm that the methodology was being implemented properly.

So, we established our sample size based upon the method of how the engineering work had (inaudible) and where, where a unique approach was used, we took a very high percentage. We reviewed a very high percentage of the work.

For example, each of the main structures of the plant had a reasonably different approach for the analysis of it, primarily based upon the different methods of design construction of the buildings themselves. And for those, for the main structures, we took basically 100 percent sample which we felt was necessary to confirm our understanding of the engineering process.

At the other extreme on the, in, in, not so much the other extreme but in other class, categories of equipment where a more uniform methodology was applied, then we felt a reasonably small sample would be more than adequate. And, in fact, we found that to be the case.

In the case of the piping or the supports, you basically have a reasonably standardized component and it's analyzed in a reasonably standardized way by

essentially the same group of people. And the same group of people is also a key.

So, that's, that's fundamentally the thinking that went into our, our sampling process. Then in, in, when the considerations regarding expanding that were as follows:

In the, in the review of the corrective action program, we made an eternal commitment that any time we, we came across any question, we would immediately do additional verification. And as it turned out, most of our questions were all satisfactorily resolved and we found that the additional verification led, and in many cases helped in the resolution.

This additional verification and additional sampling wasn't, we didn't made a big deal out of it. We didn't publicize it, but we did it because, we did it in order to develop our own personal enternal convictions that our, that the conclusions that we were coming up with were the right, were right.

Okay. So, fundamentally, that's the story.

DR. COOPER: Perhaps I could amplify a couple of points. Bill Cooper, from Teledyne. In the initial approach after reviewing the methodology, we thought that we were choosing an initial sample which

covered all types of applications. And mention is made in the response that between ITR's 12 and 17, for example, there was an expansion.

To a large extent, that expansion was to cover some, some additional situations that we thought perhaps had not been fully covered in the, in the original choice of sample.

Now, at that point then we had identified a number of issues with respect to piping and pipe supports and everything else, for that matter, but we'll concentrate on the piping and pipe supports which needed further work. And we call this additional verification.

And you remember there was a, a period of statements on our part as to what the additional work might need to be and planning on the part of the project as to how they might approach these issues. And then they, they developed their, their corrective action program. And we issued our ITRs to define explicitedly what we were going to do in connection with those corrective action programs.

And one of the points in your question was the acceptance criteria and in all our verification of the corrective action program we said that, that when we had differences with the project, we'd

evaluate as to the source and to the significance of that source with regard to both the specific item and the possible generic concern.

If it is judged that the source of the differences of significance to either, an open item report will be issued. So, that's a criteria under which we issued an open item report and then went further on and resolved it in review of the corrective action program, but there were additional verifications performed in the sense of sample expansions in many instances whether or not we issued an open item report.

Bob mentioned some specific numbers with respect to the so-called completion sample. You'll remember that the, the project work was ongoing as we were doing our review. And we wanted to assure ourselves that they were following their procedures as they updated, say, spectrum, were those being applied properly to the piping samples?

And, so, this, this whole set of completion samples that we chose and verified for the, for the purpose of, of taking another snapshot in time just before we completed our program about October, in order to, to make sure that the PG&E effort was progressing as we understood it was intended to be.

The (inaudible) was we reached our conclus-

ion.

MR. VOLLMER: Could you summarize or capsulate exactly how you made the judgment that the generic deficiency existed? I think I understand your, the sampling and, and, and the, the direction of your, of the original sample size and so on. It wasn't clear from what you just said exactly how you made the judgments that something generic was a deficiency.

DR. CLOUD: Yes. Okay. In the, we said during the review of the corrective action program that we would issue an, an open item report if we found a generic deficiency. And, generally, in order for us to conclude that we had a generic deficiency, it required that we find the same item, either on a cost basis or at least in the number of, in the number of repeated instances and that we, we felt that we must conclude that it would be possible if that item were represented in the, the degree that, that it appeared to be that, that it would be possible for licensing criteria to be exceeded. That is to say that there would be an instance of overstress some place if, in fact, this particular deficiency were widespread.

MR. VOLLMER: So, that the deficiency would

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not likely lead to a violation of licensing criteria, then it wouldn't necessarily be pursued?

DR. CLOUD: If, in our judgment, we concluded that, that based upon the reviews that we made, if we felt that there was no chance that licensing criteria would be exceeded, then as far as we were concerned, it was essentially irrelevant unless, unless there was some (Inaudible) consideration where it coupled with something else and we carefully considered that.

MR. BOSNAK: I want to ask Bob a question. First, I certainly agree with what you stated about the ITRs. I, I think speaking, at least for myself, I did not have a good feeling of what IDVP did until we went through your review packages. The ITRs by themselves, if you read those, are not really too complete. And you really need to have the benefit of going through the IDVP review packages.

Now, having looked at all of those and having thought about the whole program, there was one question that we'd rather not extrapolate on in writing our evaluation and that is, and I think you may have covered it in the PG&E submission that deals with basic conservatism in piping design, but I'd like to have a, have an answer from you and that is did the IDVP detect the random input errors of the kind which prompted re-

analysis of the small bore piping system?

I'm talking here about calculational errors that was, say, reverse of point coordinates, mistakes in transferring data from isometrics, things like modeling deficiencies where eccentricities of loads may have been omitted, those kinds of things which I would characterize as, as random input errors.

Did, did you all see those and how did you characterize those or how, in your, in your evaluation?

DR. CLOUD: Okay, yes, I can answer that. Permit me to be just a little bit defensive. We, in the, in the, in describing a given question as an error, we, we, we learned, we learned very quickly early on in the, in the progress of this program to be very careful about how we characterized the given issue.

So, what I would say, however, is that in the review of the corrective action program in, on small bore, in the piping and the supports, we, we did know a number, a number of instances, a number (inaudible) a number of times where the input, for example, or the geometry or in some cases the loads, that our reviewer would have put into the problem were different than the PG&E design people put into the

problem. And we chased each of those down on a step by step basis and more often than not, it was a difference, it was a difference, it was a difference in the way that a given person would model or, or, or approximate the (inaudible). I say more often than not, as often as not, perhaps. I'm not sure I answered your question.

MR. BOSNAK: Well, would you put those kinds of things -- there's a statement in here, let me read it. It says the net result is that minor discrepancies which may still exist can be readily accomodated within the framework of the conservatism of the design, in all probability, within the licensing criteria and certainly without causing a safety problem.

Those kinds of things, do you lump under that heading?

DR. CLOUD: Yes. We came to that, by the way, that statement is a direct result of all the numerous reviews we made, where we found that, in fact, that was the case time after time after time. And we did not find any instances where licensing criteria were exceeded or even jeopardized except in the issues in the, for those generic items that we called out.

I, also if you'll permit me to be further a

little more defensive about the intercharacterization of the ITRs. I, I don't, I don't think it's fair to say that they're incomplete. They've very complete.

The problem is that they are a summary of a great deal of work, and it's very difficult to summarize in 100 pages the work that, that was done that supports them.

MR. MANEATIS: All right. Any other questions of Dr. Cloud? Okay. The next presenter is Howard Friend.

MR. FRIEND: Thank, thank you, George. This morning I'd like to spend a few minutes providing background on a recent action regarding the engineering design authority that had been delegated to the on-site project engineering group.

You will recall that the modification work on Unit 1 was done under the provisions of the operating license for that unit.Even though the license was suspended in 1981, PG&E felt that it was important to retain in place all the requirements of the license. In particular, those aspects that involved operating department knowledge and control of changes to the facility.

In order to maintain control during the modification program, close coordination between the

operating group and the engineering group was required. Therefore, it was important that an engineering presence be involved at the job site to coordinate with the operating group.

The type of work that was going on on Unit 1 also called for an engineering design presence at the job site. The need to modify several thousand supports in an already constructed facility with the attendant major physical coordination activities mandated that some engineering design authority be vested at the job site.

Finally, it has been demonstrated historically that small piping on supports are most effectively designed when the engineering group is physically located at the job site.

For these several reasons, the on-site project engineering group was established and had been delegated certain engineering authority. By the spring of this year, we had effectively completed the work on Unit 1.

We achieved criticality on April 29th and completed low power testing on May 23rd. Also, our work on Unit 2 was well advanced with all Class 1 piping supports and modifications issued by May of this year.

The important coordination activities of the on-site project engineering group were essentially completed. In this same time frame, we had also been concerned that during several audits by both our quality groups and the NRC, programmatic and technical concerns about the work of OPEG had been noted.

While the observed concerns posed no safety problems, it was decided on June 14th that it would be appropriate to revoke the design authority of the on-site project engineering group and return that authority to the home office engineering group.

This action was taken for the following reasons: We wanted to render moot any continuing perception that work being being performed by OPEG was not in full compliance with the project and corporate QA programs. Although extensive corrective actions had already been taken and the adequacy of the hardware had been demonstrated, we wanted to erase any lingering concerns that might exist.

Second, we wanted to begin to convert the role of engineering on the project from a role of designing for construction and designing modifications to one of supporting an operating facility.

Finally, we wanted to centralize the engineering activities supporting the operating

facility in the home office for more effective management control and coordination.

Our objective at this time is to provide a smooth transition from our on-site project engineering design activities to home office engineering activities in support of an operator unit. One of the most important considerations in making this change was that the transition proceed smoothly and that no item fall through the cracks.

To tell you in detail how we're, how we are accomplishing this change without incident, I'd like to ask Bob Oman to speak to this matter. Bob is one of our assistant project engineers on the project and is very knowledgeable of this subject.

Earlier on the project Bob was in charge of the on-site project engineering group and has a unique perspective of both ends of this change. So, I'd like, I'd like now to answer any questions you might have, and if you have no questions, I turn it over to Bob Oman.

MR. VOLLMER: Yes. I have a couple, Howard. One, you said that the, both your own companies, I guess QA audits as well as NRC audits, had found some deficiencies in, programmatic deficiencies in what OPEG was carrying out, that you further said that, you

concluded that the findings imposed no safety problems. Could you elaborate on how you came to that conclusion?

MR. FRIEND: Well, one, one of the major reasons was the extensive review that, that we made of the small bore complex supports, the so-called strudel analyses, which we completely reviewed them and found although there were discrepancies in the original work, that the impact on the hardware was, was zero. There was no impact on the hardware.

In addition, I'll need help from our quality assurance fellows, but we, we, we made reviews of the training records. There were deficiencies, concerns exhibited by both our own audits and also NRC audits about the, the training. And we, we made some investigation to correlate or try to correlate any training concerns with the quality of the work and found, indeed, that there was no correlation, that the work done by individuals who, who had lacked training was done satisfactorily.

So, these are some of the things that we did that gave us confidence that, that the work was adequate.

MR. VOLLMER: Well, what sort of training did they, did they lack that would allow (inaudible) satisfactory technical accomplishment of their work?

MR. FRIEND: The, the training that, that was programmatically required by our program was training in the, in the quality assurance aspects of our work,in the programmatic requirements of the work. We had requirements that the engineers should be trained within 30 days of joining the project and in some cases, this training was not accomplished within the 30 days.

MR. VOLLMER: Okay. I have one other, and maybe you're going to get into this later, but I think we should characterize exactly what, what will be the, the responsibilities of the group henceforth and what responsibilities are they giving up --

MR. FRIEND: Yes.

MR. VOLLMER: -- and that's something Bob will take care of --

MR. FRIEND: I think Bob, Bob will cover that and, certainly, we can answer your questions if he misses any points that you're interested in.

MR. MANEATIS: Anything else for Howard?

MR. SCHIERLING: Howard, I have a question. The work that in the past has been done by OPEG, was it reviewed or will it be reviewed at anytime at the San Francisco office?

MR. FRIEND: We, we have made and continue and will continue to make audits of the OPEG work. So,

in, in that vein, yes, it has been reviewed and will continue to be reviewed as part of our audit program.

We have no plans to make an all encompassing review. We believe that review is made during the design activities. We have requirements, programmatic requirements for peer review of the initial work plus supervisor approval of the work, and we believe that, that, those programmatic requirements constitute the independent review of the work (inaudible) independent review of the work.

MR. SCHIERLING: Okay.

(END OF TAPE 1)

MR. FRIEND: Alright Mr. Norton. Correctly advise me that all of the strudel (ph.), so called strudel review was done by the home office. I don't know if that was the focus of your question or not, but that

MR. SHIRLING: No, not specifically but it was a follow up question that I had, was the strudel (ph.) work done at the site or at the office?

MR. FRIEND: It was done at the home office.

MR. SHIRLING: OK

MR. VOLMER: What you said (inaudible) raised a question in my mind. I agree that you're -- the design review done at the site, I think what you're saying is that method of design criteria of Appendix B -- independent checking or independent design review. Now, exactly what audits were you referring to before that, however, done by the home office? What this a QA audit or a technical audit?

MR. FRIEND: Can somebody help me, will either Larry or Mike please respond to that?

MR. JACOBSON: I think I can help alittle bit. I think Harold was probably referring to both really. We've done some QA audits at OPEG, most of the items are closed. One of two may require follow up on that OPEG work, that would be done in San Francisco. We also recently completed a technical audit of the OPEG group

of the work that was done down there. And there were a couple of findings generated from that to be followed up in San Francisco. Now the work was transferred from there.

MR. VOLMER: So this was looking broadly at the OPEG work rather than -- that specifically is true, but looking broadly at the work done by OPEG.

MR. JACOBSON: Yes, piping and pipe --

MR. VOLMER: What sort of findings did you arrive at?

MR. JACOBSON: I think we had two findings one was a QA type finding having to do with referencing of the vision and design criteria that was used in the analysis. The other had to do with - it was a technical finding - having to do with modeling, (inaudible) angles, that particular one the project, we found that the project had already issued an obstruction for modeling theta (ph.) angles but it had not been carried out yet in the specific packages we audited. Those are the major findings.

MR. VOLMER: What calendar time - when did this technical audit occur?

MR. JACOBSON: In June, in this last month.

MR. SHIRLING: One minor question. Was there a distinction between an OPEG group for unit one and unit two, or is that one group serving both units.

MR. FRIEND: I think essentially it's one group

serving both units although there obviously are subdivisions within the group, some people are assigned to one unit --

MR. SHIPLEY: Let me add one point. We have done audits, technical audits, in the past. They were of an informal nature. We had both our, both the BECHTEL staff people go down there for several days at a time over the past year and a half and looking at what they were doing.

We had people from the office go down, both in piping and pipe supports, to look at what was going on. Stay down there two or three days, make recommendations, make changes, etc. It was not in a context of a formal, proceduralized, technical, a QA/technical audit. But it was done - twice that I can remember over that period.

MR. VOLMER: It was in the vein of a technical administrative oversight?

MR. SHIPLEY: No, this was a pure technical audit. They were looking at the procedures that were being used and how those procedures were being carried out. Not so much were signatures being filled in but the technical aspects of the work was being done in accoordance with the project (inaudible).

MR. KNIGHT: And again, can you give me a feel for calendar time when this occurred?

MR. SHIPLEY: Around February/March '83 and then -- late '83, September, around that time.

MR. KNIGHT: As a result of that, were there findings published or how was the impact of the (inaudible) transcript act staffed there at OPEG.

MR. TRESLER: I think we'd have to pull out the (inaudible) audits review and however, one thing that does come to mind and that is the auditing and piping analysis did identify the need to perform a review of all piping analysis to assure that certain aspects of those analyses have been done properly. And this was included in a check list review that was performed on all piping analysis, that check list had alot of items on it including SIS which had been identified by the (inaudible) organization.

MR. MANEATIS: Ok, can you go on with it.

MR. OMAN: My name is Bob Oman, and the purpose of my presentation is to discuss the new responsibilities and authorities of on site engineering and home office engineering in the future and to describe the present engineering activities at OPEG and the design control majors that are in effect during the current transition period.

In order to clearly define the new law of on site engineering for the future, a revision of project engineers instruction 9, which outlines the duties and responsibilities of the OPEG organization has been developed. And, in developing this revised instruction, the basic

philosophy has been that support engineering activities which, of necessity, need to take place at the job site will continue to take place at the job site and be done by OPEG. And, that design engineering activities which do not have to be done at the job site will be done by home office engineering in San Francisco.

The project recognizes the benefit and need for a continuing engineering presence at the job site to be involved in such things as walk downs in the field to confirm the installed condition of various aspects of the plant to access the feasibility of construction of particular new design items. And, also to interface with the construction department and start-up department to clearly understand their problems and to develop and formulate the solutions to their problems that are acceptable and responsive to their needs.

And these types of tasks are being defined as support engineering activities. In contrast, design engineering activities are technical activities which issue design documents. Design documents being engineering calculations, design change notices, specifications and drawings. And engineering approval of a field change request is also considered a design engineering activity. Further in developing this revised instruction, the distinction is being made between engineering activities

that affect safety related systems, structures and components, and those that affect non-safety related items.

The revised scope of OPEG's authorities then defined in the following terms: OPEG is not authorized to perform design engineering activities for safety related systems, structures and components. They may perform support engineering activities, however, for safety related items. For example, this would mean that they would be authorized to do field verification for feasibility studies for safety related items, but would not be authorized to issue design change documents or do design calculation.

And further, OPEG will be authorized to perform both design engineering activities and support engineering activities for non-safety related items. Now, in order to avoid confusion and to more clearly detail the specific implementation of this revised scope of authority, the procedure will include a matrix of about five pages now.

This matrix identifies all safety related engineering activities which OPEG previously did and will define them for the future in terms of whether OPEG will continue to have responsibility for those items or whether the design responsibility will be transferred to San Francisco home office engineering. And indicate which OPEG will provide support for design activities that will be finalized and approved in San Francisco.

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This matrix is organized, for both unit one and unit two, on a discipline basis and for example would show in the piping discipline that OPEG would continue to have the responsibility for doing the heat-up and power ascention piping walkdowns and they would continue to have responsibility for doing feasibility studies for new pipe supports.

However, San Francisco home office engineering will have responsiblility for small (inaudible) stress analysis and small (inaudible) pipe and design calculations. They would also have, for instance, responsibility in San Francisco for the (inaudible) reduction program and also for the review and approval of the field change request. It is expected that this project engineers instruction will be issued formally this week and it will have the concurrence of the project completion manager.

Now I would like to discuss OPEG's engineering activities during the current transition period.

MR. VOLMER: Could -- one question -- on the responsibilities and authorities. On safety related stuff, you've indicated that the group could perform walkdowns to confirm the status of the plant and access feasibility modifications and interact with construction organization, but that they couldn't issue an engineering drawing or I thought you said perform (inaudible) calculations

MR. OMAN: That's correct.

MR. VOLMER: Would they propose then a modification to San Francisco saying we think the thing should be modified in this way, -- a feasibility or a proposal or conceptual design for the thing that San Franscisco would be obligated to take it and run it through the calculational (ph.) process and ultimate engineering drawing.

MR. OMAN: That's correct.

MR. VOLMER: In doing this, I would assume, that they could conceptualize (ph.) something that they would be allowed some sort of calculation.

MR. OMAN: It's not that they won't be allowed to do something that gives them added confidence that the conceptual design they're proposing is in fact probably going to work. The point, I think, though is that though we're -- the engineering -- is not relying on any calculations that OPEG may do. The documentation of the design is based upon calculations that would be done by home office engineering.

MR. VOLMER: Ok, then for purposes of let's us getting down to design control and QA independent in criteria 3 of Appendix B, San Francisco will do the calculations which would also be checked by San Francisco result in the ultimate initiation of a design drawing or something like that.

MR. OMAN: That's correct.

MR. VOLMER: And, the bottom line is that the design change can only be authorized in San Francisco not by OPEG.

MR. OMAN: That's correct, for safety related items, that's correct.

MR. OMAN: Ok, again, now I would like to discuss the OPEG engineering activities during this transition period. As a result of that project (inaudible) memorandum dated June the 14th, which rescinded OPEG's design engineering authority, steps were immediately taken to implement his directive and instructions by the engineering manager were given to the on site project engineer. That OPEG design authority had been revoked and accordingly they were no longer to approve an issue design from the site.

A meeting was held with all unit one engineering supervisors in San Francisco to announce the change in OPEG's design authority and each group supervisor was directed to contact their respective discipline representative in OPEG to assure that home office engineering personnel were henceforth approving all design engineering activities.

Now since June 14th, many engineering activities that were previously accomplished by discipline engineers

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within OPEG have continued. And these include, field walkdowns and construction feasibility checks, verification of construction and start up problems, formulations of solutions to their problems, initiating an appropriate design change request to resolve those problems and initiating engineering calculations or proposed design changes.

However, since June 14th, no engineering design documents have been formally approved by an OPEG (inaudible) disciplinar nor they have been issued by the on site project engineer or assistant on site project engineers. This applies to design calculations, design change notices, specifications, drawings and engineering acceptance of (inaudible) drawings. -- (inaudible) issuance of all such engineering documents has occurred under the director of you and authority of home office/design engineering since June 14th.

Therefore, during this transitional period, in fact an additional level of review has been achieved for engineering activities initiated by OPEG. As a further action, I don't, on the 22nd of June the unit one project engineer instructed the on site project engineer to transmit all unit one small (inaudible) stress analysis and pipe support calculations to San Francisco by the 29th of June and that action has now been completed and

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no further unit one small (inaudible) stress or pipe support calculations will be initiated on site. In summary, the project has acted promptly to implement the project completion manager's directive rescinding OPEG design authority. We have revised the project instruction and expect to issue it this week. It will define the new scope of responsibilities and authorities of on site engineering and home office engineering and during the interim transition period steps have been taken to assure that approval and issuance of all engineering document did occur under the director of you and the authority of home office engineering.

A separate but related topic to this discussion concerns the pipe support design tolerance clarification program. As previously reported, this program has been discontinued effective June 8th of this year and all unit one pipe support/design changes made subsequent to that date have been accomplished by the design change notice process of the Engineering Manual Procedure 3.60N for unit one.

In order to facilitate field resolution of pipe support related construction problems on unit two, a new field change request or FCR procedure has been instituted under project engineer's instruction 19. This FCR program essentially is the same as that successfully used on a number of other BECHTEL projects and it will apply to all

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deviations proposed by construction from pipe support designs issued by engineering where the proposed deviations are beyond the approved installation tolerances.

Construction will initiate requests for such deviations on a FCR form and will submit them to engineering for review and approval. The engineering and approval of the FCR will icnlude justification for acceptance and where a calculation is required to verify the adequacy of the proposed change, the calculation will be completed in accordance with Engineering Manual Procedure 3.3 prior to the approval of the FCR.

The engineering approval of the FCR will then be indicated by the signature of the responsible engineer, the group supervisor, and the project engineer. In a case of deviations proposed by construction which do not alter the functional design characteristics of the pipe support or which are minor design drawing claricications, the general construction lead discipline engineer can authorize in process work to continue on an (inaudible) basis for up to five days while engineering approval of the FCR is being obtained. This authorization will be in writing and will be included in the pipe support work package before that work can proceed.

The in process change expires and the work so authorized ceases if engineering approval is not received

within five days. Again, for all pipe support modifications for unit one or unit two, the pipe support as built drawing will continue to include any modifications authorized either by a previous tolerance clarification or by a field change request, such that no deviations will exist between the as built drawing and any modifications authorized in the field.

The final engineering acceptance of the installed condition will continue to be the final engineering review checking and approval of the as built pipe support drawing. That concludes my remarks and I'll be happy to answer any questions there might be.

MR. MANEATIS: Any questions?

MR. VOLMER: No we'll gone on to the next --

MR. MANEATIS: Our next presentor is Mike Jacobson, Mike.

MR. JACOBSON: Thank you. My discussion will focus on item 3 of the NRC letter which deals with Quality Assurance matters. I will addressing the project QA program in place at the home office and at OPEG. Specifically, I will address the elements of that program and provide us assurance that work formally performed at OPEG will be carried out in conformance with quality assurance requirements. The elements I wish to discuss are the programatic (ph.) edificacy (ph.) of the DCP QA

program and actions that have been taken to strengthen implementation where appropriate - both in the home office and at OPEG. We believe the DCP QA program is effective and we are strongly committed to implementing that program as well as pursuing beneficial improvements.

The DCP QA program is programmatically sound. It is based on the standard BECHTEL QA program as described in the NRC approved topical report (inaudible). Organizational differences were defined in a QA program description for the (inaudible) project which in turn was submitted to and approved by the NRC staff.

The commitments of the QA program description and the policies of the DCP Nuclear Quality Assurance Manual/that carry out these commitments remain the basis for an effective QA program. Procedural changes we have made have been predominately at the second and third level of implementing procedures. For each level deals with increasingly detailed aspects of implementation. The DCP QA program was developed and written for the design activities at the home office and by extension to OPEG which was delegated a portion of the design work.

The DCP QA program was therefore fully compatible with new design work assigned to the home office. In addition, other factories give us confidence, a portion of OPEG work transferred to the home office to be

properly controlled. The work performed at the home office is closer to project management and is a necessary focal point for management attention. Communication and coordination between engineering and quality groups is easier and more direct and the piping group procedures that were used by OPEG were originally prepared for the engineering work at the home office and are well suited to the work flow there.

I would now like to address the specific areas listed under item 3 of the NRC letter identifying actions taken or programs in place, ensure that work retained within OPEG and work transferred to the home office will be performed in accordance with QA requirements. Improvements included in these programs apply equally to the home office and to OPEG.

Item A concerning indoctrination and training. We made several changes in the procedures to clarify and strengthen controls in this area. More restrictions were introduced, such as engineers must have received training in engineering design control procedures prior to their originating, checking or approving any design documents pertaining to safety related systems, structures, or components. The previous reference to the 30 day maximum period receiving training was dropped in favor of this more restrictive approach. The method for identifying

newly assigned personnel would require training was strengthened.

Quality engineering is notified of all duly assigned personnel and quality engineering then immediately holds training sessions for these new personnel only after these sessions are they allowed to initiate or check design documents.

Actions to assure implementation of training included the following:

A complete review of training records was performed to assure that all engineers receive training. For accountability an improved data base was developed, showing all engineers currently or formerly assigned to the project, along with the dates they actually received training. Quality assurance and quality engineering personnel have been assigned to assure the training records are kept current and that new arrivals are trained.

A recent (inaudible) audit and a monitoring activity by project QA both confirmed that implementation of training in the engineering manual is adequate.

With respect to item B on document control, improvements have been made to avoid use of unauthorized documents performed piping and design work, as addressed in our letter of June 26th, 1984. In summary, we focused attention on the importance of combined document

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control procedures and on the responsibility of each individual to update manuals correctly and return acknowledgement forms. We changed our procedures to require supervisors to periodically review the manuals with their group and to require the supervisors to discuss and document the content of procedure changes with engineers in their group. To be sure that everyone is aware of changes, and how they are to be implemented.

In addition, a complete review of all piping manuals was performed by engineering to ensure that they were up to date. This distribution of piping manuals is being reassessed to minimize partial distribution manuals that are more difficult to control. Partial distribution manual for those that included only the particular piping procedures applicable to the individual (inaudible)

At present, we have a large number of control manuals assigned to the home office assuring that procedures are available in the work areas. At OPEG, the distribution piping manual has been revised and ensures adequate availability of the design personnel in each work area.

MR. SULLIVAN: In both A and B, we have mentioned design work and you've mentioned the home office, can -- you distinguish between what's being done on both A and B, between the home office and on site groups, does the question not apply to on site groups, I would like it would.

MR. JACOBSON: Yes, the question applies to on site groups and we answered that in the submittal. So that will give you the specific information (inaudible) -- what I am basically addressing here is what we did in both areas. The actions we took in both areas are essentially the same. There were some differences (inaudible).

MR. SULLIVAN: I guess what bothers me is you keep mentioning design in previous discussions by Mr. Oman you mentioned the designs no longer taking place --

MR. FRIEND: Let, maybe I can clarify that. These improvements that Mr. Jacobson is talking about were introduced some time ago so, at that time, they were introduced in response to our desire to improve the performance of the on site project (inaudible). However, they also apply nearly all - if not all of them - to the home office engineering activities. So the context or the picture we are trying to portray to you is that these did apply to the on site pipe unit (inaudible) and do apply and will apply in the future to the work in the home office. There is not a large differentiation or demarcation between the requirements for home office or on site project (inaudible) group.

MR. VOLMER: Were there before?

MR. FRIEND: No. The programmatic requirements - the project engineering manuals and other documents apply to the work that was being done by the on site project engineering group. So when we improved if you will, these requirements we did it through the vehicle of modifying, revising these documents and these documents apply to both the on site group and the home office group.

MR. VOLMER: I realize that the program progammatic requirements basically affect the topical, I think, or in effect both places but I guess I didn't realize that -- within the project group the implementing procedures were similar. Is that the case?

MR. OMAN: Yes it was.

MR. FRIEND: They were not similar, they were identical. The document that controlled design engineering also controlled the delegated authority of the on site project engineering group.

MR. SULLIVAN: And they continue to be the same?

MR. FRIEND: That's correct.

MR. SULLIVAN: Even though the authorized activities are different?

MR. FRIEND: That is correct.

MR. OMAN: The procedures describe how the activity is to be conducted. Wherever its conducted. What we have now is that things that used to be conducted

are no longer but the procedures still apply to the activity and it will now be done in San Francisco.

MR. VOLMER: Just for a matter of information - does it also apply to their non-safety related activities?

MR. OMAN: They do yes.

MR. VOLMER: That's pretty well, across the board procedure?

MR. OMAN: That's correct. (inaudible) -- non-safety related item is essentially the same process as for a safety related item and so forth.

MR. FRIEND: Please go ahead, Mike.

MR. JACOBSON: Going on to item c preliminary design data and design interfaces. Our program for controlling these preliminary design data was described in our June 26th letter. Preliminary design data used in calculations must be specifically identified, specifically resolved, through a revision in the calculation package.

Calculation logs provide a tracking mechanism to assure preliminary data used as enclosed. Design information provided verbally, including that by telephone must be confirmed in writing. Project QA audits, preparations and calculations, specifically include reviewing the resolution - preliminary data. Recent audits of OPEG, unit one engineering at the home office, and unit two engineering at the home office found

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implementation in this area to be acceptable. Design interfaces between OPEG and the home office are described in project (inaudible) instruction number 9 which is being revised, previously discussed by Mr. Norman.

Item D - Timeliness (ph.) project responses. DCP QA program requirements related to timeliness (ph.) and response to safety concerns and other (inaudible) was described in our June 26th letter. They are equally aptible (ph.) to work in the home office. Procedures require prompt resolution and discrepancy report and non-conformance reports. Timely progress, the resolution and discrepancy report is monitored by both quality engineering and project quality assurance. Timely response to audit findings is also being stressed.

For each audit finding, recommended actions and a completion schedule are reviewed with the audited organization and agreed to prior to conclusion of the audit. This practice allows corrective measures to begin immediately. At OPEG an additional report, entitled QA Open Item Summary, is issued on a weekly basis, provides a visible status of each open quality audit finding. Including the scheduled dates of a response approval and closure. Responses to open/audit project finding are current. Any exceptions that may occur, are identified on the delinquent open items report which is provided to management.

And is a vehicle to focus management attention on obtaining response. Quality hotline, which is a method for employees to freely express concerns has been implemented in the home office as well as at OPEG. Timely feedback on resolution and any matters identified (inaudible).

Item E, QA

MR. VOLMER: Before you get off on Item E, who sees these audit reports indicating the audit findings and also the agreed upon timing for corrective action.

MR. JACOBSON: Ok, the audit findings are addressed to the organization that's required to perform the work. And mandatory distribution (inaudible). Other members of the DCP management team and BECHTEL QA management, San Francisco (inaudible).

MR. JACOBSON: Item E, QA Program Audits. DCP project audits are planned in advance to insure that all aspects of design control are implemented. Master audit plan is prepared to identify all required audit areas. Schedules developed identifying those audit areas which are to be audited duirng each quarter. Including the schedules for at least a year in advance. This planning is used to provide full coverage in project activities. The schedule is consistent with the project schedule of the activities being auditied. The project audits are supplemented by project QA monitoring activities which are

documented quality review similar to audits. And by management audits performed by BECHTEL San Francisco Power: Commission Quality Assurance. Responses to project audit findings are evaluated for acceptability prior to closure. Project QA reviews the response to insure that the recommended remedial, investigative and corrective actions were acceptable alternates and then performed.

Satisfactory implementation of these actions is verified by project QA and justification for closure is documented on quality audit finding form. Project quality assurance engineer reviews the closure actions taken and reissues the audit report when it is in agreement that all findings have been satisfactory closed. As indicated in our letter of April 4th, 1984 DCP audit findings relating to OPEG were not closed prior to corrective action taken place.

Item H, concerning the tolerance clarification program was previously addressed by Mr. Norman.

In summary, we believe the DCP QA program and actions that I have described will continue to provide effective QA control in these areas.

MR. VOLMER: Let me ask another question on the timeliness (ph.) of this thing - how do the audit findings that have not been completed - let's see you agree on a

close out of an audit finding and lets say for some reason or another that close out is not complete by the assigned time. Who is responsibility is it to pursue that?

MR. JACOBSON: Well its a dual responsibility. Its the responsibility of the audited organization to respond and the responsibility of the auditing organization to follow up and we do follow up - telephone or in writing, to try and find out when the response will be made. In some cases we find out the reason cause some other circumstances come up which require additonal time. Something that wasn't anticipated when we first looked at it, in that case we could grant an extension. If none of those, are true, and its just late then its documented on a delinquent open items report and reported to management.

MR. VOLMER: What does that mean, reported to management?

MR. JACOBSON: That -- basically the intent is to give it visibility so that our efforts of follow up can be augmented by the management team in order to get a response.

MR. VOLMER: At what point in time would it come to Mr. Maneatis' attention, for example, that we couldn't seem to close out a quality related problem?

MR. JACOBSON: Well --

MR. FRIEND: I think that would be a special

circumstance that would not normally be provided for, but these matters routinely, delinquent matters routinely, come to my attention and if I was unable to achieve effective resolution of a delinquent matter that it would appropriate for me to bring it to Mr. Maneatis' attention.

But it would be an extra-normal sort of situation, We normally are able to bring these things to closure within the project and in accordance with the commitments that are made at the time of the formulation of the finding, if you will. That's not to say that we are 100%, but we normally achieve closure that we set forth at the time of the finding.

MR. VOLMER: So you would normally be aware of things that did not come to closure in a timely manner?

MR. JACOBSON: That is correct. I think Mr. Skidmore will speak to our method of tracking some of those things in a couple of minutes.

MR. SKIDMORE: Let me make a point of making the record concise on that. I have a closure engineering group within the DCP Quality Assurance Department. Now on a weekly basis we send Mr. Maneatis a status of all conformance reports, open item reports, and includes the H.B. Folley (ph.) Company, from the power projects --

MR. VOLMER: I was looking for (inaudible) when I asked my question.

MR. SKIDMORE: And just before mode changes for

unit one we have been issuing those reports on a daily basis and getting ad escription of the system - when I make my presentation --

MR. VOLMER: Ok, why don't you go ahead.

MR. MANEATIS: Go ahead Steve..

MR. SKIDMORE: Ok, thank you George. Like Mr. Jacobson my comments will also address/the specific areas listed in item 3 of the NRC letter and will focus on the corporate quality assurance program in place with (inaudible) to assure that work retained within OPEG are transferred to project headquarters in San Francisco will be carried out with (inaudible) quality assurance requirements.

While Mr. Jacobson spoke to some of the project actions, I will be describing the broader policy actions that the (inaudible)department is taking in response to these same issues.

With regards to personnel indoctrination and training - in mid-1983 the training group in the (inaudible) embarked on a training and (inaudible) project to develop and implement a company quality assurance orientation program for all nuclear work related to the design, construction and operation of (inaudible) The first phase of the project included developing a QA orientation film entitled "Do It Right The First Time". This film is introduced by George Maneatis, Executive.

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Vice President, Facilities and Electric Resources Development and it was completed just this last December.

Beginning in early February 1984 and continuing through April 1984, more than 6,500 workers associated with the (inaudible) Canyon project saw the film during scheduled orientation sessions. These sessions included an experienced training instructor who discussed the film and its contents and also include managing of the quality hotline program. In effect, both at the site and in the general office. In mid June 1984, the quality assurance orientation film was presented to the company's officers.

Our plans include a program to make certain all new workers will receive this orientation. Several members of the NRC staff and in particular members of Region 5 have seen the film and their comments have been positive. In addition, we have a training program to develop our quality assurance training. The project includes elements of quality training for general office and site personnel. Examples of this indoctrination include auditor training, quality assurance program, documents containing quality assurance commitments, computer systems for statistics and analysis, procurement principles and supplier qualification.

We are currently evaluating the feasibility of (inaudible) this effort is presently scheduled for full

implementation by April 1985 and will include methods for maintaining skills. With regards to document control and design control, further (inaudible) to the existing PGE/QA program, PG&E submitted a complete revision of Chapter 17 of the (inaudible) Canyon FSAR in June of 1983. After an extensive review of this revision by Region 5 against the standard review plan, the revised Chapter 17 was approved December 20, 1983.

In anticipation of this approval, work was started by an intro-departmental quality task force to develop a charter, governing task force activities and work instructions to control the progress of the QA enhancement program. The involved departments included, besides QA, engineering, nuclear power generation, station construction, engineering computer applications, department engineering research materials and law. This enhancement program will ensure that a current and effective quality program is in place which is consistent with federal regulations and industry standards and meets corporate quality assurance commitments as defined in our revised Chapter 17.

Furthermore, at the completion of its primary task, the quality task force will remain as a standing committee to assist in the timely incorporation of new or revised federal regulations and commitments into the

quality assurance program. The quality assurnace department will review departmental program and programmatic procedure changes prior to implementation.

As a parallel effort to the QA enhancement project, the QA department has been reviewing the major (inaudible) Canyon contractors quality programs for consistency in compliance with the revised Chapter 17. The results of these reviews are being incorporated into revisions to their quality programs.

In addition, two procedures in particular have been revised to improve the control of information contained in 29 control quality manuals. Quality assurance manual procedure 4.2 entitled "Control of Quality Manuals for Instructions and Procedures" was issued recently to all departments including engineering. This procedure provides a uniform and consistent approach to the control of quality manuals. In addition, quality assurance manual procedure 11.1, quality assurance audits, has been revised to provide clear procedural control of the details of corrective actions to identify the handling of generic implications of audit findings.

With regard to timely closure of QA audit findings, in August of 1983, a quality problem report tracking system was developed in the quality assurance department to address timely closure of quality assurance

audit findings and departmental and contractor quality (inaudible) reports. This system developed to demonstrate the (inaudible) commitments made previously to the NRC prioritizes. (ph.) outstanding quality problem reports and establishes estimated completion dates. The objective is to assure that corrective action taken on (inaudible) reports identified as being necessary to close prior demode (ph.) changes at (inaudible) canyon unit one would be accomplished. This system provides senior management with a central heart of information so that timely closure is readily apparent. Results are issued weekly, or in some cases as necessary, issued daily to further assure timely flow of quality, (inaudible) into management. Initially, this program required some 3200 quality problem reports to be prioritized (ph.) and completion dates established.

In all cases, quality problem reports priorriized (ph.) before mode changes were in fact closed. This computerized recording system has been effective and will continue in use for both units one and unit two at Deauglo (ph.) Canyon.

1983 quality trend analysis report for Deauglo (ph.) Canyon, developed by the PG&E Quality Assurance Department identified that the time required to resolve quality problems and verify the results and corrective actions decreased in 1983 as compared to previous

experience. In addition, the average time required by all departments to close non-conformance reports and open item reports also decreased in 1983 compared to 1982. The average time required by PG&E quality assurance to verify corrective action of NCR's decreased in 1983 over 1982.

With regard to the conduct of QA audits, a computerized quality commitments management data base is being developed to allow PG&E to promptly demonstrate conformance with the NRC requirements and to provide quality assurance aduits with a computer generated list of quality comitments to be covered in our audit's program.

To date we've identfied some 6,000 quality commitments to be (inaudible). A systematic auto plan is being developed to assure that all (inaudible) requirements are addressed at least once every three years. This program being developed now will involve a comprehensive series of detailed audits covering all portion of the (inaudible) and is being established in accordance with the guidelines recommended by the NRC.

In conclusion, as the manager of Corporate Quality Assurance, I am confident that the quality programs in place and the quality enhancement projects underway provide assurance that activities related to the Deauglo (ph.) Canyon will be conducted in full compliance with our quality commitments to the NRC. Thank you.

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MR. VOLMER: Ok, one item of information. As manager of Corporate Assurance, who do you report to?

MR. SKIDMORE: Mr. Maneatis

MR. VOLMER: Question?

MR. HEISHMAN: Yes, I'm Bob Heishman - I would like for you to confirm, based on what I've heard this morning, and what I've read in your last response that all of the items - all is a big word - even though it only has three letters but those items that were previously identified by the NRC and by your own audits with problems associated with this pipe design, hanger design (inaudible) have you convinced yourselves that all of those designs have been addressed satisfactory for the OPEG operation at the plant that went on prior to the June change date and are you equally satisfied that those items were (inaudible) -be addressed satisfactory, without a great deal of problem under whoever has the responsibility of the (inaudible) change.

MR. JACOBSON: With the understanding that some of the actions I described are still under way. (Inaudible) are fully effective. Yes, that at OPEG I feel we have resolved the problems that were brought up there and are objective was to take those problems and look at them throughout the San Francisco operation, make sure they had been fully addressed and I think we've done that.

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MR. HEISHMAN: As an example of the kinds of things I'm searching for. If someone was to go to the home office in San Francisco tomorrow and conduct an audit regarding the problems previously identified by the NRC regarding training of engineers involved in design activities, are you convinced that the same type of problem would not be identified that was originally identified at the site?

MR. FRIEND: Bob, let me comment if I may. -Mike. We are confident that we have addressed these comments to our satisfaction. There are some differences of opinion between ourselves and some of the observations that were made at the sites, specifically we have not and continue to not believe that technical training of the engineer is a requirement. It is not a programmatic requirement of our program - we don't believe the (inaudible) either requires it.

This was a observation that technical training was not being provided, technical training is still not being provided. We do, however, have a very adequate method of selecting qualified personnel to do the work in lieu of technical training. But that is a specific area and I wanted to point out to you -- if you say, -- we have a difference of opinion. But I think, except for that one, I can't think of any others that we have not addressed and

believed we could answer affirmatively your question, yes, you would find these properly under control if you came and audited us.

MR. HEISHMAN: A follow up question would be what - I am not sure I heard in your presentation what the plans were from the stand point of the quality assurance - perhaps engineering organization - of in the immediate change that's going on of transferring function from the site back to the home office. What kind of plan do you have to, perhaps increase the surveillance for the audit function to make sure that that particular transition is getting you what you want, what the requirements are - in general its been my experience that when you have a change in responsibility that you have some increased type of function that would make sure that, at least initially, you're getting where it is that you want and try to iron out any problems that naturally exist when your trying to make a change --

(End of Tape)

MR. FRIEND: As I mentioned in my remarks that indeed was one of our concerns that we make that transition smoothly and I think Mr. Skidmore can comment about some of the extra normal activities that are going on to help us assure that we are doing this well. Steve?

MR. SKIDMORE: Yeah. In Bob Oman's presentation he talked about fuel change request procedure that replaced the tolerance clarification program and realizing that the fellows had developed some procedures and there are a number of people to be trained to get this program up and going, PG&E quality Assurance worked with the project, commented on their procedures and got, made sure those were up to snuff.

I then, if you will, gave them two weeks rope, enough rope to hang themselves if they were going to get into trouble and last Thursday and Friday we conducted an audit of this activity. From both ends of the pipeline, from the general construction end to make sure that they were working to procedure which is PI-42, making sure that they had a control process in place and in fact the results that are now being written into the audit report says that training is being done and it's being documented. As far as the automatic work stoppage after five days if they don't have final approval from engineering, the work stoppage is in fact taking place when required, that the fuel

change requests are being tracked in computerized system which is a requirement we put in their procedure.

At the same time, I had an auditor in the San Francisco Office looking at PEI-19 which is the one governing the handling of the FCR's and the conclusion is that all aspects of PEI-19 are being implemented. Training is being documented for all engineers involved in the project and it looks good. So we're right on top of it.

MR. MANEATIS: Mr. Heishman. I might add that I have instructed our manager of QA to intensify corporate audit activities so that we can have assurance that the transition will go well.

MR. VOLMER: How big is the staffing of corporate QA, numerically?

MR. SKIDMORE: Counting, there's about eighty permanent PGE people and about twenty consultants.

MR. VOLMER: And does this include any quality control function or is this QA?

MR. SKIDMORE: Quality control is done within the respective departments.

MR. MANEATIS: It's another entity.

MR. SKIDMORE: Yeah.

MR. FRIEND: If it would help, I'd like Mr. Oman to speak about some of the things that, Mr. Skidmore spoke about quality assurance activities, Mr. Oman can amplify a

little bit on some of the engineering if you will, engineering management activities that are helping us assure that we make this change smoothly.

MR. HEISHMAN: I think that's important.

MR. OMAN: Okay. As I mentioned, since the fourteenth of June, there have been engineering activities going on in OPEG and those have included creating as examples, creating a design change request package. Taking that example, the OPEG engineers have pulled together the package to formulate the design change that's desired and that would include attaching copies of any sketches that might be appropriate for that design change.

They have done the coordination, excuse me, within other discipline groups and indicated that coordination on the DCR within the onsight project engineering group and that has in some cases been indicated by a signature of the discipline engineer and in some cases by an initial. But in all cases, during this interim period, that design change request package has been sent to San Francisco and that work has been reaccomplished by the discipline engineers within the home office engineering group and in that sense it's been an additional review and check.

In the case of a calculation, there have been some calculations initiated in OPEG during this interim period. And the initiator of the calculation and even the checker of

the calculation are indicated by initials on those calculations. But again, they have not been approved in OPEG and they have been forwarded to the home office and those functions of initiating and checking and approving have again been accomplished by engineers in San Francisco to re-review if you will what was done and approve those calculations.

So there has been in this transition period almost an additional layer of review for the specific purpose of making sure we don't overlook and allow something to slip through in this time when we're in transition.

MR. SULLIVAN: In this period, do you reperform the calculations or just verify through all the procedural rechecks?

MR. OMAN: The checker of the calculation -

MR. SULLIVAN: In the home office?

MR. OMAN: In the home office, does what he needs to do to check that calculation and that may include performing of an alternate analysis to confirm the result and it may include a point by point review of the calculation that was, that was -

MR. SULLIVAN: But he doesn't have to reinitiate?

MR. OMAN: No. He's reviewing the product that's before him, that's correct. He's not copying it over.

MR. NORTON: Bob, but in your explanation you said that OPEG has a guy that initiates it and a guy that checks

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it and they both initial it and no approval and then it comes to the home office and you said that you do those functions over again which would indicate that you have an originator, a checker and then an approval. I think that's his question.

MR. OMAN: That's what -

MR. NORTONA And he's asking you if you have an originator, a new originator if you will in home office as opposed to a checker.

MR. SULLIVAN: Yeah. I think you used the word reinitiate.

MR. OMAN: Okay. They are not reinitiating a calculation.

MR. SULLIVAN: Okay.

MR. OMAN: In the sense of starting from scratch, they are not reinitiating.

MR. SULLIVAN: That's just in this interim?

MR. OMAN: That's correct.

MR. SUFFELL: I have a question. You mentioned that nonsafety related piping was still being addressed by OPEG, that they had the design, now it's just authority. How about code breaks? Would that be considered over in the safety related side as opposed to the nonsafety related side?

MR. OMAN: It would be considered in the safety

scope of work.

MR. SUFFELL: Okay.

MR. MANEATIS: Any further questions of any of us?

MR. HEISHMAN: I guess maybe I ought to make a statement concerning what I was trying to get to and where I was coming from with the line of questioning that I had earlier. I think we all agree perhaps at various levels, however, that there were some cases previously in getting to where we are now on Unit 1 where indeed there was some questions raised about the adequacy of the quality program that was being applied and this kind of thing and when we find ourselves in that situation we then have to go to the product and try to determine based on the product whether or not what has gone on to get us to that point we can accept or not accept.

And I think that's where we found ourselves with Unit 1 now. For Unit 2 and for the remaining work, none of us want to find ourselves in that situation. I'm sure you don't and I'm absolutely more sure that I don't and I see Mr. Volmer indicating that he doesn't, either.

MR. VOLMER: Amen.

MR. HEISHMAN: So my line of questioning was to try to highlight for all of us that we have to do now whatever it takes to make sure we don't find ourselves in that condition, situation. Thank you.

MR. FRIEND: We certainly agree with that, Bob.

MR. VOLMER: Any other questions? I had a couple, one which, where did this technical training issue come from? That's one for some reason I hadn't heard.

MR. MANEATIS: You mean the disagreement?

MR. VOLMER: Yeah.

MR. FRIEND: Well, it's part of the, I guess the draft report prepared by Mr. Yin and described to us on January thirty-first, was it, we had the meeting in San Fransicso?

MR. VOLMER: I recall technical audits, but I didn't recall technical training.

MR. FRIEND: No. Technical training was a specific issue that was brought up and it has, the reason I mentioned it, I believe we have addressed all the other issues, but that is one specifically I know that we had a difference of opinion on and we felt that our selection process allowed us to not have a technical training program.

MR. VOLMER: It's not exact in Appendix B, at least in the supporting regulatory guides. You have to be able to demonstrate adequately, adequate technical qualifications of people -- (defective tape.)

MR. FRIEND: Excuse me. I may be mixed up as to where this issue came from. But I didn't want to leave you with the opinion we had addressed it and we're all -

MR. VOLMER: No, that's fair enough.

MR. FRIEND: There are some people that are telling, advising me maybe it didn't come out of this January thirty-first meeting, but it was an issue that I remember and that we are a part of it.

MR. VOLMER: Okay. I had one other question which Mr. Skidmore indicated that 6,000 quality commitments were to be tracked. I was wondering exactly, if you could give me an idea of what type of commitments these are. It sounds like a rather large number. I was wondering how you did all that.

MR. SKIDMORE: You might ask how we did it previously. Actually, that's not an unusual number. Florida Power Corporation has a similar system that was developed just prior to the time we started working on ours and they came up with about 5,000.

They're commitments that we've made through various licensing submittals over the year, commitments made in the transcript of hearings, FSAR Chapter 17.

MR. VOLMER: These are individual -

MR. SKIDMORE: These are line items-

MR. VOLMER: Line items, I see.

MR. SKIDMORE: That you would go out and put in a check list and go out and do an audit.

MR. VOLMER: Not quality attributes or something like that? These are line items that you need to meet the requirements of the plant.

MR. SKIDMORE: Yeah.

MR. VOLMER: I see.

MR. SKIDMORE: The idea is to have these play out. If you want to do a Criteria 18 audit of the project which we did this last April and it turned out fine, I would have all these things on Criteria 18 that pertained to the project spill out of the computer and then the auditor wouldn't have to go dig all this up so he'll perform a more technically correct audit and be comprehensive at the same time.

MR. VOLMER: Any other questions?

MR. BOSNAK: I wanted to amplify the record in another area.

MR. VOLMER: Fine. I think we also have to hear from Mr. Shipley, but go ahead, Bob.

MR. BOSNAK: I wanted to amplify the record here on the IDVP. I think when I characterized the ITR's as incomplete, incomplete might have been a poor choice of words, but I think as Bob -- said, they were summaries. Unfortunately, they were fairly terse and very succinct and I think they could easily lead one to wrong conclusions if

the ITR's were the only data available and I think in that perspective at least I can understand why Isa Yin reached some of these conclusions or maybe the majority of the preliminary conclusions that he did on IDVP.

I think this is fairly important because he felt that a lot of things were deficiencies that could have been reconciled had he had all of the additional material available that were in the backup packages. He could have found that these were perhaps nonsignificant comments. So I think it's important to make, I wasn't trying to criticize the ITR's as being incompdete, but they were very terse and very succinct and could easily lead one astray.

MR. VOLMER: Thank you, I think that's a good comment. I appreciate getting it on the record. Larry?

MR. SHIPLEY: Bernie, you asked how many was the count of the new, using the new criteria, how many snubbers were located within 10d of anchors. The number is 75. Well, that's 75 additional over the new. There was six under the 5d criteria. There are 81 total under the 10d criteria.

MR. SULLIVAN: Is that for all sizes of pipe?

MR. SHIPLEY: That is for, for all computer analyzed piping.

MR. SULLIVAN: Both large and small bore?

MR. SHIPLEY: Yes.

MR. SUFFELL: Yeah, it's snubbers near anchors,

right.

MR. SHIPLEY: Snubbers near anchors.

MR. MANEATIS: Second question?

MR. SHIPLEY: Yes. I guess, Jim, you asked that one, right? You know, the question was categorize and provide the numbers for the modifications made to date. For the -

MR. NORTON: Excuse me, Larry. Before you answer that one, you say date, starting from when?

MR. SHIPLEY: Okay. Give me a chance, Bruce, I haven't finished that sentence.

MR. NORTON: You're going to cover that?

MR. SHIPLEY: The, we did the reviews for the seven items in the licensing condition. For the review on item 1, small bore scrutel, there were no modifications. For items 2 and 3, we provided shims for 26 supports. Those shims were typically a one sixteenth inch shim.

I might add that because of the, because of the new criteria for which we're currently doing the walkdowns, we would anticipate some more shims to be added. Item 5 which was gaps, there were no modifications. We have a commitment to perform additional reanalysis and modifications as necessary to eliminate the gaps during the first year of operation and we will proceed with that.

Item 5 which was walkdowns, hot walkdowns of

piping, as far as the last two walkdowns that were done in conjunction with the NRC teams, there were no modifications to pipe support that came out of that. I might add though, that the normal startup of a plant and performing hot walkdowns as general statement does result in some modifications to moving conduit, coping, some structural grading and things like that.

It's a natural flow out of that type of program. Item No. 6 which was DP and TC, there were no modifications from that. Item No. 7 for the technical issue, there were no modifications required as a direct result of of item 7. We had to detach one small bore pipe from a large bore frame.

The result was not a fall out of the licence condition 7 issue, however, and it met the Hodscree allowable. It did not meet the DE and DEE allowables. So we felt that while there was no safety concern, meeting the Hodscree allowables, we felt that in order to comply with all of our commitments, this particular one we should detach the small bore from the large bore frame.

MR. KNIGHT: Just to follow it up. So you detached it from the frame and provided support elsewhere?

MR. SHIPLEY: Yes, that's right.

MR. KNIGHT: Just picked it up as an individual support rather than a member on the -

MR. SHIPLEY: That's correct. It was a simple cantilever off the large bore frame, a very short cantilever in fact and it was merely relocated to the floor which was quite near where it was attached.

MR. KNIGHT: If I kept my tally correctly, then, there was no instance during this process in which a pipe support had to be physically changed, other than shimming?

MR. SHIPLEY: That's correct.

MR. OMAN: Are there going to be any changes?

MR. SHIPLEY: Let me, I'm sorry, Mark.

MR. HERTZMAN: Are there going to be any modifications?

MR. FRIEND: You mean in future investigations?

MR. HERTZMAN: Within the immediate future. I think this is an item that we have discussed this past week and I just wondered what your response would be. I'm talking about the members which exceeded certain length requirements.

MR. SHIPLEY: We, as we indicated in our June the eleventh report, there were three cases where the L/R for angles of 270 was exceeded. Um, we further indicated that that L/R that, thank you, L/T, the L/T that had exceeded 270 was well within the recommended results from the test program of the Australian data and we felt therefore that it was acceptable.

Per agreement with the staff, we will brace those three cases. So let me clarify. What we have here is out of these very complicated frames that we have, out of 357 very complicated frames, we have three angles, three angles that exceed the 270 criteria.

That criteria is set more as a guideline than it is an absolute criteria. It's clear in the Australian data that for very low bending stresses, you can go much higher than the 270 guideline. Nonetheless, we have agree that since we've exceeded this guideline, we believe the support can be justified nonetheless, however, we have agreed to brace those three angles.

Now, I want to be sure we touch on one point and that is that during the December '83 to approximately May of '84 timeframe, there were modifications taking place. Okay. There were modifications. We had certain hangers that were determined to be modified post fuel up.

We had certain hangers that were still being, not still being, but were being modified as a result of as-built reviews of these post fuel load hanger mods. We had the so-called heapers, the hot walkdown problem report where we might have to modify hangers because of that.

For all these reasons, there were supports being modified during that time frame, but they were not as the result of the license conditions, the seven license

condition reviews.

MR. HARTZMAN: Okay. Thank you.

MR. VOLMER: Any other questions, staff?

MR. MANEATIS: Well, this concludes our presentations today, Mr. Volmer.

MR. VOLMER: Okay. I think what we'd like to do is the staff would like to take a brief caucus after which we'll come back and take care of any residual items and we also have one member of the public who wishes to make a statement and hopefully we won't be longer than a half hour. Off the record.

(Off the record.)

MR. VOLMER: Sorry we took so long, but the hungrier we get, we'll finish it up real quick. I think we've pretty well taken care of the issues we had slated for today's meeting. However, I did want to get clear exactly the information that you are going to provide us, I think you said tomorrow and make sure we, what all is contained therein and make sure this will be the final package that we will need to be able to proceed with our safety evaluation report.

Let me go over what I believe to be the contents of that letter. You said tomorrow. What exactly, is that going to be put in the postal service tomorrow evening?

MR. SHIPLEY: At midnight.

MR. VOLMER: At midnight or something like that. That's what I thought you were going to say.

MR. HOCH: Excuse me, Dick. John Hoch. We always have when it's something this urgent, make a submittal in the mail tomorrow and it will be accompanied simultaneously by a courier to you and will be in your office -

MR. VOLMER: Yeah, I realize that. Yeah, but it will, we won't get it tomorrow, we will get it Thursday, Wednesday being July Fourth and -

MR. HOCH: If you're available Wednesday, it should be in your office.

MR. VOLMER: I think we definitely have an 8:00 a.m. or 8:15, some of us 8:30 on Thursday without any question.

MR. SHIPLEY: We can surely do that.

MR. VOLMER: Whatever it takes to do that, I think we need to do that.

MR. SHIRLING: I -- Wednesday.

MR. NORTON: How many copies are you going to need and we'll get that number to him so you don't have to go through the copying process?

MR. VOLMER: Okay. Why don't I let -- take care of that? Okay. Now,our understanding of the content, one item that I believe we need is you're going to identify the characteristics of the 15,000 feet of small bore piping that

was analyzed by Spangerol and the purpose there would be to assure that this segment of piping indeed meets the criteria under which we thought you were analyzing by the Spangerol. Okay.

That is one item. The second one is, deal with license onditions 2 and 3 and as I understand it you're going to give us layout, all of the instances that you find where you have rigid to rigid or rigid to snubbers, not having met the criteria that you laid out on your chart, any instance where you find that the snubber would not actuate or where future analysis was required, well, cases where snubbers did actuate would be all right.

Cases where snubber did not actuate but would be needed you would analyze and provide, the results of the analysis, would they be available in this package or is that something in the future? I guess that was an open question.

MR. SHIPLEY: We had, previously we had provided a chart that showed the movement if the snubber was not in the analysis during the DDE, DE and Hoscree and it showed qualifications for the piping and support. If it did lock of course it was qualified by the original analysis and if it didn't, then we would provide, not provide the results themselves, but provide statements that said that it did lock.

It's going to get to be a very bulky package if we try to give the results. They're available for review but -

MR. SOFFELL: No, but I guess the question is -

MR. VOLMER: Will the analysis results be there in some substance or some form?

MR. SOFFELL: That's right. In other words, I heard you say this morning that one, the identification part of, phase of this task had been completed. I also heard you say that for rigids you were in the process of walking down to identify which ones needed shimming, which ones didn't.

MR. SHIPLEY: That's correct.

MR. SOFFELL: Okay. In the case of snubbers, where do you stand in terms of being able to expand the table that you previously provided or is that the kind of thing that you were going to do, just expand that table for the DE, DDE Hoscree in that same format?

MR. SHIPLEY: That's correct. That's what we intended to do.

MR. SOFFELL: Okay.

MR. SHIPLEY: To include all the ones that had been identified for the 10d criteria.

MR. SOFFELL: Right. Now, they had not previously submitted and I had not planned to ask for the detailed backup.

MR. SHIPLEY: Okay.

MR. SUFFELL: Is all that analysis done?

MR. SHIPLEY: On Saturday, all but I believe two were complete and they were in the computer as we say.

MR. SUFFELL: Okay.

MR. SHIPLEY: So I fully anticipate today that they will be complete and tomorrow we'll be able to generate the tables.

MR. SUFFELL: Okay. Based on the information you've seen so far, are you, can we expect to see any problems in terms of snubber operability?

MR. SHIPLEY: No, we don't believe so, no. All but the few that are still under analysis, we have had no problems.

MR. SUFFELL: Okay.

MR. SULLIVAN: Does that mean they're all showing as being operable snubbers between 5d and 10d?

MR. SHIPLEY: Operable or not required.

MR. VOLMER: Okay. The last item that, for the letter information was, I guess there's some residual information on the completion of the DP packages?

MR. BOSNAK: That's your item No. 6.

MR. SHIPLEY: That I would believe is merely a, to document the results of the reviews that we reported in progress in our last update and so we would just provide

that information.

MR. BOSNAK: Yeah, the license conditions you have to complete all of the DE packages and the last report we had, the June first letter said there were a couple that were still open.

MR. SHIPLEY: Right. So we need to provide the results of those final reviews and we will do that.

MR. BOSNAK: And one, also. Item one, also.

MR. VOLMER: Now, going back, just for my own information, on license conditions 2 and 3 then, as far as there had been no, there are no physical modifications pending on license conditions 2 and 3?

MR. SHIPLEY: Except for shimming.

MR. VOLMER: Except for shimming.

MR. SHIPLEY: Yeah.

MR. VOLMER: Nothing has had to be replaced, taken out? You haven't had to take out snubbers or anything like that?

MR. SHIPLEY: That's correct.

MR. VOLMER: And when would that shimming be accomplished?

MR. SHIPLEY: We are targeted for he thirteenth of July.

MR. VOLMER: Okay.

MR. SHIPLEY: But as I said, clearly, if it, if

for some reason it extended beyond there, we would complete that work before we increased the -- in power.

MR. BOSNAK: On some of the small bore we agreed that shimming may not be necessary and they were going to look at that on a case by case basis. That's part of the changes you need to make to your letter of June the twenty-sixth or whatever date.

MR. VOLMER: And we also had the June twemty-ninth submittal and I think there's a question on that. We might as well take care of it now. Mark?

MR. HARTZMAN: Yeah. We have had a chance to do a quick reading of your letter of June 29 which we just received a short while ago and you stated that for the large bore support you felt the selfweighted citation or what we have defined as selfweight citation has little impact on the overall qualifications of these supports.

We believe that we need somewhat more justification than just a sentence, than just a sentence as stated in this letter.

MR. SHIPLEY: Well, Mark, I think the, what is clearly implied here is that 90 percent of the ones that we looked at considered the self weight excitation and it made little to no difference to the overall qualification of the support.

MR. HARTZMAN: Well, when you say it did, does

this mean you ran some of these without these effects? How did you determine that they weren't significant? I guess really that's the question.

MR. SHIPLEY: Separate load case.

MR. HARTZMAN: So you, but usually if I recall correctly, the input into strudel, these are combined together with the other, with the other load cases, with the loads that come up the pipe, was the comparison made with, of those two separate conditions? In other words, all the loads were combined and only those that came off due to the piping was analyzed?

MR. SHIPLEY: No, we do not do that.

MR. HARTZMAN: So how was the comparison determined? How was the significance determined?

MR. SHIPLEY: I guess you have to view this in, in conjunction with the fact that 90 percent of the support had, were less than 60 percent of the allowables, much along the lines of Dr. Cloud's statements that, you know, we're finding that these supports have been designed to stiffness criteria, especially the large bore, and they are very, very seldom does the strength consideration govern the design of the support. And so we believe the fact that 90 percent had already considered the selfweight excitation and that by far and away 90 percent of the members are very lowly stressed, we don't, 60 percent of the allowable,

whether you call that low or not, it's a judgment, but so we don't believe that the large bore would have a significant effect, the selfweight would have a significant effect.

MR. HARTZMAN: See, for the small bore you say that this effect may not be true for the large massive frame. There's a statement here.

MR. SHIPLEY: Well -

MR. HARTZMAN: So some of these massive frames also support large bore support, large bore piping, don't they?

MR. SHIPLEY: You mean the small bore supports?

MR. HARTZMAN: There are -

MR. SHIPLEY: There are large bore frames.

MR. HARTZMAN: Yes, which support small bore piping.

MR. SHIPLEY: That's true also, yes. But I'm talking about the, well, the small bore paragraph is talking about the complex piping that was done by Strudel and that is characterized by somewhat, as opposed to the large bore supports that are relatively much stronger - Let me explain.

Piping is in general run not too far from structures, all right. So in getting from a structure to the pipe to support it, you have roughly the same distances to cover to build the support, but in the case of small bore,

the structure can be of a much lighter construction than in a large bore because the loads are so much smaller.

So that in some cases the selfweight excitation in the small bore can be significant. So we, we feel that it is appropriate to review the Strudel packages for the selfweight excitation issue.

MR. HARTZMAN: We know that some of the interaction values in the large bore supports were as high as 92, .92. There was, in fact, I would say about 10 percent were somewhere in that ballpark and here we find that 10 percent, 10 percent of the supports did not consider an effect which may or may not influence the interaction value, the overall interaction value.

So what we need is to have assurance that for those supports where you have very high interaction values, that these effects are really not significant or conversely that the 10 percent of supports which did not consider these effects are not included in those which, where the interaction values are very high. Do you see what I'm saying?

DR. CLOUD: What's the relative contribution of pipe mass versus the support mass, generally speaking?

MR. HARTZMAN: That's what I would like to know.

DR. CLOUD: Generally speaking, the support mass, I believe, is small compared to the pipe mass.

MR. HARTZMAN: Put it in writing.

MR. SHIPLEY: Mark, let me, could you go over what you said again? I want to understand this.

MR. HARTZMAN: You have, there are about 10 percent of supports where the interaction value was roughly was 85 or over, .85 or over.

MR. SHIPLEY: Is that from our curves?

MR. NARTZMAN: That's from attachment 76.

MR. SHIPLEY: 76?

MR. HARTZMAN: Yeah, in the letter of June eighth.

MR. SHIPLEY: Okay.

MR. HARTZMAN: Now, you say 10 percent of these supports did not consider that, the large bore supports. What we want is assurance that this 10 percent did not consider these effects are not included in the 10 percent which have interaction values which are somewhere, 85 percent or .85 or greater and also we would like a justification indicating that indeed for these large bore supports this effect is not that significant.

MR. SHIPLEY: Well, wouldn't that provide the justification, the fact that it was considered in 90 percent and the remaining 10, you know, it didn't have any bearing on the justification of the supports by this rationale?

MR. HARTZMAN: I'm sorry. I've lost you there to tell you the truth. Let's backtrack. Let's just say that,

let's stick to the first item, that we want assurance that the 10 percent which have interaction values above .85 or 85 percent do not include, are not included in this 10 percent for which this effect was not evaluated.

DR. CLOUD: We're doing some independent verification of your figures here and it looks to me like -

MR. HARTZMAN: You want my figures, okay.

DR. CLOUD: And it looks to me like you're talking about 5 percent, not 10 percent.

MR. HARTZMAN: Oh, I'm sorry. That's right. It's 5 percent. But this is 5 percent of a sample of 200.

MR. CLOUD: Okay. But it is 5 percent, not 10 percent.

MR. HARTZMAN: You're right.

DR. CLOUD: Who do we send the bill to?

MR. VOLMER: Mark, that verification, when are we expecting it?

MR. HARTZMAN: October first, that's acceptable.

MR. VOLMER: Okay. Any other comments from the staff? Jim? Okay. Well, I guess that concludes this part of the meeting. I'll turn it over to Hans. We will look forward to getting your information on Thursday and by -- as soon as possible, if there are any other follow on questions, we'll get in touch with you right away and we appreciate you coming out and taking care of these concerns today.

Yeah?

MR. SUFFELL: For the sake of expediting things, I would like, if I could request a copy of it sent to myself and I believe you have my address, Larry.

MR. VOLMER: Yes.

MR. SUFFELL: It's Columbus. And to Tom Burr, B-u-r-r, at the Idaho Engineering Lab and if you don't have his address I can get it after this.

MR. VOLMER: And Kamal Mannoli in Region I.

MR. FRIEND: You want these to your offices, is that correct?

MR. SUFFELL: Mine I have no problem with it being sent to my house. I think, do you have my home address? I believe you do?

MR. HOCH: The easiest way would be for Hans to -- (several people talking at once.)

MR. SUFFELL: Okay, fine.

MR. VOLMER: Okay. I'll turn it over to Mr. Shirling for the conclusion of the meeting, then.

MR. SHIRLING: Yeah. One item remaining is I have a request from Mr. Stokes. He would like to make some statements and Charley, why don't you try to limit yourself to about ten, fifteen minutes if at all possible?

MR. STOKES: I'll be more brief than that. The meeting to me appears on the surface to maybe be not what it

seems. It appears that various things have been raised and not questioned. They were raised by PG&E in statements. The NRC didn't ask any questions.

Several of the issues which I didn't appreciatively like was one, the first one was by Mr. Shipley. He said there was fifteen Strudel documents which had been completed with no changes. It's my experience that the most difficult ones are the ones left for last and the ones that have the most problems.

I would like to state again as I've stated in many of my affidavits to insure the public confidence and allegators' donfidence that the design aspects are being completely covered, I would like several documents placed in public domain in the public clearing room or document room at San Louis Obispo, the sketch and calculation copied. These things will not affect plant safety because they will not be in enough detail to cause any person who could gain access to do any damage.

The other thing that kind of bothered me was the thirty day requirement was dropped for more stringent requirement and that was that no design or check calculations would take place on safety related items by these people. There is no mention as to what would still be the case with people working on nonsafety items, whether or not there would ever be requirement that they know what QA

requirement for and that could take place in the case of people never working in the safety related items which is very easy for management to manipulate.

I took a deep exception with this term and that was adequate, technical adequacy and the word adequate as a whole. It seems that adequate is replacing what I call in calculations and have always seen to be an overuse of engineering judgment.

There's no basis for limiting its use. It's a very random and very sporadic decision on engineer's part. It has absolutely no basis without limitations being put on it as far as I can see in any project.

I also was upset with the mention of 6500 items which still are open which should be met before a licensing is completely committed to. The definition of items kind of bothers me. I wonder if an item can be an entire area of category of problems considering TMI issues.

Look at the same aspects with that as to the statement that the GAP's reanalysis program has been extended for one years into operation. I wonder if that's one item? I know NRC is not quite aware of all 6500 in scope because they were startled by this number.

They may have given authorization for each one independently, but the total affect of 6500 open items as to the plant safety is to me unrealistic. There was no mention

made here today of an issue which started because I raised the question concerning the radius of tube steel at the plant.

I'm aware that the problem goes beyond tube steel. This problem is the use of foreign steel in Diablo Canyon which does not meet material qualifications for American vendors. I am aware that the problem does go beyond tubing and I will be following up with a statement and documentation to prove that this issue is still not moot and it is safety significant and it does bear on hardware which has been one issue where NRC has completely been against reopening.

I feel hardware is a problem which should be looked at and the use of foreign steel is one aspect of that. The last technical issue that I'm kind of concerned with is the fact they state, PG&E does, that only three angles exceeded 270 as an L/T requirement.

There was no other changes noted and I feel that I can't believe that knowing what I know about the calcs I performed including torsional stresses. The last thing I'd like to say involves the absence of an NRC member here who had more to do with the seven licensing criteria than any other member of the NRC staff as far as I'm concerned.

That's the absence of Mr. Yin. I feel that the lack of his presence here indicates one of two things. He's

either not in agreement with the staff's present conclusions or either he feels that what's going on here as I do is not a realistic portrayal of what's happening between PG&E and NRC.

I will regress to what I stated to Mr. Bishop in December eighth of 1983 when I first talked to the NRC only now I say it for myself, all allegators and the people concerned in the San Louis Obispo area and the rest of the United States. At this time I have not seen sufficient evidence of very many people within the NRC that they are committed to doing their job.

At this time we will break all furture discussions with NRC except with the discussion which could be possible with Mr. Yin if he's given freedom to look into the issues which he discusses with us. It seems when I made the statement December the eighth that I would discuss the issues with NRC at that time, I stressed that I only did it because Mr. Yin was part of the staff.

I should have stressed that he be allowed to review stuff openly without being subjected to a lot of undue handcuffing. In conclusion and followup of this, the only other group which I or the allegators will discuss any issue we still have pending or will raise in the future as to the foreign steel issue which I'm fixing to raise again, the only people we'll discuss it with are Mr. Yin or

the Department of Justice.

We have been in meetings with the Department of Justice and we feel that many of the public laws have been broken and are not being enforced by the staff. The Department of Justice has final control on these issues and they can also investigate.

And the very last thing I would say is I believe the policies of the NRC in allowing 6500 open items to exist on a plant while they're considering licensing of that plant to be one of the most disarming and disruptive things to the nuclear industry. It promotes the idea that you can build a plant any way you want it, get an extension after licensing and have it extended indefinitely.

It doesn't promote that the plant should have been built based on quality from the beginning and that every intent and every motion by management should be geared towards quality. I am not anti-nuke nor are any of the allegators which I am associated.

I am in favor or similar prospects or similar construction policies to what took place at Florida Power and Light St. Lucy 2. I expect management and no less to seek 100 percent quality from day one of every person working in the project.

I expect the design to be done one time, one time only and correct. I am tired of things being torn out

because of a 10 percent override in contracts, allowing for the industry to be subjected to increasing costs thereby causing plants to be shut off and extended schedules to be postponed indefinitely. And on that last statement I'll stop.

MR. VOLMER: Mr. Stokes, you brought up a couple things which first of all I need to clarify the record for and secondly I feel obligated to follow up on. First of all, I would like to indicate that Mr. Yin was unable to come to indicate that Mr. Yin was unable to come to the meeting today.

However, he has been informed as have all other parties to this, these staff people involved in this exercise, that Mr. Yin will be getting copies of our SER's and he has been asked to submit any comments in writing which will be included in the final staff safety analysis report should he have any disagreements he wishes to bring forward. So these will be a matter of public record and there will be, should not be any instance, I should think, that Mr. Yin would be disagreement with the staff, the peer review group, that is, and that provide his written comments on that.

The other items I wanted to ask you about, I was wondering, who are you speaking for when you said that you were going to break all further discussions with the

NRC unless Mr. Yin was party to those discussions? Who are you speaking for in saying that?

MR. STOKES: I speak for myself and all the alle-gators represented by GAP.

MR. VOLMER: We have some allegers who Mr. Devine had indicated that he wanted, that had further information for the staff. You mean by that that those offers of information from those allegers are no longer forthcoming unless Mr. Yin is party to those discussions? Is that what you're telling me?

MR. STOKES: Yes.

MR. VOLMER: Okay. Lastly, I'm trying to figure out where this, I'm very interested in this 6500 open items that you discussed. I recall asking as one of my questions Mr. Skidmore about his 6,000 quality commitments to be tracked. Is that what you're referring to? The only other 6500 I could find in my notes -

MR. STOKES: That's the 6500 I alluded to and I assumed in my statement that they included commitments to the NRC which have been extended from one to two years and possibly longer after licensing. They would be includable under continual follow up program and under QA auditing programs, they should be included and I therefore drew that assumption, maybe incorrectly.

MR. VOLMER: Well, that's not exactly the way I

had gotten it. I would say now that whatever the commitments are by the licensee to the regulatory criteria, be they in the FSAR license conditions or whatever, that those are not, they would not and are not being extended.

The plant has to meet it's licensing criteria and anything that does not meet our requirements may be identified in license conditions, accompany the license. That would be the only method of extension so they would be out in the open. But 6500 license conditions are certainly not contemplated.

MR. STOKES: Maybe we could ask Mr. Skidmore for a clarification on the definition of those 6500 items.

MR. VOLMER: As I understood them, I think that they were, he said 6,000 is the number I had noted, 6,000, let me get my notes here so I'm sure I'm right, 6,000 quality commitments to be tracked and as I understood those when I questioned him on them, that these were all of the commitments made in the FSAR to meet all aspects of plant design and that those were commitments to be tracked. You wish to elaborate, Mr. Skidmore, or is that right?

MR. SKIDMORE: Yeah, let me, well, the record I think will speak for itself. The 6500, that number came from the number of workers that have seen the orientation film. I later in my presentation commented about 6,000 commitments and these are things that you'll see in --

standards.

These are ongoing commitments we've made to meet regulatory requirements. It's a standing matter of quality assurance program. We're tracking our compliance with those things and auditing to make sure we are in compliance. There's nothing open.

It's just the way we intend to meet Appendix B. And we've broken it down to line items. But there's nothing open.

MR. STOKES: But are you monitoring and tracking the things which are open and have been extended beyond -

MR. VOLMER: I had asked Mr. Skidmore to amplify. This is not a question and answer situation.

MR. STOKES: Sorry.

MR. NORTON: Excuse me, Mr. Volmer. I might read precisely where that number came, what Mr. Skidmore said and I'm reading from what he read. It was, quote, a computerized quality commitments management data base is being developed to allow PG&E to properly demonstrate the conformance to NRC requirements and to provide quality assurance audit with a computer generated list of quality commitments to be covered in programatic audits. And it was there where he said that's approximately 6,000 and it has nothing to do with open items.

MR. VOLMER: Well, that was my understanding, but

I wanted to clear it up. Thank you.

MR. SHIRLING: Mr. Maneatis, are there any additional comments you would like to make at this time?

MR. MANEATIS: I have none, other than I hope that we've addressed matters in sufficient detail to commit the NRC to proceed with the full power licensing of Diablo Canyon --.

MR. SHIRLING: Thank you very much for coming. The meeting is adjourned.

(Whereupon, on Monday, July 2, 1984, the meeting was adjourned.)

CERTIFICATE OF PROCEEDINGS

This is to certify that the attached proceedings before the NRC

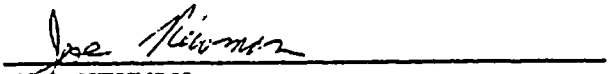
In the matter of:

Date of Proceeding: Monday, July 2, 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



JOE NEWMAN
Official Reporter

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