NUCLEAR REGULATORY COMMISSION

ORIGINAL

In the Matter of: DIABLO CANYON UNIT NO. 1
DESIGN VERIFICATION PROGRAM

PUBLIC MEETING

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AT: Bethesda, Maryland

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

DIABLO CANYON UNIT NO. 1

DESIGN VERIFICATION PROGRAM

- - -

TUESDAY, OCTOBER 19, 1982

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PUBLIC MEETING

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7920 Norfolk Avenue

Room P-422

Bethesda, Maryland

The meeting convened, pursuant to notice, at 1:20 p.m., Darrell Eisenhut, Director, NRC Licensing Staff, presiding.

(The list of attendees is attached at the end of the transcript.)

P R O C E E D I N G S

MR. EISENHUT: Why don't we get started. My name is Darrell Eisenhut. I am the director of licensing for the Staff. This is a continuation of a series of meetings we have been having on Diablo Canyon specifically on the design verification program. Even more specifically, this meeting is in preparation prior to a Commission meeting we will be having tomorrow afternoon. And the subject of that is the Phase II program, the Phase II proposal and our recommendations on that program.

This meeting is a recorded meeting. We are keeping a transcript of the meeting. There is a number of different parties here. It was a publicly noticed meeting, so if anyone knows of anyone else who wants to come to the meeting, there is always room.

What we would like to do today is sort of get the last in the series of time, sort of the last views of where we are today prior to our meeting tomorrow. I have asked both PG&E and Teledyne if they could give a summary of sort of where they stand in the overall status. And I am also opening it up to any questions the Staff might have relating to any aspects of the program to clear up any remaining questions, to put things in perspective, if need be.

And maybe one of the easy ways to start off is -- and I won't go around the room for introductions, in the interest of time, since there are a lot of people, so when people speak maybe they could identify themselves -- but I would like to start it off by turning it over to George Maneatis and ask him if he could give a summary of where he thinks we stand today and, if you can, characterize the findings to date.

MR. MANEATIS: All right. I will start with the former and on the latter I will ask Howard Friend, the Diablo Canyon project completion manager, to characterize the findings to date.

For the record, I am George Maneatis, executive vice president of Pacific Gas and Electric Company.

I would like to use as a point of departure what we reported to be the status of PG&E's internal technical programs, our whole review effort. And that status was given at the September 1st meeting. Since that time I don't think anything substantially different than we reported has occurred. We indicated some schedules there with regard to the completion of certain work.

We had indicated that we had not completed the analysis of certain of the buildings, the structural

analysis and seismic analysis. We still haven't completed that analysis in the case of the turbine building. We have some analysis to go as a result of some open items that were communicated to us by the IDVP on the annulus area of the containment.

We have received a number of EOIs from the Phase II program which we are undertaking at our own risk, it not having been approved by the Nuclear Regulatory Commission. We are responding to those EOIs in the sense that we are investigating them.

We have also committed to perform a construction quality audit of two of the principal contractors at Diablo Canyon. That audit is under way. Again this is a volunteered thing, not required by the order. But it is well along, and we expect that to be essentially completed by the middle of November.

We had indicated, I think, at that September 1st meeting that we expected to have all of the PG&E work completed that required to support a request for having a low-power license reinstated and authorization to load fuel and commence low-power testing by the end of November of this year.

Looking realistically at the work ahead, I would estimate that we have slipped that schedule and will probably not be in a position to have completed the

work we feel needs to be completed in response to the order and in support of fuel load and power testing requirements before the middle of December.

These are estimates. They are driven by the findings of the program, both Phase I and Phase II and our own internal technical programs and review.

I think that is a kind of quick thumbnail sketch of where we stand with regard to PG&E progress since the September 1st meeting.

Howard, is there anyhing you want to add on where we stand with regard to the status since September 1st?

MR. FRIEND: No. I think you have covered it well, George.

My name is Howard Friend. I am project completion manager for the Diablo Canyon project.

I think, George, you have covered well the status since September 1st. Would you like me now to talk on the other matter?

MR. MANEATIS: Yes. As I understand your latter question, it is to characterize the findings to date, just from PG&E's perspective or because the IDVP also has a perspective on characterizing the findings. You are aware, just by way of preliminary comment, that we have submitted in our technical report a section that

is designated 1.8, which discusses the causes, significance, and impact of design errors. I think that that will be the basis at this time that we would want to use for responding to that question.

MR. DENTON: My name is Harold Denton. Would you repeat one more time the date you would expect to complete Phase I and what relationship that date has to your projected date for completing Phase II, as you have undertaken at your own risk?

MR. MANEATIS: Okay. I will take a stab at that. When you use the term "completion," it is subject to some interpretation. The order, as you will recall, allows for certain things not being completed, like modifications subject to approval of the Staff. But with regard to Phase I, we expect that Phase I work from PG&E's perspective, this does not include review by the IDVP or the sign-off by the Nuclear Regulatory Commission.

We expect PG&E's work to be completed by the middle of September, with a caveat that we don't find anything unexpected in the reanalysis of the turbine building, which is quite an operation, and also the review of some of the concerns raised by the IDVP on the annulus structure of the containment building.

Now, with regard to completing Phase II there

are several aspects to that. One is the IDVP itself has to complete their investigation, their verification of their sample system. There were three, I believe, or four indicated. They have completed several phases of that, the QA audit, but without providing a report file. One report was filed on that.

The design verification work of Phase II from an IDVP standpoint will likely be completed essentially in a couple of weeks, as I understand it. Bill Cooper will comment on that schedule more precisely.

We have to respond to the error in open items that are referred to us. We have received several of them already. I don't have the exact count. I think about 39. All right. In that area we understand in total there will be about 55 of them with an additional two coming from Roger Reedy.

When we get those, we intend to provide an interim report which will, in effect, address what we are going to do with those findings. We will not submit necessarily detailed solutions, but we will say what they mean to us, what is their generic significance, as an example, internally speaking, and what investigations we are going to undertake internally. And if we know of any modifications, we will say what modifications we are going to make.

Now, I consider that sufficiently complete for purposes of giving you a bearing on what is out there in the Phase II domain, as it were. Now, we expect that that can be completed also by maybe the middle of November.

MR. DENTON: You had said once, and I certainly agree, that we don't want any surprises --

MR. MANEATIS: Yes.

MR. DENTON: -- once we come to a decision. What I really wanted to get to was your feeling that come the completion of Phase I, do you think you will have in hand sufficient results from Phase II to foreclose the --

MR. MANEATIS: Possibility?

MR. DENTON: -- possibility of another major finding that would surface later in Phase II.

MR. MANEATIS: Particularly with our having volunteered to conduct this QA construction audit, which will also be likely completed by the middle of November and certainly by the middle of December, which is the date I gave you when Phase I would be completed. So we will have had the benefit of findings throughout the whole spectrum covered by the order of November 19th to know with some -- with a great deal of confidence that there aren't any major surprises out there of any

unidentified deficiency or discrepancy in the Diablo Canyon power plant situation.

So by the middle of December we should be in a position to have put in the hands of the Nuclear Regulatory Commission sufficient information to give you confidence that there are no surprises. And if we don't have that information or if we, PG&E, Bechtel, are not convinced that that is the case, we simply will inform you of that fact and tell you when we do have that amount of information at hand to permit us to state with confidence that there are no further surprises out there.

MR. EISENHUT: Let me follow up on that. If I understand it, that is predicated upon the IDVP on Phase I being completed sometime early so that any open items that should develop could be given to PG&E so PG&E could resolve those, address them in whatever form that would take, and provide that back to the IDVP to ensure that the IDVP is satisfied with that resolution. And is that cycle prior to December 15 or after?

MR. MANEATIS: With regard to the last thing you said, the last part, we have already had the benefit of practically all of the EOIs that will be issued on Phase I.

Am I correct on that?

MR. COOPER: Yes.

MR. MANEATIS: So therefore, we have those, and we are responding to those. Regarding the Phase I EIO cases, with regard to verifying the corrective actions, clearly the IDVP will not be able to verify corrective action for modifications that we say we are going to make but haven't made, and you have agreed to it. So therefore, those cannot be verified because they would not have been made.

But those that we have identified as actions required, systems, structures, or components required, and supporting fuel loading and low-power testing, those activities will have been verified by the IDVP.

And I understand just from the remarks that Dr. Cooper made at our October 7th meeting in San Francisco, which was a public-notice meeting, that he indicated that he needed two weeks' notice from PG&E to be able to effect that snapshot verification of our actions required in support of the fuel load/low-power license.

So you would get the close of that last iteration you indicated in your statement, Darrell, by two weeks subsequent to when we complete our work, which would put us sometime by the end of the year.

MR. MANEATIS: Am I correct in these estimation, Howard?

MR. FRIEND: I would hope that we could improve on that. Our drive is to improve on that. But that is certainly the conservative estimate, George.

MR. EISENHUT: I want to emphasize I am not pursuing it for the schedule date as much as I am for the process.

MR. MANEATIS: Let's go to Phase II. We haven't addressed Phase II, the Phase II findings and where they stand. I have indicated we have received roughly 39 EOIs on Phase II. We may have formally responded to some. But I don't know why we wouldn't be able to respond to those in the context I indicated to Harold, to indicate what our resolution plans are with regard to those EOIs by the middle of November, assuming we get the remaining number up to the 55 in the next few days, Dr. Cooper. I don't know when we can expect the rest.

MR. COOPER: I will cover that in my remarks.

MR. MANEATIS: Because these are items that we are reasonably familiar with, they may take time to resolve completely, but we will certainly indicate our assessment of them.

MS. KERRIGAN: Can I ask a question for clarification for myself? My name is Janice Kerrigan. I work in the Division of Licensing.

In mid-December, when you would have completed to work on the systems required for fuel load, what would be the status of the analysis of the other systems, the seismic analysis of other systems? Could you estimate how far along you would be in that seismic analysis?

MR. MANEATIS: I would expect the analysis would have been complete, and the only thing absent will be possibly the detailed design of all of the fixes in the cases of those not required, the modifications required to support fuel loading and low-power testing. But for those that were required to provide the integrity required to support fuel loading, those modifications would be described.

MS. KERRIGAN: But you would be far enough along to say, yes, some sort of modification is needed here, we aren't sure whether we will put it in this location or leave it over here?

MR. MANEATIS: Yes, all right. Can we get to Howard on characterizing the findings that we have had over the past year?

MR. EISENHUT: Yes.

MR. FRIEND: All right, George.

As you might imagine, it is no easy task to try to characterize the various kinds of findings that

we have encountered both since Bechtel has been on the assignment and prior to that time since last fall. But as George indicated in his earlier remarks, we made an attempt to do this in our submittal that we submitted on October 1st. And I would like to read or extract some of the work from that submittal to try to give you an idea of where we think some of the factors are that affected the design applications of Diablo Canyon that we are now studying.

One of the foremost problems that we believe were involved with the design activities was the very extended time frame over which the design activities took place. Some of the earliest decisions and criteria were established in the middle to late '60s, and some of the design activities that were a result of TMI and other industry-related activities were going on in the late '70s and into 1980 and '81.

So we have approximately a 15-year time frame over which the design activities took place. And by itself, that represents a problem: continuity of personnel, continuity of criteria and codes, changing regulatory requirements, all affecting the design activities, were all impacted and influenced by this time frame. So we feel that the long time involved in the design activity was a very major factor in the

problems we observed in the Diablo Canyon design activities.

Somewhat associated with the time, but perhaps not quite as long, was the evolving technology in the area of seismic design. Seismic design activities during the 1970s have evolved significantly. The more basic judgmental types of analyses that were made in the late '60s and early '70s have now given way to very sophisticated computer analyses where we are currently able to eliminate the need for a lot of judgment and rely in great depth on computer analyses. We think that the evolution of seismic analysis techniques over the design time period of Diablo Canyon was an important factor.

Also associated with seismic analysis but more specific to the Diablo Canyon project itself as compared to the industry changes which were characteristic of the two items I mentioned earlier was the impact of the impact of the project, the change in the project-specific seismic design criteria.

We see a situation where in the earliest days of the design activities, the plant was being designed for DE and DDE, and then as time passed, the HOSGRI was introduced, and finally in today's environment we have a situation where we are looking not specifically on

Diablo but the industry has changed to look at OBE and SSE and their associated criteria as the appropriate methods and techniques to analyze for earthquakes.

So the changing project-specific criteria seemed to us to be another important aspect of the problems that Diablo Canyon experienced during the design activities. Again, associated with that time frame, we believe that personnel changes that occurred over the years may have had an impact on the design activities.

In other areas other than seismic design, there have also, as I have indicated, been changes in various code requirements, ASME codes, AISE codes, various other types of codes that were required for the design activities. These have been changing over the years similar to some of the observations I have made in the area of seismic design in other areas of design. The amount of judgment that has been used has changed markedly over the years wherein in the early '70s an engineer might review a design analysis or calculation with some new information. Based upon his judgment, during that review he might elect to say the calculation as originally done is valid. That kind of judgment is not acceptable in today's environment. He would today have to document his evaluation; he would have to

compare a new calculation perhaps to the original, but be much more systematic and precise in reaching a judgment that a change did not impact his original analysis.

In the earlier days, much more or much less sophisticated and organizaed approaches were necessary. And finally, again, associated with time period, we believe that the iterative process that is required in the design of any facility, but specifically the design of a nuclear power station, was impacted significantly by the time frame, the long time frame that was involved in the design of Diablo Canyon.

Again, for illustrative purposes, the designer of the structure initially sets down some parameters and designs the structure. Sometime later the other designers introduce variations into the loads of the structure. We hang pipes from the structure, we begin to introduce other new loads based upon new criteria or new understandings into the structure. And it is important and necessary that we go back to the original designer and make sure that he has the benefit of these new loads.

And, of course, this is an iterative process. That is what I am talking about. In the long time frame of the pproject it seems that the need for the iterative

process was impacted perhaps in a negative manner by the long time periods between the initial design activity and the iterative activity that should feed back into it.

There are quite a few more words in the written material we submitted, but I think in a very brief characterization these are some of the things that we observed that have had an impact on the design activities of Diablo Canyon.

MR. DENTON: Howard, are the design activities necessarily iterative in all major projects? Is the main difference you are drawing the length of time in which the iterations took place? What if Bechtel were designing a major facility in a seismic area different than a reactor, would you still iteratively design it, or would you design it all up front and then go build it according to those blueprints? Is there anything unique about the two-stage licensing process that results in some of the problems you identify?

MR. FRIEND: No. I think it is more closely akin or closely associated with the long time frame. I think in any major facility it is necessary to have an iterative process of some sort. It may not be quite as detailed as required in our industry. But I think my judgment is the long time frame when the designer in 1978 undertaking a new phenomena or a new requirement

does not iterate far enough through the design process which maybe was started in 1971 to make sure that all of the proper checks were made.

In other industries we are able to consummate the design in a much shorter time frame. We talk about, in the refinery business, we talk about an oil refinery from concept through construction in three to four years, maybe five years. So the design activity is maybe two years. The design in those kinds of situations can be much closer linked. The structural analyst iterating with the pipe analyst or the foundation designer may do it one time, the drawings are issued, and that is the end of it.

So I feel it is primarily the long, long time frame which allows for changing criteria, changing requirements, changing discipline needs that seem to me to be the most important thing rather than the industry itself.

MR. EISENHUT: Howard, another aspect of this. The joint interim technical program has now been under way for six or seven months. It has been a pretty thorough program. Is there a way you can characterize? These are the factors you characterize have gone into the problems you have seen. Is there any way you can characterize -- I appreciate it is a hard question --

the overall findings? Have you found that the problems are all located and associated with one of these things, or are the problems uniformly distributed throughout? Are the problems major in some areas, minor in other areas? Or are they major or minor as a whole? Is there any way, Howard?

MR. FRIEND: You hit the nail on the hend when you said it's a hard question. Let me do my best to answer from the top of my head based upon our work to date. It seems to me reasonably clear that there were generic problems in the area of seismic design activities. If there is any thread throughout the project, it seems to be in the area of seismic design activities. So I think that is clear.

I think that we have had, the project has had, some problems in their quality assurance program. But beyond that, I personally have looked, and we continue to look, to find generic issues so we can address them, because we do want to make sure we address generic issues and resolve them before we come to you requesting our license be restored.

But I haven't been able to determine any other common kind of issues that seem to be generic to the design activities.

MR. VOLLMER: Would you characterize this then

as being a problem over the procedural aspects of the design, i.e., the control of the process rather than specific technical deficiencies in the work that was done at a certain period during the process? I would like for you to draw a conclusion from what you have said.

MR. FRIEND: I would not necessarily characterize it as you phrase the question. I think there were procedural deficiencies, yes, but I don't think those were necessarily generic or the base cause. I think there were misunderstandings in the use of criteria. There were misunderstandings between groups in the development and use of criteria both within the project organization and with some of their subcontractors.

But I can't establish -- other than to say seismic design seemed to be a generic problem -- I can't establish which part of it, to my satisfaction, was predominant.

MR. ENGELTEN: I am Robert Engelten, Region V. Howard, a few minutes ago you said in discussing the generic problems you have observed, you said there were two A problems. My question is, were there QA problems across the board or were you limiting your discussion to design QA problems? Or have you also, for instance,

observed QA problems in construction?

MR. FRIEND: All of my remarks this afternoon up to this time and including as I am speaking now have been about the design activities, Bob. As you know, we believe that the construction activities were not under question, but in order to assure ourselves of that we have commissioned the IDVP to manage an audit of the QA activities in construction to reaffirm that point. But my remarks this afternoon have been toward the design activities.

MR. ENGELTEN: Thank you.

MS. KERRIGAN: May I ask a question? You said that there were generic seismic design problems. But could you characterize for me, for example, the facility as it looked in pre-'81 as to how it looks now? Did those problems result in significant changes to what was out there built?

MR. FRIEND: Yes.

MS. KERRIGAN: I would like to get a feel for it.

MR. FRIEND: That is a good question, Janice, and I would like to address that. You have heard us say several times that nothing we found to date would cause us to be concerned about the ability of the structure, system, or component to perform its basic safety

function, and we continue to believe that. We still haven't discovered anything that we would characterize as a major flaw in the design and construction of the facility. However, we do find that we don't -- we have been finding that in some cases we don't -- meet the committed criteria either SAR commitments or industry requirements.

So if you took a bird's-eye view of the facility, say, a year ago, in October of last year, and then took another bird's-eye view this year, I doubt if you would see any differences. Even if you took that view into the station -- say you could get in -- your bird's-eye view within the station, you would see no major changes.

We have transmitted to Hans Schierling some photographs of the kinds of changes we are making, and they truly are not very significant. They primarily revolve around, oh, in the area of structures. We think that we may have to put cover plates a few places on some beams or columns. We think we may have to put some larger bolts in certain connections. In the area of piping we may have to improve or strengthen a pipe support here or there or maybe perhaps even add a new support somewhere. Some of our electrical raceway supports may need some upgrading.

But in all of these cases, we are talking about whether or not a pipe hanger is meeting code-allowable stresses. And we are saying, no, it doesn't meet code-allowable stresses, and we are committed in our SAR or whatever that we must meet code-allowable stresses, so we are adding material to get the stresses down to the committed point.

MR. EISENHUT: One follow-up on that. I just wanted to make sure I understand. It is your objective and your intent with these modifications to restore the plant such that you meet the criteria originally in the design envelope in the SAR?

MR. FRIEND: Yes, that is our intent.

MR. EISENHUT: So you are not taking exceptions to that where you have gone back in any cases you have defined yet to change a design envelope?

MR. FRIEND: That is correct.

MR. MANEATIS: Would it be correct, Howard, to say if we did take an exception, we would inform them?

MR. FRIEND: Yes. I did want to make that clarification. If we should reach a point where we felt a current criteria was more appropriate or maybe the configuration of something yielded itself more simply to a current reg guide or something that was not present when the initial SAR commitments were made, we might

come to you and try to persuade you that that would be an appropriate measure.

But without that kind of notice to yourselves, we would intend to meet the criteria of the SAR.

MR. EISENHUT: All right. Good.

If I could, while we are on this subject, if I could turn to Bill Cooper, who is here to speak for the independent design verification program, and ask you, Bill, whether you could characterize things as you see them from a different posture where you start with a sampling and cross-cut?

MR. COOPER: Yes. Except you caught me in the middle of item 5, writing down what item 5 was. And I have already forgotten what 6 was going to be. But recognizing this, I think it would be in order to say this before I even review the status of our work.

First, we have to recognize that there is a Phase I, there is a Phase II, and there are some significant differences between them. Phase I is HOSGRI seismic. It concentrates on work done in '77-'78 time frame. It's very broad in its applicability to the plant, but it is very narrow in the sense of the kind of engineering work that was being done. Phase I is nearly complete, something we think we have a pretty good understanding of.

Let me go on down to this item 5 I was writing, which said, I think, Phase I has done the job of identifying that there were problems developed in the course of the HOSGRI work which do require corrective action. And I think that the Diablo Canyon project has taken this identification and is moving across this broad number of structure, systems, and components impacted by HOSGRI to make sure that the plant will satisfy the requirements with respect to HOSGRI.

Phase II is very different. Phase II is a vertical look at some sample systems plus some QA looks at some other organizations that weren't in that sample systems and understanding the organizations that were involved in the program that weren't represented in those three sample systems.

The QA look at those organizations not in those sample systems and understanding what the design chains were in those areas is essentially complete. And that has contributed a recognition that amongst these various organizations there are two kinds of work that needs further review in a very local sense.

The evaluation of the three systems and the two kinds of analyses that are being undertaken by Stone and Webster are nearing completion, and I am using "nearing completion" to mean something very different

from the words "nearly complete" which I used in describing Phase I.

There is a major difference primarily because in its present state of work the engineering evaluation is almost done. But the development of a decent understanding of really what that means and its implications has not yet diffused through the program in a manner we really feel we have a good understanding of the situation.

A preliminary look, though, says that here the difficulties concerns, is the right word for it, that we have identified our bearing of many scattered individual events as best we can see thus far. There is no seemingly, at least at this point, no common ground in Phase II.

We can say look at five things on which we have issued error reports, for example, and we can say that those five separate error reports are all the results of one real problem; and if it turns out in the final analysis that that particular method of analysis is a concern, if the corective action is taken with respect to the one error report, it will automatically take care of all five. So there is local grouping like that, but there is not the general kind of grouping that existed in Phase I.

A qualification I wrote down at this stage because a question was asked, Howard, all of my remarks are design oriented. What about quality assurances? Quality assurance is a common denominator or basic cause of the situation.

Recognizing that these remarks are preliminary, that we have a way to go, it is my present impression that if today's quality assurance in the design area had been applied in 1970, both we in the independent program in 1982 and the HOSGRI reevaluation people involved at Diablo Canyon in 1977 and '78 would have had a heck of a lot of an easier job because the problem is continuity, as Howard mentioned, the long period of time, the changing rules, the difficulty in communicating what your thinking was or someone else's thinking was a decade before.

So if today's QA in the design area had existed in 1970, it would have made the job easier. But I do not consider the absence of that kind of QA in 1970 to be the basic cause of the difficulties we are finding even in Phase I. I say that simply because good design was done in the early '70s in the absence of the formal kinds of QA.

I don't think we can look toward QA as being the cause of the situation that we have. If we had had

good QA, we would have been better off. But not having it is not what led to the need to reevaluate so much of the structure with respect to HOSGRI.

Another problem in this general area is reporting to date clearly emphasizes what was wrong and is practically silent on what was right. The only way this will be finally evaluated and finally obvious to anyone is to look to see what the modifications really amount to. In sort of the terms Howard was using, if you took a picture before and after, would anyone other than a person who likes to solve the puzzle of "find the three changes" find those changes.

I don't say that today we know exactly where that all will come out, but it is my impression there is much more right than there is wrong. And in the way we set up our reporting systems, we fail to report on that.

I was hoping to be able to jot down a sentence or two about Phase II beyond what I have said, and I was just plain unable to do so. I was trying to draw some conclusions. But to go back on Phase I primarily, I tend to agree with Howard that the long time frame, the fact that this was one last hurdle to be jumped, the difficulty in 1978 of going back and talking to the people and understanding what was thought of and being done in 1970, these certainly all contribute to the

issue.

I think the important thing is I believe the independent program has achieved its objective of saying, yes, there are uncertainties with respect to the HOSGRI design, they need to be corrected, and these are in the course of being corrected, and then we will look at them from the verification people.

MR. DENTON: Let me ask you, Bill, do you agree with George that the course we are on will reduce the possibility of a surprise coming up unexpectedly late in this process to a very low value?

MR. COOPER: Yes, I do. This is, of course, if it is appropriate, I could say a few things I was going to say about the status of the program that reflect on this. Just so I don't miss things, let me suggest I am going to make this quite brief. It will touch on Phase I, then Phase II, then briefly on the construction QA aspect, and then look at the schedule in a very broad way.

In each of Phase I and Phase II I will say a few words about the initial sample and what we started out as saying we were going to look at, then the additional work we did because of concerns that were raised by the initial sample. Then the verification of the corrective action being undertaken by the Diablo

Canyon project, which in many cases is a result of their taking on the burden of the detailed work on some of this additional verification we had identified.

The initial work on Phase I is essentially complete. I would expect very few new concerns to arise even from this point on, and I think that is obvious, if nothing else from the number-counting game on the few of them issued recently.

MR. EISENHUT: How many EOIs did you have, Bill?

MR. COOPER: I am not sure. 1105 was the biggest number on Phase I from Cloud, and they started 910, 920, 930, and then the numbers are continuous.

MR. EISENHUT: Roughly, then?

MR. COOPER: 200.

MR. EISENHUT: How man of those were classed as AB errors, do you know that roughly?

MR. COOPER: A dozen, roughly a dozen.

MR. EISENHUT: So out of all those couple hundred, it zipped down to a dozen?

MR. COOPER: That's right. That kind of number. Now, again, we have got to be careful when we count the numbers. Let me come back to that when I talk about Phase II versus Phase I.

With respect to additional verification, we

will get out a revision to ITR.1 this week, we believe, if Ned accepts some of the comments we are going to be giving him.

What we managed to do here is to pretty well give you the overall status of the work to identify what our concerns were and to identify whether those concerns would be addressed by additional verification within the IDVP or through the corrective action program. And as I say, I expect we will get this issued this week.

About six of these remaining UI files will still be addressed by the independent program. There are a couple of the additional verification jobs on piping which still remain to be done. There is a little work which needs to be done on electrical equipment, but we would expect from all of this that there would be very few, if any, new concerns raised.

MR. EISENHUT: Before we leave Phase I, you are saying it is essentially complete?

MR. COOPER: I was not leaving it. I was just halfway through it.

MR. EISENHUT: I am sorry. Go ahead.

MR. COOPER: All right. I said the initial sample is essentially complete. The amount of additional verification we will be doing in-house that is an outgrowth of the initial sample is essentially

complete. There is the containment annulus region where we have issued two files. We have issued a letter giving a preliminary opinion about the present Diablo Canyon project analysis and giving some preliminary thoughts about the Brookhaven analysis. We do not find any generic concerns of the various types we have looked at related to the containment annulus area. We have identified some concerns with respect to the Diablo Canyon project, which Mr. Maneatis has already alluded to.

The other piece of additional verification not represented by the initial sample is the soils work. It is nearing completion. We wouldn't expect many, if any, new concerns to arise as that work is completed. In the area of the corrective action relative to Phase I, we issued a while back an interim technical report Number 8 on how we were going to do this verification of the corrective action. That is being followed. It is working very well on the piping area. The particular mechanism we spelled out with respect to structures is not working very well, not from a technical viewpoint but from a mechanistic viewpoint, and we are looking to see if there are ways we can improve the interaction between the two programs and the structures there.

That is all I was going to say about Phase I,

Darrell.

MR. EISENHUT: All right. Only one question. You had something on the order of 25 or 30 interim technical reports to be issued.

MR. COOPER: That is correct.

MR. EISENHUT: Something on the order of eight of them have been issued.

MR. COOPER: That's correct.

MR. EISENHUT: You are projecting a Phase I, if I looked at it correctly, something in the time frame of November to be wrapping up the work. Does that mean that all of these reports you are projecting are nearing completion where we will see multiple numbers each week?

MR. COOPER: There will be interim technical reports issued with respect to the initial work, the additional verification, and the corrective action. We may on a given item, say, a gizmo in the plant, we may issue three separate interim technical reports: initial, additional, and verification. Or we may issue subsequent revisions of just a single number. It depends upon which is the easiest for us and for the reviewers.

Let me give you dates as they appear on my schedule, which was developed as of yesterday. These are the dates for the last of the interim technical

reports in each of these three areas in Phase I. And before I give the dates, let me just say in general the technical work would have been completed about two weeks ahead of these dates but for the initial program as originally defined. The latest one, mid-November; 11/17 is the date I have here.

Related to additional verification still to be undertaken, 12/15. And for completion of the corrective action including the verification that the corrective action has been taken, except for those cases where there is agreement that it will be postponed until sometime during next year, we said January 11.

MR. EISENHUT: So if I understand that, between now and November 17 there are something on the order of 20 interim technical reports coming out?

MR. COOPER: Something on the order of 10 or 12, and then another bunch following with additional or corrective.

MR. EISENHUT: All right. Good. Fine.

MR. VOLLMER: The revision to ITR.1, which was addition to sampling, does that complete that category and give justification for the adequacy of the sampling?

MR. COOPER: No, sir. All it does is identify what our concerns are and how those concerns are going to be addresesed either through the additional work on

our part or through the corrective action program.

MS. KERRIGAN: And when did you say the overview report, like Phase I report, would be done?

MR. COOPER: I would presently predict January 25.

MR. EISENHUT: That is the after-modification report?

MR. COOPER: That is doing everything that is not agreed to -- that is, as I see it now, everything except for verification that modifications have been made in those instances where it is agreed that modifications do not need to be done, say, this year. Phase II, as I mentioned earlier, there is a QA step which is essentially complete. The engineering work being conducted by Stone and Webster for the initial sample is also essentially complete.

There is an ITR Number 9, which is the design chain prior to June '78, which was issued yesterday. Stone and Webster will have a design chain report. It is nearing completion. The first draft of the first Stone and Webster interim technical report was received by us Friday, and both we and Stone and Webster expect that these drafts will start flowing very, very quickly over the next couple of weeks. My note here says, "A barrage is coming."

Thus far, there have been 39 EOI files opened by Stone and Webster, two opened by Reedy. We would anticipate a total Phase II EOI someplace in the mid to high 50s. Now, that is a much smaller number than the 200, Darrell, you got in answer a little bit ago. But also, I think you will find that a much higher percentage of these are significant than the large number on Phase I where, for various reasons, they were being issued almost on a speculative basis because there was so much pressure on making sure nothing was hidden in the program.

So I would expect a bigger percentage of these would be as significant as those dozen or so we said were significant for Phase I. My present guess is that something like the same number, perhaps even a little larger, perhaps even 15, of these would be of significance.

So what we are saying is in the very broad look on Phase II we are coming up with about the same number of significant items as on Phase I, but it is a very different beast.

There is a vertical study in detail of the systems with respect to additional verification and additional sampling. The Reedy work indicates a need to perform an additional sample in the sense of some

computations done by one of the vendors, one of the contractors, who did not implement a QA program.

We also, between what Reedy has done and what Stone and Webster have done, we have identified preliminarily about six different ways in which some additional verification work needs to be done. We expect to move towards a better definition of those as we convert the various open-item reports to error reports and as we, working within the new communications systems outlined in Mr. Denton's recent letter, we communicate as to what these concerns are and what the responses may be.

For example, the first of those type of meetings is this Thursday having to do with the first series of error reports that have been submitted to the Diablo Canyon project.

With respect to corrective action in phase two, we don't have any corrective action program yet established. We would anticipate that in many of these areas -- well, yes, in fact we do have a letter from PG&E in the one area saying that they plan to move in and review this and will give us the benefit of their findings.

But we do plan in other areas that the Diablo Canyon project will move in on the corrective action, as they have in phase one, and we will start to distinguish between our plans for additional verification and our plans for the verification of the plans undertaken by the new project. We are not there yet.

With respect to phase two schedule, on this initial sample we would expect a huge majority of the interim technical reports to be issued in mid-November. We would expect that some of them would be early December. We presently and very preliminarily believe that the additional verification that may be required in response to these could be completed this year.

We haven't identified a date for corrective action, verification of corrective action, because we don't know of any yet. Again, my best date for a final report on phase two would be January 25th.

The other thing I was going to cover briefly

is the quality assurance program. PG&E volunteered on this, September 1st, which we call an adjunct program to our phase two because it is covered by all of the same management procedures and so forth. It is just that it is volunteered, not specifically called out by the letter, by the NRC's letter.

The plan has been issued. It is in operation. Procedures and checklists are essentially completely developed. The field forces are in place. The findings review committee is being formed.

Our present best guess on an interim report on this work would be the week of November 22nd, which is about a little over a week -- it's about a week later than we thought maybe originally. But we so far at least see no reason to extend the final report date on that adjunct program, which is December 15.

Excuse me. Ned gave me a note. I don't want to mislead anyone, and I am afraid that if he sends me a note like this I had better say what it says, because I may have inadvertently said something to mislead. I will read his note:

"You may want to stess that these EOI estimates are indeed estimates. This does not in any way restrict the number of EOI's."

I'm sorry, someone had a question.

MR. HAASS: Bill, what correlation did you find between EOI's and the lack of a QA program or a poor QA program?

MR. COOPER: Almost none, and that is a very broad and loose statement. Of course, one reason for that may have been that the initial sample program, the whole concept of the verification and program in general, did not assume that there was going to be effective QA to start with. So we weren't going down the route of using the QA route to identify where to look for technical things.

We were doing that, but in support of the other activities that were already running. And so, even though I gave you an answer, I am not sure that this program is the right way to get the answer to your question. And I'm not saying there isn't necessarily any relationship.

MR. MIRAGLIA: But you found the converse to be true, did you not, Bill? Where you had looked, you discovered discrepancies and didn't see a need to go beyond the initial sample as a result of the QA?

MR. COOPER: Where we found problems with the QA area, we had found discrepancies in the design work. But we also found some discrepancies in the design process, but we haven't found any in the QA effort. And

so it is difficult.

One of the biggest reasons for wanting to look at the implementation of the QA program in the project's corrective action work going on today is so we can gain confidence that we are reviewing a planned program in that sense and can approach it more like we would a review of today's work, as opposed to a review of the seventies work.

MR. DENTON: Let me ask both parties here, just to be clear. We of course have already made our recommendation to the Commission on phase two, since in order to give the Commission adequate time to review it we have sent that down some time ago.

What I wanted to be sure of today is nothing has turned up in the last few weeks or is about to turn up in written correspondence that will be considered a bombshell that would affect our judgment. From what you have said, I don't hear things are much different than have been discussed in a lot of prior meetings, and I want to be clear that there isn't something about the service that we should be aware of so we can inform the Commission of it tomorrow.

We have had so many meetings, I think we are well in touch.

MR. ENGELKEN: That is what I was after, the

same question.

MR. DENTON: I just want to be sure there is not something imminent about this program.

MR. EISENHUT: We spent a couple of days in the first of September going through in great detail the status. I wanted to be sure there were no changes since that time.

MR. COOPER: I think there's one. I think we are finding more items of concern in the phase two review than the utility's remarks on September 1st would have anticipated.

MR. MANEATIS: Can I just make a comment there? We did say in our remarks that we had no basis, because we had no findings in phase two, to anticipate any kind of findings. But I think it is critical to note that we do have the 39 EOI's, which is different again than the situation that existed on September 1. I don't know that we would characterize them as bombshells, but they are nonetheless areas of concern that we have to investigate, and I think that would have to be communicated as a difference.

MR. MIRAGLIA: Are these 39 EOI's still EOI's, or have any of them become an error classification?

MR. COOPER: At the present time five are classified as errors A or B, and these happen to be the

first five issues, and they are the ones where I mentioned if the decision is made by the project to solve the first one by doing a reanalysis the other four will automatically be taken care of.

MR. DENTON: Could you expand, just for my benefit, what those five encompass?

MR. COOPER: I could, but I think we would all benefit from having Frank Sestak or one of his folks respond.

MR. SESTAK: I would like to have John Oddo, who did the analysis description, respond.

MR. ODDO: The five have to do with the pressure, temperature, and in one case the submergence environments that were generated for equipment qualification of safety-related equipment.

MR. DENTON: And that is one that involved the CONTEMPT code?

MR. ODDO: EOI 8,001 was issued involving the CONTEMPT code. The next four in sequence, if my memory serves me correctly, are inputs to the CONTEMPT code. So as Dr. Cooper has explained, if the recommendation of the first EOI, or as it is now error report, is followed, we would expect, although there may be disagreement with us in the IDVP end with PG&E on each of these things, we would expect the error would be

accommodated by the reanalysis.

MR. EISENHUT: And that was the subject of the Stone & Webster first report that came out?

MR. COOPER: Not the first interim technical report, no. The first interim technical report that we got a draft of Friday was radiation calculations.

MR. EISENHUT: I thought we hadn't got that report in.

MR. COOPER: I know what you are talking about.

MR. EISENHUT: The first month, those were the first EOI's reported.

MR. COOPER: Yes.

To go on with the answer, there are presently seven recommendations from Stone & Webster for potential errors A or B. We still have these under review. Our present estimate is that most of those we will accept as error reports and issue them accordingly.

MR. DENTON: Let me ask, then, PG&E or Bechtel: Are you able to respond to what these first five may mean? Have you had a chance to look at it in sufficient depth to have a view about it?

MR. FRIEND: Yes. I could speak to that. If I may, I would like to ask Bill a question at the outset.

Bill, is the classification of these into errors following the same rules of your program?

MR. COOPER: Yes.

MR. FRIEND: The reason for that is, we have reviewed these five -- five is it, five or six -- and we believe that some of the items at this point in our investigation are trivial and would not have resulted in a significant problem for the station. That is why I wonder about the classification.

MR. COOPER: There is no implication -- the error A or B means, an error A is one where we believe you probably need a modification; B is where we believe you just need to clean up some calculations to get out of it. So they are both in this group.

MR. FRIEND: Our analysis to date has shown that, although the CONTEMPT code may have been an appropriate code to use, the application was perhaps incorrect. So we are going to address that. We have a meeting set up with Stone & Webster for Thursday of this week to discuss with them our method and approach for addressing that problem.

In essence, what we intend to do is to reanalyze the effects of a steam line break in the affected areas, as indicated by the Stone & Webster initial finding. This will probably result in an

ambient temperature in certain areas about 100 degrees higher than the original calculations, or in the neighborhood of 300 degrees Fahrenheit.

There are in the area that is described as GW, and that is an area within the plant -- we believe there are a couple of pieces of safety-related equipment, valves specifically, that we'll have to check the qualifications to see if they are qualified to that new temperature, and if not we will have to either take steps to remove the valves from that location, protect the valves, or some other corrective action.

We have not yet gotten through all of these steps, but we have gotten far enough to believe that we need to meet with Stone & Webster and discuss with them the method of analysis we will use for our corrective action.

MR. DENTON: One of Mr. Reedy's findings, as I recall, where he was concerned about lack of QA control was in equipment provided by GE and Wyle, I take it. Was there any connection between that Reedy finding and the Stone & Webster finding, or are they different pieces of equipment?

MR. COOPER: There were two Reedy findings. One had to do with a company that we call GEZ, which is Garretson-Elmendorf-Zinov, and it used to have another

name back when the plant was being designed. These people, among other things, did pressure drop calculations in the HVAC systems, and that is the additional sample we have recommended be picked up.

The other open item that has come out of Reedy's work is a question of, he couldn't find any evidence of some containment jet effects having been evaluated that the FSAR said had been evaluated, inside containment, jet impingement effects inside containment.

MR. DENTON: So you don't see this related to the concern that Reedy raised about the GE program on the equipment that had been procured from GE and tested by Wyle?

MR. FRIEND: I don't remember that particular concern.

MR. COOPER: No.

MR. MIRAGLIA: That was a result of PG&E's look-back reports. In PG&E's look-back reports, where they have gone back and looked at certain QA, there were findings in PG&E's program that certain equipment, switch gears and things of that nature provided by GE, didn't have the right test parameters. But when Wyle tested it, as it turns out, it was adequately qualified, and that was out of PG&E's program, as opposed to

Reedy's.

MR. COOPER: Yes, we verified the Wyle work on them.

MR. MIRAGLIA: That's correct.

MR. DENTON: Could you maybe give a very brief characterization of these other items, then, now that we understand these five?

MR. MIRAGLIA: Seven potential.

MR. FRIEND: Perhaps I can speak to that. These are very preliminary evaluations, I want to add. Some of these EOI's we didn't receive until last Saturday. We haven't had a chance to do an in-depth job, but anticipating your interest we have tried to break them, the 39 that we have received to date, into some kind of categories that might help your thinking.

About a third of them we think will be easily resolveable. Either we need to submit to Stone & Webster some additional information or they may have misunderstood a drawing or something. But we think that they are readily resolveable without any major activity involved.

The other third we think are items of a similar nature to the ones that Dr. Cooper was describing. That is, where several -- how can I say it, several common phenomena in a calculation or an analysis

are cited, such that, rather than one EOI, it results in five or six EOI's, but a single solution, like in the one we just talked about, will resolve all of them satisfactorily. About one-third of them are of that nature, locally grouped problems.

And finally, the final third are those which we believe will take some in-depth evaluation on our part, perhaps new calculations, as in the case we just spoke of, to effect a resolution. So that is generally the very preliminary way we see these that we have received to date.

MR. BISHOP: Bill, this is Tom Bishop of Region V.

Do you have any results or findings from the construction QA to date?

MR. COOPER: We have no findings from the construction QA to date. The potential findings committee isn't yet in operation, for example.

MR. BISHOP: All right.

MR. EISENHUT: Bill, let me go back to your phase one and phase two discussion you had before, where you were projecting a "final report" on January 25th. And I guess if you are sending in interim technical reports all along, I guess I am wondering how much will be in a final report that we won't have seen before.

And I am a little selfish about it, because we will have to figure out what to do with all of these reports when we get them.

And when will we -- can you characterize, will we have seen basically all of the information a month before that, or is there any way to handle that?

MR. COOPER: Let me suggest that section 2.3 of our fourth week semi-monthly report tries to cover this for phase one, and similarly numbered one for phase two. What we plan to do here is basically reference everything we can to the existing ITR's as far as details are concerned and to have certain appendices explaining them.

And through the first three sections of this I think it will be things that you have seen before and you have reviewed, and it is just a reminder for the reader. I think the fourth section of the report will contain material you haven't reviewed previously. The present title at least to that fourth section is "Significant Findings".

There are five subsections. One of them will address specific errors: What were the specific errors identified and classified as errors? Error A or B in the procedure; what specifically were these?

The second one will address physical

modifications: What physical modifications were undertaken, and how were they undertaken.

Now, you will have known all of the basic information that goes into those first two prior to publishing the report. But we hope we can categorize them and package them in a more intelligent way than the shotgun approach we have had to date.

The third subsection is generic concerns. We are trying to identify what potential generic concerns arose that we identified, why we identified them, perhaps some text on why we didn't think some other things were generic concerns that others may have postulated to have been generic concerns; a discussion on, an attempt at a discussion on root causes, where there are such; and finally, a discussion on corrective action and how it was undertaken.

So that section four would be based upon old information, but it is an attempt at a new, different, and more meaningful packaging of the old information.

MR. EISENHUT: So to make that a shorter answer, the vast majority of that information we will have seen, or the majority of that we will have seen, let's say, a month before January 26th.

MR. COOPER: You should get no surprises.

MR. EISENHUT: The great vast majority?

MR. FRIEND: I thought that might have been a better word.

(Laughter.)

MR. EISENHUT: So in other words, on December 25th you will want us to go to work.

MR. MANEATIS: That will be your Christmas present.

MR. MIRAGLIA: Bill, could you give us a feel for those seven potential A and B's? What areas would they involve?

MR. EISENHUT: Those are the ones Howard just went through.

MR. MIRAGLIA: Howard characterized all 39 EOI's, and there are 7 potential A and B's, in addition to the five they have talked about which dealt with the CONTEMPT code. And I was wondering if we could get a feel for what those seven involved.

MR. SESTAK: The CONTEMPT code?

MR. MIRAGLIA: No, the seven outside them. So that is a total of 12. 12 out of the 39 will be in the A and B area.

MR. FRIEND: I'm not sure whether it's 12 out of 39 or 12 out of 55, but it is in there.

(Pause.)

MR. COOPER: There is an error A-B which is

our number 8014. It has to do with adequate protection for certain valves to prevent a moderate energy line break spray from impacting on those valves. That is one of the five error reports that have been issued to date.

Now we can get into the potentials, and 17 is the first, CRVP system control power for safety-related equipment. It is a question of mechanical or electrical failure of a single transverse switch causing loss of power, separation. Yes, tell me if I do something wrong here.

8022, engineered safeguards, 4.16 KV metal-clad switchgear. It is a question of short-circuiting capability.

23 is another in that electrical system. It is in a 480-volt system, concerned with overheating motors due to low voltages, low amperages, following a LOCA.

The next one is 8024. It is a potential --

MR. SESTAK: Potentially the same thing, low voltage on another bus.

MR. COOPER: 25 is this one, another electrical system.

MR. SESTAK: That is another low voltage concern.

MR. COOPER: 26 is another electrical system item, plus low voltage. Yes, the same thing. And 32.

MR. MIRAGLIA: So the seven are in the electrical area and they deal basically with separation, short-circuit capability, and low voltage protection.

MR. SESTAK: Concern with low voltage on the bus.

MR. FRIEND: What is 32, Bill?

MR. COOPER: Aux feedwater level control valves, a question of the independence of control wiring.

MR. MIRAGLIA: Thank you.

MR. NOVAK: Tom Novak on the Staff.

Bill, I wanted to ask one question that goes back too probably part of the phase one and your reference to systems, components and structures that you look at, and also recognizing that one of the reasons certain problems came up was the long design period, the fact that it took ten years.

I was interested in seeing if there was a way you could categorize the area that the problem is, that is, was it an inadequate structural problem, was it a component that didn't measure up? I could eliminate system. I am trying to just get a feeling for the assurance that the components today, for example,

measure up to what you want.

It would suggest that what I think you found is potential structural structural deficiencies to code allowable or something of that nature.

MR. COOPER: I would say the biggest one was the difficulty in controlling the development and promulgation of the seismic criteria to the individual suppliers of the components; and the fact that the corrective action program starts with a review of all of the building structures, goes into a determination of how the Hosgri spectra should be defined and controlled, and it is now controlled for each of the components and then is reviewed for its applicability to that component, says in essence that the starting point of the technical difficulty was associated with the building.

Since there is a question there, nothing else can be assumed to be okay. We don't know that that doesn't mean that everything else will be wrong or anything else. It doesn't mean anything about them except that they must be looked at.

But I think it is critical to the confidence of the whole system that it is the buildings where the work is being conducted and the corrective action program, and then it will flow from there through the

whole Hosgri system by necessity.

MR. NOVAK: Okay.

MR. EISENHUT: I have one other question, and then I will ask the Staff. You can be thinking if there are any other questions you have.

The phase one program as you characterized it was really an IDVP for all seismic, interpreted to be Hosgri seismic-related contracts prior to 6/78. And there's another item which is the identical item for the non-Hosgri. Can you characterize what it is that you are proposing to do for the IDVP for all seismic, non-Hosgri work prior to June '78?

MR. COOPER: Yes. First, we really consider it to be part of phase two, because of the load combinations involved. And it happens that a number of the systems from which we chose samples for phase one are also present in the phase two sample, the aux feedwater system, for example.

And it also happens that all of these -- let me word that differently. It happens that in the corrective action program that PG&E has outlined they have considered the Hosgri, and in addition DE and DBE. So although their corrective action program is primarily addressed to phase one, it picks up a number of things we call phase two.

So basically, those people are reviewing these non-Hosgri aspects of samples contained in the three Stone & Webster systems, and going about those in a design review process, and in addition, as the corrective action program give us their results we will be verifying that corrective action program work. So we pick it up sort of halfway between phases one and two as it's turning out.

MR. EISENHUT: Do I interpret that to mean that all of the effort in that non-Hosgri evaluations pre-6/78 is related to those three systems?

MR. COOPER: Ask it again, please?

MR. EISENHUT: The scope of that item -- maybe this is just an unintelligible question that doesn't make sense. That's possible, too.

MR. DENNISON: Bill, why don't I answer.

MR. EISENHUT: Do you understand it?

MR. DENNISON: Ned Dennison from Cloud & Associates.

The non-Hosgri seismic activities are being picked up in two ways. First of all, there is an initial sample in our phase two program. There's also a verification of corrective action. Those are the two ways those will be picked up.

MR. EISENHUT: And the initial sample being

picked up on phase two consists of?

MR. DENNISON: The Stone & Webster sample.

MR. EISENHUT: It's all within those three?

MR. DENNISON: Yes. There is an exception, I believe. That's the high energy line break.

MR. EISENHUT: An exception not picked up?

MR. DENNISON: An exception not within the Stone & Webster sample.

MS. KERRIGAN: And you said in addition you will be auditing other systems before auditing PG&E's corrective action program.

MR. DENNISON: That's correct.

MR. EISENHUT: Then let's see. On the PG&E facilities, under the ITP it encompasses both Hosgri and non-Hosgri, or more correctly, the Hosgri, the DE and the DBE, whichever is most limiting and whichever falls out.

MR. FRIEND: That's correct.

MR. EISENHUT: One other question. What fraction of all of the things ends up being Hosgri and ends up not being Hosgri?

MR. MANEATIS: You mean from day one?

MR. EISENHUT: No. There's only one design of the plant. As designed, Hosgri is limiting on most of the plant or --

MR. FRIEND: Yes. Another easy question.

MR. EISENHUT: I said I would ask only the easy ones.

(Laughter.)

MR. FRIEND: I would say most of the plant. And please bear with me. I'm talking from the top of my head, with no reference. I think most of the plant is governed by Hosgri.

MR. EISENHUT: All right.

MR. COOPER: Can I say, the problem in your question, Darrell, is for a secure structure the question is answerable, because the allowable stresses with Hosgri are similar to some with the other seismic. But when you get into the fluid-containing components, where you get the various load combinations and the various allowables, you cannot judge it a priori. You have got to go through most of the work, and that is the difficulty.

From a seismic viewpoint, I would agree with what Howard said. But when we design and evaluate these plants, we can't consider seismic all by itself.

MR. EISENHUT: I know. I understand that. You have to look at all of the different combinations of loads.

But if you couldn't, how could you decide?

What you said on the first item under phase one, you said: "The IDVP encompasses all seismic service-related contracts (interpreted to be Hosgri) prior to 6/78." So from just a seismic standpoint, you have to know where Hosgri is limiting or else you have to do a calculation on everything to see whether Hosgri might not have been limiting before and now becomes limiting.

MR. DENNISON: There are a couple of things here, Bill. First of all, if you go back to this time last year when we were developing the program, the questions at that time were related to the Hosgri re-evaluation of the plant.

MR. EISENHUT: That's right.

MR. DENNISON: That's the reason the plan was set up dealing with the Hosgri only.

MR. EISENHUT: I'm not questioning the reasoning. I'm just trying to understand it.

MR. DENNISON: For our work, we have been doing an evaluation using the load combinations in the Hosgri report. For the re-evaluation of the plant in the '77-'78 time frame, PG&E also had to do an evaluation of the equipment using the load calculations in the report, because they didn't know which of the seismic cases was limiting. So we are getting a one to one comparison.

MR. COOPER: And as to what systems or components or structures are to be looked at, those are identified in the Hosgri report as to what was done. And in phase one we were addressing those that are listed therein.

MR. EISENHUT: All right. Are there any questions, any other questions from the Staff?

(No response.)

MR. EISENHUT: If not, I want to -- I notice Herb came back. I would like to -- Herb Brown is here, representing the Governor of California. And Herb, I would like to give you a chance if there are any comments you would like to make.

MR. BROWN: I don't have any now, Darrell.

MR. EISENHUT: And you are aware you'll be given another opportunity later down the line.

MR. BROWN: Early November, I understand.

MR. EISENHUT: Any other comments, questions?

(No response.)

MR. EISENHUT: If not, I want to state, I appreciate the opportunity you have given us to go through some of these items, to get the latest understanding, to be sure there haven't been some significant recent developments that we weren't aware of. And I want to tell everyone again, thanks a lot.

(Whereupon, at 3:10 p.m., the meeting was adjourned.)

NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

_____

in the matter of: Diablo Canyon Unit No. 1 Design Verification Program

Date of Proceeding: October 19, 1982

Docket Number: _____

Place of Proceeding: Bethesda, Maryland

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

Sharon Filipour

Official Reporter (Typed)

Sharon Filipour

Official Reporter (Signature)

Diablo Canyon Meeting Oct. 19, 1982

Attendees

NAME	AFFIL.
B. Buckley	NRR/DL
J. Kerrigan	NRR/DL
F. Miraglia	NRR/DL
R Engelken	Reg V
R. H. Vollmer	NRR/DE
J. P. Knight	NRR/DE
R. P. Davin	PG+E
R. J. Palm	PG+E
John Austin	OCM
J. L. Milhoan	OPE ~~Reg M~~
E. Abbott	OCM
W. Haass	NRR/GAB
T. M. Novak	NRR/DL
Howard Friend	D. C. Project
Bruce Norton	PG&E
George Maneatis	PG&E
W E Cooper	TES
J. H. Bergler	PC+E
C E. Ader	Stone & Webster
John E. Krechting	Stone & Webster
Frank C Sestak, Jr.	Stone & Webster
John M. Oddo	Stone + Webster
Ron Wray	TES
Mark A. Revett	TES
Richard F. Locke	PG and E
J.B. Hosh	D.C. Project
B.S. Wu	" " "

NAME	AFFIL.
Paul J. HERBERT	RFR Inc.
L. J. CHANDLER	NRC/OELD
H. BROWN	CALIFORNIA
G. MINOR	CALIF
P. T. KUO	NRC
J. M. Taylor	NRC/IE
R. J. MORRILL	NRC/R5
T. W. BISHOP	NRC-RV
J. L. CREWS	NRC-RV
D. J. GARNER	NRC-OCM
D. Eisenhut	NRC/DL
H. DENTON	NRC