UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE

ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of	)	Docket Nos. 50-275 O.L.
	)	50-323 O.L.
PACIFIC GAS AND ELECTRIC COMPANY	)	
	)	
(Diablo Canyon Nuclear Power Plant, Units 1 and 2)	)	
	)	

RESPONSE OF GOVERNOR DEUKMEJIAN TO APPLICANT'S FOURTH SET OF INTERROGATORIES

Governor George Deukmejian hereby responds to the fourth set of interrogatories propounded to him by applicant Pacific Gas and Electric Company. The answers provided herein are current as of the date of this filing and will be supplemented as provided by 10 C.F.R. § 2.740(e).

INTERROGATORY NO. 1:

Please update all answers to all interrogatories heretofore propounded to you (Sets 1 through 3) to which you have indicated that your review, study, or investigation was not then complete.

ANSWER TO INTERROGATORY NO. 1:

Previous answers will be supplemented as required by the NRC rules of practice.

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INTERROGATORY NO. 2:

Do you consider that the application of engineering judgment by the IDVP which is different from judgment by the DCP in the development of models or the conduct of analyses or the interpretation of criteria necessarily indicates a "quality assurance breakdown" (as previously defined by you) by the DCP?

(a) Do you consider that such application of engineering judgment by the IDVP in such circumstances indicates a design error?

ANSWER TO INTERROGATORY NO. 2:

No. The term "QA breakdown" has been defined as a failure to conduct a portion of the design QA program in accordance with the requirements of Appendix A or B to 10 CFR Part 50.

(a) No (see above). However, such judgments regarding the development of design models, the conduct of design analyses, or the interpretation of design and licensing criteria should not result in differences beyond the range of acceptance criteria defined by the IDVP or in differences such that a safety-related structure, system, or component does not conform to the licensing criteria and bases stated in the regulations or in the safety analysis report (also, see 10 CFR 50, 55(e)).

INTERROGATORY NO. 3:

In your opinion does the application or development of a model or the conduct of an analysis according to state-of-the-art practices at the time of the original design

of Diablo Canyon Nuclear Power Plant or the Hosgri reevaluation constitute a design error where the state of the art for such model or analysis has advanced today?

(a) If your answer is affirmative, identify who has rendered this opinion.

(b) State each and every fact which forms the basis of the opinion.

(c) Identify each document relied upon to form the basis of the opinion with specific reference to the section and page of the document.

ANSWER TO INTERROGATORY NO. 3:

This question is objected to on the grounds that it is unclear and so vague as to be unanswerable by simple "yes" or "no." It is unclear from its wording whether the question contemplates the development of a model or an analysis today based on the state-of-the-art in 1968, 1979, 1981 or other times, or whether it contemplates use now of results obtained from models or analyses employed at such prior times.

Notwithstanding this objection, and without waiving it in any way, the following answer is given: a change in the state-of-the-art of modeling or analyses of a particular type may require a redesign or reinforcement of a facility (invalidating the original design) if it is shown that the previous methods led to unconservative results in computation of e.g., forces, stresses, or margin of safety.

(a) The question was not sufficiently clear to permit a definite affirmative; therefore, this section is not applicable.

INTERROGATORY NO. 4:

In your opinion, does the existence of each and every single design error establish that a "quality assurance breakdown" has occurred?

(a) If so, identify who has rendered the opinion.

(b) State each and every fact which forms the basis of the opinion.

(c) Identify each document relied upon to form the basis of the opinion with specific reference to the section and page of the document.

ANSWER TO INTERROGATORY NO. 4:

No. The Governor's concern is that errors which occur in design should be detected by the QA program. As requested by Criterion III of Appendix B to 10 CFR Part 50, the design control measures of the Diablo Canyon QA program should provide for verifying or checking the adequacy of design.

(a) Not applicable.

(b) Not applicable.

(c) Not applicable.

INTERROGATORY NO. 5:

As used by you, is there any difference between the terms "licensing criteria" and "licensing commitment?"

(a) If so, explain fully the difference or distinction.

ANSWER TO INTERROGATORY NO. 5:

No.

(a) Not applicable.

INTERROGATORY NO. 6:

Is it your opinion that any deviation from a licensing criteria [sic] or commitment necessarily makes the Diablo Canyon Power Plant unsafe?

(a) If so, identify who has rendered the opinion.

(b) State each and every fact which forms the basis of the opinion.

(c) Identify each document relied upon to form the basis of the opinion with specific reference to the section and page of the document.

ANSWER TO INTERROGATORY NO. 6:

No. A deviation from a licensing criteria or commitment not detected by the QA program indicates that the Diablo Canyon design control measures, as required by Criterion III of Appendix B, are insufficient to assure that applicable regulatory requirements and the design basis, as defined in 10 CFR section 50.2 and as specified in the license application for those structures, systems and components to which Appendix B applies are correctly translated into specifications, drawings, procedures and instructions. Also see 10 CFR sections 50.34(b) and 50.57(a).

(a) Not applicable.

(b) Not applicable.

(c) Not applicable.

INTERROGATORY NO. 7:

In your answer to Interrogatory 50, you stated "the IDVP did not verify samples from each seismic design activity or from each seismic design group."

(a) As used in such response, define the term "verify."

(b) Define the term "samples" and give a typical example thereof.

(c) Define "seismic design activity" and give a typical example thereof.

(d) Define "seismic design group" and give a typical example thereof.

ANSWER TO INTERROGATORY NO. 7:

(a) "Verification" is an act of confirming, substantiating, and assuring that an activity or condition has been implemented in accordance with the specified requirements (see ANSI N.45.2.10-1973 entitled "Quality Assurance Terms and Definitions"). Also see "verify" as used in Criterion III of Appendix B to 10 CFR Part 50 and "verification" as defined in ANSI/ASME Standard NQA-1-1983 entitled "Quality Assurance Program Requirements for Nuclear Facilities."

(b) See the Answer to Interrogatory No. 27, part (d) herein. A typical example is described in ITR #46 (Rev. O) in the last paragraph on page 1-2.

(c) "Seismic design activity" is a design activity related to the seismic adequacy of the facility ("design activity" is defined in the Answer to Interrogatory No. 27,

part (b) herein). A typical seismic design activity is the assurance of seismic qualification of equipment (i.e. shake table testing).

(d) See the Answer to Interrogatory No. 27, part (a) herein, and the Answer to Interrogatory No. 7, part (c) above. A typical example of a seismic design group is Harding-Lawson Associates, which developed the soils data for the seismic qualification of structures at Diablo Canyon.

INTERROGATORY NO. 8:

In your answer to Interrogatory 50, you presented an example "of a design group and activities not fully reviewed by the IDVP and the ITP."

(a) As here used, explain the phrase, "not fully reviewed."

ANSWER TO INTERROGATORY NO. 8:

The phrase "not fully reviewed" does not appear in the answer to Interrogatory No. 50 (from Set 2), nor in the answers which are referenced in Interrogatory No. 50. Therefore, the Governor cannot answer this Interrogarory, since it asks for a definition in context which does not exist.

INTERROGATORY NO. 9:

In your answer to Interrogatory 62, you stated that your there-referenced contention was "based on the lack of documentation by the IDVP of a full verification by it."

(a) As there used, define "full verification."

ANSWER TO INTERROGATORY NO. 9:

In the context of that answer, a "full verification" would be a proper check, fully documented, that the values utilized by PG&E are in accord with the measured values, that the measured values do represent the material properties in situ (taking additional samples as appropriate), and that applicable criteria were properly applied.

INTERROGATORY NO. 10:

In your answer to Interrogatory 63, you stated that "a complete verification is not documented by the IDVP."

(a) As there used, define "a complete verification."

(b) Does this definition apply to all instances wherein you have used this term in your answers to interrogatories?

(c) Give an example of what constitutes a "complete verification" as opposed to just a "verification."

ANSWER TO INTERROGATORY NO. 10:

In the context of that answer, "complete verification" is considered equivalent to "full verification." Checking of all appropriate values would be a complete verification in this particular case.

INTERROGATORY NO. 11:

In your answer to Interrogatory 66, you identify "cases where the IDVP failed to ascertain the root cause of the identified discrepancy."

(a) As there used, define "root cause."

(b) Do you consider "root cause" to mean the same as the term "basic cause" in Appendix B to 10 C.F.R. part 50?

(1) If not, please explain the difference between the two terms.

ANSWER TO INTERROGATORY NO. 11:

(a) See "Response of Governor Deukmejian to First Set of Interrogatories Propounded by Applicant Pacific Gas & Electric," answer to Interrogatory No. 13, part (a)(viii), dated June 27, 1983.

(b) The above-noted answer, parts (a)(viii) and (a)(ix) states that the terms "root cause" and "basic cause" are used interchangeably. Since Appendix B does not include definitions, and since the phrase "basic cause" does not actually occur in Appendix B, a more definite answer than the above cannot be given to the Interrogatory as stated. However, the term "cause" does appear in Criterion XVI of Appendix B to 10 CFR Part 50.

INTERROGATORY NO. 12:

In your answer to Interrogatory 68, you state that your review indicated to you that "the IDVP has failed to verify independently" that all safety-related SS&C meet licensing requirements.

(a) As there used, define "verify independently."

(b) Do you mean that the IDVP "verified," but that the verification was not "independent."

ANSWER TO INTERROGATORY NO. 12:

(a) The meaning of the phrase "verify independently" is in general agreement with accepted standard definitions (i.e., Webster's New Collegiate Dictionary) for individual words, and with the context of this licensing proceeding. Hence:

"verify - (see response to Interrogatory No. 7, part (a) herein)

"independently" - Without looking to others to guide one's opinions or actions.

(b) No.

INTERROGATORY NO. 13:

Do you have knowledge of facts that indicate the IDVP was required by the Commission, the Staff, or otherwise to do anything more than "consider" the use of statistical techniques? If so:

(a) Identify each such fact.

(b) Identify the source of the fact.

(c) Identify each document by page and paragraph where the fact is contained or even arguably inferred.

ANSWER TO INTERROGATORY NO. 13:

The Governor's contentions concerning the use of statistical techniques are not based on the commission order nor on the staff letter of November 1981. Whether PG&E has fulfilled its obligations under those documents is not dispositive of whether PG&E has met its burden of proof in ths case.

The obligation of PG&E to use statistical techniques arose once PG&E, the DCP or the IDVP chose to undertake verification of the design by sampling, rather than by verifying the entire design. The field of statistics deals with the proper methods by which one may draw inferences from sampled observations.

INTERROGATORY NO. 14:

In your answer to Interrogatory 70, you were asked to provide each and every fact upon which you base your contention that the IDVP has performed no independent verifications, but has merely checked data inputs to models used by PG&E. In your response, you indicated that your contention was based on the "lack of complete, independent analyses."

(a) Define the term "independent verification" as used in your contention.

(b) Define the term "independent analyses" as used in your answer.

(c) Do you consider that the term "complete, independent analysis."

(d) Do you consider that the term "complete, independent analyses" means the same as "independent verifications?"

(e) Identify each analysis in your answer to Interrogatory 70 which you consider to have been limited by either a lack of independence and/or completeness.

(1) Explain specifically how each was limited.

ANSWER TO INTERROGATORY NO. 14:

(a) As stated in the answer to Interrogatory 70, "independent verification" was used in that answer to mean "complete, fully documented, independent analyses."

(b) In the context of that answer, "complete, independent analysis" was used to mean an analysis in which the structure is modeled from the start with complete independence of the model used by the other party, this analysis is carried out, and all final results are obtained.

(c) The work of the Brookhaven National Laboratories on the annulus vertical, the annulus horizontal, and the diesel tanks are examples of independent analyses.

(d) No.

(e) In none of the analyses referred to in that answer were the steps in (b), above, carried out.

INTERROGATORY NO. 15:

Do you have knowledge of facts that the IDVP is required by the Commission, Staff, or otherwise to conduct "an independent verification of the correctness and reasonableness of PG&E's modeling of soil properties and soil structure interaction for the Containment Building?" If so:

(a) Identify each such fact.

(b) Identify the source of the fact.

(c) Identify each document by page and paragraph where the fact is contained or even arguably inferred.

ANSWER TO INTERROGATORY NO. 15:

The Governor has no knowledge of any Commission order or Staff letter requiring the precise analysis specified. However, such an analysis is necessary to provide a level of assurance of safety equivalent to compliance with Appendix B.

INTERROGATORY NO. 16:

Do you have knowledge of facts that the IDVP is required by the Commission, Staff, or otherwise to conduct a "full, independent analysis" of the seismic design of all structures? If so:

(a) Identify each such fact.

(b) Identify the source of the fact.

(c) Identify each document by page and paragraph where the fact is contained or even arguably inferred.

ANSWER TO INTERROGATORY NO. 16:

The Governor has no knowledge of any Commission order or Staff letter requiring the precise analysis specified. However, such an analysis is necessary to provide a level of assurance of safety equivalent to compliance with Appendix B.

INTERROGATORY NO. 17:

What facts or opinions do you have that indicate to you that PG&E's modeling of soils properties and soils structure interaction for the containment building are incorrect or unreasonable?

(a) Identify each person who has rendered such an opinion.

(b) State each and every fact which forms the basis of the opinion.

(c) Identify each document relied upon to form the basis of the opinion with specific reference to the section and page of the document.

ANSWER TO INTERROGATORY NO. 17:

Sufficient information has not been provided by PG&E to show the modeling to be correct and proper; it thus remains questionable and unacceptable.

(a) The opinion is provided by J. M. Roesset.

(b) The description of the model in PG&E's Phase I Final Report and in the SER mentions the motion applied at the boundaries. If the same motion is applied at the lateral and bottom boundaries this is incorrect.

Use of 7% damping of unidentified nature is not appropriate for rock under a 0.2g earthquake.

The possibility of uplifting of the mat under DE, DDE or Hosgri is never mentioned in any of the documents reviewed.

(c) Documents relied on included the PG&E Phase I Final Report, pages 2.1.1-19 and 2.1.1-15, SER Supplement 18, page C.3-12.

INTERROGATORY NO. 18:

If you consider that any model or method of analysis utilized by DCP is inappropriate, do you have any analysis to indicate to you that such model or method of analysis employed is incorrect?

(a) What models do you consider to be incorrect and/or inappropriate?

(b) In what way is each incorrect and/or inappropriate?

(c) What analysis do yu consider to be incorrect and/or inappropriate?

(d) In what way is each analysis incorrect and/or inappropriate?

(e) What analyses, studies, or calculations are you aware of that show any of the models or analyses you have set forth in your answer to 18(a)-(d) are incorrect and/or inappropriate?

(f) Identify each document where each analysis, study, or calculation set forth in your answer to 18(e) may be found.

ANSWER TO INTERROGATORY NO. 18:

The applicant bears the burden in these proceedings of clearly demonstrating the correctness of its models and analyses. The Governor has not conducted independent analyses to show PG&E's models or analyses to be wrong; PG&E's models and analyses, and the IDVP and Staff documents discussing them have been reviewed.

(a) and (c) The following models and analyses are considered as not proven to be correct and reasonable:

i) soil structure interaction model for the horizontal analyses of the containment (DE and DDE).

ii) absence of an analysis of the effect of mat uplifting for the containment for the DE, DDE and Hosgri.

iii) soil structure interaction model (soil springs) for the auxiliary building.

iv) uncoupling of the slabs of the auxiliary building for the vertical analysis.

v) evaluation of shear walls in the auxiliary building.

vi) analysis of diaphragms in the auxiliary building.

vii) modeling and analysis of the intake structure.

viii) nonlinear analysis of ductility of flow straighteners in the intake structure.

ix) member evaluations for the intake structure.

x) modeling of accidental eccentricity in turbine building and intake structure.

(b) and (d) (Numbers correspond to those used in the answers to (a) and (c) above):

i) See answers to Interrogatory 17.

ii) No analyses is documented.

iii) The physical meaning of the springs, the way their values are computed, and the input motion at the bases are not adequately explained or justified.

iv) The finite element model with rotational springs and vertical springs to model the columns, the input motion at the base of the columns, and the uncoupling process are not adequately explained or justified.

v) The use of a criterion based on Appendix 2a is not adequately justified.

vi) The acceptance of stresses that exceed allowables by a factor of 2 or more in the diaphragms is not justified by proper analyses to support the contention of redistribution of forces.

vii) Hydrodynamic forces in the structure are not considered.

viii) The analysis is not sufficiently documented.

ix) The evaluation should be performed for all earthquakes, damping values and material properties.

x) The use of an increase of 10% in the horizontal motion at the base to account for accidental eccentricity is not adequately justified.

INTERROGATORY NO. 19:

Do you consider that hand calculations are not formal calculations?

(a) Do you consider that hand calculations are inferior to computer outputs as a general principle?

ANSWER TO INTERROGATORY NO. 19:

This interrogatory is objected to as vague and ambiguous, since it lacks any context whatsoever.

INTERROGATORY NO. 20:

Identify each and every document that Dr. Roesett has reviewed or utilized in preparation of answers to interrogatories propounded by PG&E to Governor Deukmejian (Sets 1 through 4.)

ANSWER TO INTERROGATORY NO. 20:

Dr. Roesset did not prepare those answers.

INTERROGATORY NO. 21:

Identify each and every document that Dr. Roesett has as of September 26, 1983, reviewed or utilized in preparation of his written testimony to be filed October 8, 1983.

ANSWER TO INTERROGATORY NO. 21:

As of the date of this filing, Dr. Roesset has reveiwed the current and past versions of the PG&E Phase I Final Report and IDVP Final Reports, the ITR's he has received, semi-monthly reports, documents attached as exhibits to the depositions of Drs. Reich and Philippacopoulos, and the depositions of Drs. White and Malik.

INTERROGATORY NO. 22:

Identify each and every document that Dr. Roesett has reviewed or utilized in preparation for his deposition.

ANSWER TO INTERROGATORY NO. 22:

See Answer to Interrogatory 21.

INTERROGATORY NO. 23:

Contention 3 provides that in some instances where it is contended that the ITP used improper engineering standards, the IDVP either used or approved the use of such improper standards.

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(a) Define precisely what you mean by "engineering standard."

(b) Identify specifically each and every engineering standard the use of which is considered to be improper.

(c) Identify specifically each and every instance where you contend that the IDVP approved the use of each such standard set forth in your response to Interrogatory 23(b).

(d) Identify specifically each and every instance where you contend that the IDVP failed to verify use of any engineering standard, and state whether you believe each such engineering standar was used properly or improperly by the ITP.

(e) For each answer to 23(b), (c), and (d), specify the full factual basis for your answer, and identify each document by page and line on which you rely for each such answer.

ANSWER TO INTERROGATORY NO. 23:

(a) "Engineering standard" means the models, methods of analysis, procedures, or formulae used for an analysis or a design.

(b) See Answer to Interrogatory 18; additionally, the use of the AISC Code (8th Ed.) for the turbine building, the lack of justification of input motions used at the base of the fuel handling building, the selection of the dynamic degrees of freedom used in the model of the fuel handling building, and the consideration of only one potential failure surface for soil in ITR 40 are considered as not proper.

(c) The IDVP has failed to challenge any of the instances, this constitutes acceptance.

(d) The IDVP has failed to document any such verification; no citation is therefore applicable. See subpart (a), above.

(e) See Answer to Interrogatory 18; additionally, see SER Supplement 18, pages C.3-37 and C.3-26, and the BNL written comments on ITR 40, attached as an exhibit to the depositions of Morris Reich and A. J. Philippacopoulos.

INTERROGATORY NO. 24:

Contention 4 contends that the IDVP acceted deviations from the licensing criteria without adequate engineering justification.

(a) List each and every criteria from which there was a deviation.

(b) List each and every licensing commitment from which there was a deviation.

(c) What, in your opinion, would constitute "adequate engineering justification" for acceptance of each such deviation from licensing criteria?

(d) Identify each document by precise page and paragraph number where each and every "licensing criteria" and "licensing commitment" which you claim was deviated from may be found.

ANSWER TO INTERROGATORY NO. 24:

(a) and (b) The restated Contentions of Governor Deukmejian and Joint Intervenors dated September 8, 1983,

contain the requested information. Specifically, Contention 4 lists 21 instances which provide the bases for the Contention. The listing includes the definition of the licensing criteria from which there was a deviation.

(c) and (d) The IDVP was a verification of the design produced and the design process, which in a number of instances use samples to represent other, unreviewed systems, structures, and components (for example, the Phase II program reviewed mostly the Auxiliary Feedwater System, Control Room Ventilation and Pressurization System, and 4160V Electrical System). Theefore, the deviations from licensing criteria (commitments) should have been verified in three aspects, to ensure that all criteria were met.

First, the verification of the design product should include, at a minimum:

(1) Why the original criterion was selected.

(2) Why the original determination is now deemed to be inappropriate.

(3) Precisely what the consequences of the deviation are fo the safety of the facility.

Second, the design process verification should include an examination of the QA process to identify the failure of the QA process that allowed the deviation to remain undetected.

Third, the potential of the deviation to represent a generic error, i.e., to determine whether the specific deviation is one of a number of similar deviations in other, unreviewed, parts of the plant, should be verified.

Adequate documentation should accompany each of the three steps described above.

(e) The documents from which licensing criteria are drawn are documents such as the FSAR and associated licensing letters promulgated by PG&E. Generally, the Contention identifies the FSAR section or Appendix, or the licensing letter from which the licensing commitment is derived. Specific pages are not identified as this information is as readily available to PG&E as to the Governor.

INTERROGATORY NO. 25:

Explain in detail what actions you consider necessary for the verification program to "verify" that Units 1 and 2 "as built" conform to the design drawings and analyses.

ANSWER TO INTERROGATORY NO. 25:

The verification program should cover each of the three steps described in the answer to Interrogatory 24, above. At a minimum, this would include the following steps:

(1) Examine the numerous past example of known discrepancies between physical configuration and design documents, determine the root causes for those discrepancies, and make all changes in procedures and physical installations required by that analysis.

(2) Modify the procedures for the design-construction interface to insure that all deviations from design documents made by construction are promptly examined and approved by engineering in compliance with regulatory requirements.

INTERROGATORY NO. 26:

Idenfify specifically each and every action by the verification program, not already being performed, which you consider to be necessary in order to "verify" that the design of safety-related equipment supplied to PG&E by Westinghouse meets licensing criteria.

ANSWER TO INTERROGATORY NO. 26:

The Governor is not aware that the IDVP or the ITP have at this time systematically verified the design of Westinghouse-supplied Nuclear Steam Supply System safety-related equipment. The Governor does not believe that conclusions based on samples of other design groups' work can be extended to provide meaningful conclusions as to the adequacy of Westinghouse-supplied NSSS equipment or if the adequacy of the Westinghouse design services set forth in ITR #9.

Further, there is evidence that design errors have remained undetected by the QA program for equipment supplied by Westinghouse. For example, in the BNL review of ITR #11, BNL questioned the adequacy of the IDVP's verification of Westinghouse, seismic design activities. BNL reviewers noted that errors were disclosed in 30% of the samples reviewed by the IDVP.

The verification programs should perform the steps identified in the answers to Interrogatories 24 and 25 to achieve conformance between design documents and physical installations, to assure that all criteria are met, to assure

the efficacy of the QA process, and to assure that all generic implications of deviations have been assessed.

INTERROGATORY NO. 27:

Contention 1 contends, in part, that the IDVP was too narrow in that in the design activities it did review, it did not verify samples from each of the design groups in the design chain performing the design activity.

(a) Define "design group."

(b) Define "design activity."

(c) Define "the design chain," and give a typical example thereof.

(d) Define "samples."

ANSWER TO INTERROGATORY NO. 27:

(a) A specifically identifiable group which performs one or more design activities (see (b) below).

(b) An activity involved in the design of the plant. In this proceeding, where it is important to distinguish one design activity from another, the Governor separates design activities according to the separable disciplines or objectives of the activity. Thus, design activities include all the verification actions set forth in the Commission's Order Suspending the Diablo Canyon License (CLI-81-30) dated November 19, 1981, in the letter from Denton to Furbush dated November 19, 1981, and in the IDVP Phase I and Phase II Program Plans. Also included are the actions necessary to verify that

Diablo Canyon Units 1 and 2 conform to the license application criteria and in particular those design and quality assurance criteria of Appendices A and B to 10 CFR Part 50. For example, design activities which assure electrical separation are distinguished from design activities which assure environmental qualification, and activities involving electrical design differ from those involving mechanical/nuclear design.

(c) The design chain is defined in the IDVP Final Report as follows, "(an identification of) the organizations involved in the separate but linked process of providing the design for a specific safety-related system, structure, or component selected for evaluation." A typical design chain is Figure 3 of ITR #29.

(d) "Finite parts of statistical populations whose properties are studies to gain information about the whole" (Webster's New Collegiate Dictionary, p. 1022).

INTERROGATORY NO. 28:

Explain fully why you consider that the use of the mean-measured performance of structures and materials in lieu of code-specified minima is an improper engineering practice.

ANSWER TO INTERROGATORY NO. 28:

Code procedures and formulas recognize the fact that the mean values measured in sum will be higher than the minimum specified ones and set factors of safety that take this into account. When the mean values are used the factor of safety resulting will be therefore smaller. The probability of material properties in some elements being less than the mean

value is considerably larger than the probability of its being less than the specified minimum.

INTERROGATORY NO. 29:

Explain fully why you consider that the failure to specify all damping values in various seismic modes in the containment building and auxiliary building constitutes an improper engineering practice.

ANSWER TO INTERROGATORY NO. 29:

Since different values of damping are used for the structure and the soil or rock the system does not have normal modes. An approximation is introduced then when doing a modal analysis. The amount of effective damping in each mode will be a weighted average of the dampings in the different components of the system. The Phase I Final Report does not indicate how the soil (or rock) damping is modelled (as hysteretic, viscous, Rayleigh damping etc.). The only way to check that it has been correctly modelled and that the results are reasonable is by looking at the values of modal damping. Omitting them is to withhold a very important piece of information. A proper engineering report should provide all significant information.

INTERROGATORY NO. 30:

Explain fully why you consider that use of the double algebraic-sum method of calculation (rather than the sum-of-the-squares method) constitutes an improper engineering practice.

ANSWER TO INTERROGATORY NO. 30:

This method is not consistent with criteria.

INTERROGATORY NO. 31:

Explain fully why you consider the ITP's use of time-history modeling techniques for some accelerations, displacements, and shell forces in the containment structure and Blume response spectra for other acceleratins, displacements, and shell forces in the same structure constitutes an improper engineering practice.

ANSWER TO INTERROGATORY NO. 31:

Inconsistent modeling techniques should not be used without adequate justification.

INTERROGATORY NO. 32:

Indicate those portions of the ITP's modeling of the soil properties for both the containment and auxiliary buidings you consider to be improper, and explain fully the reasons for such opinion.

(a) Was the modeling employed by the ITP an improper engineering practice?

(b) If yes, explain fully why you consider it to be an improper practice?

ANSWER TO INTERROGATORY NO. 32:

See Answers to Interrogatories 17 and 18, above.

(a) See Answers to Interrogatories 18 and 19, above.

(b) If the model is an incorect one, its use is an improper engineering standard.

INTERROGATORY NO. 33:

Indicate those portions of the ITP's modeling of the crane in the turbine building you consider to be improper, and explain fully the reasons for such opinion.

(a) Was the modeling employed by the ITP an improper engineering practice?

(b) If yes, explain fully why you consider it to be an improper practice?

ANSWER TO INTERROGATORY NO. 33:

The superposition of a linear and a nonlinear analysis without proper justification and explanation of the nonlinear analysis is not proper.

(a) Insufficient justification and explanation is presented in the PG&E Phase I Final Report to allow a conclusion that the model is correct.

(b) If the model is incorrect, its use is an improper engineering standard.

INTERROGATORY NO. 34:

Explain fully why you consider that the use of different techniques for modeling of torsion factors for different buildings is an improper engineering practice.

ANSWER TO INTERROGATORY NO. 34:

It is inconsistent with criteria to use these different techniques without adequate justification. No such justification is presented in the PG&E Phase I Final Report.

INTERROGATORY NO. 35:

Explain fully why you consider that the ITP's modeling of hydrodynamic forces for the intake structure was an improper engineering practice.

ANSWER TO INTERROGATORY NO. 35:

The hydrodynamic forces are not included in the analysis, and no explanation or justification for this omission are included in the PG&E Phase I Final Report. To ignore these forces in the analysis of the intake structure is improper.

INTERROGATORY NO. 36:

Explain fully why you consider the IDVP's modeling of the intake structure was improper.

ANSWER TO INTERROGATORY NO. 36:

The analysis failed to include hydrodynamic forces, used a 10% increase in horizontal motion to account for eccentricity without justification, and allowed exceedance of allowable stresses without justifying that the required ductility was lower than the allowable.

INTERROGATORY NO. 37:

Explain fully why you consider that the absence of use of two horizontal components fo the DE and DDE was improper.

ANSWER TO INTERROGATORY NO. 37:

It is not clear from the PG&E Phase I Final Report what criteria apply, and whether they are correctly applied.

INTERROGATORY NO. 38:

Explain fully why you consider that the ITP's stres values for concrete in shear walls used in modeling the auxiliary building were improper or incorrect.

ANSWER TO INTERROGATORY NO. 38:

The stress values cited use a criterion not known to be accepted by the NRC.

INTERROGATORY NO. 39:

For each of the interrogatories numbered 28 through 38 above, do you have knowledge of any facts which indicate to you that the practice or activity you consider to be improper renders the structure, material, or component involved to be unsafe?

(a) If so, state fully what those facts are.

(b) List what studies you have conducted or have reviewed which support such conclusion, and identify the author of each such study.

ANSWER TO INTERROGATORY NO. 39:

Throughout these answers, and in the Governor's contentions, the issue has been whether the design meets the licensing criteria. Those criteria are taken as the minimum requirements for safety. While it may be that the design could deviate from some of those criteria that fact could be established only by analyses that have not been performed and are immaterial to the present case.

INTERROGATORY NO. 40:

For each of the interrogatories numbered 28 through 38 above, do you have knowledge of any facts which indicate to you that the practice or activity you consider to be improper has resulted in a failure to meet a licensing criteria or licensing commitment.

ANSWER TO INTERROGATORY NO. 40:

For Interrogatories 28, 29, 31-33, 35-38, the Governor does not know whether the licensing criteria have been met. As to Interrogatories 30 and 34, Supplement 18 to the SER and staff depositions indicate that criteria were not met.

INTERROGATORY NO. 41:

For each interrogatory in the Licensee's Second Set of Interrogatories to Governor Deukmejian to which you previously responded that the absence of documentation indicates to you a failure to fully verify or completely verify an act, a judgment, a decision, an analysis, a model or the correctness or appropriateness of such, list all documents you reviewed in order to reach each such conclusion.

ANSWER TO INTERROGATORY NO. 41:

1) ITR's published by the IDVP thrugh the date of this filing.
2) The IDVP semi-monthly reports in which EOI revisions were tracked.
3) The IDVP Final Report.
4) The PG&E Phases I and II Final Reports.
5) SSER-13.

6) Transcripts of NRC staff and IDVP meetings supplied to the Governor.

INTERROGATORY NO. 42:

In your response to Interrogatory 68, define the "certain specific conditions" that you consider to be valid for extension of the IDVP conclusions to unreviewed portions of the plant.

ANSWER TO INTERROGATORY NO. 42:

The Governor's answer to Interrogatory 68 of PG&E's Second Set of Interrogatories itself identifies the measures necessary to insure that the proper conditions for generalization from samples are met.

INTERROGATORY NO. 43:

Contentions 1(c) and 2(c) alleged that the IDVP and ITP, respectively, did not have "statistically valid samples from which to draw conclusions." Define what you consider to be a "statistically valid sample" from which to draw conclusions and give an example thereof.

ANSWER TO INTERROGATORY NO. 43:

See the Answer to Interrogatory No. 58, part 58, part (f) herein. Also, see answer to Interrogatory No. 42.

INTERROGATORY NO. 44:

Define what you consider to be "statistically valid sampling techniques" as used in your answer to Interrogatory 68.

(a) Explain and give examples of the techniques you consider would be statistically valid.

ANSWER TO INTERROGATORY NO. 44:

"Statistically valid sampling techniques" are techniques for the drawing of samples from populations, which techniques enjoy general acceptance among qualified experts in the field of statistics. The principal distinctions between such techniques and those employed by the IDVP are enumerated in the Governor's answer to Interrogatory 68 of PG&E's Second Set of Interrogatories.

(a) The same answer to Interrogatory 68 gives an example of how the IDVP could have availed itself of statistically valid sampling techniqu4es in verifying the design of Diablo Canyon.

INTERROGATORY NO. 45:

Define what you consider should be the criteria for the selection of samples.

ANSWER TO INTERROGATORY NO. 45:

See the Answer to Interrogatory No. 58, part (f) herein. Also see Response to Interrogatories 42 and 44.

INTERROGATORY NO. 46:

Define what you consider should be the criteria for the acceptable degree of confidence.

ANSWER TO INTERROGATORY NO. 46:

Neither the Governor nor anyone else has, at the moment, any basis for setting a specific confidence-level requirement. That criterion should be set with reference to the consequences of an erroneous conclusion being drawn. In the absence of any analysis of those consequences, there is no

basis for accepting any criterion other than virtual certainty. There are various ways to develop such a basis, which have been used widely in military and industrial applications.

INTERROGATORY NO. 47:

Define what you consider should be the criteria for the review or verification of the sample.

ANSWER TO INTERROGATORY NO. 47:

The Governor's concern is that a scrutable set of acceptance (confidence) criteria should have been established prior to IDVP review to allow the reviewer to consistently determine whether the design activities, documents, structures, systems, or components reviewed are acceptable, unacceptable, or require additional verification or sampling. The Governor at this time does not have an opinion as to what the criteria should have been, beyond the observation that logical classification criteria in keeping with verifying adherance to licensing criteria would add to the value of the IDVP. Also, see answer to Interrogatory No. 46.

INTERROGATORY NO. 48:

Define what you consider would be an acceptable sample size.

ANSWER TO INTERROGATORY NO. 48:

As should be plain to PG&E, no single sample size is appropriate for all sampling problems, nor for all samples to be drawn for verification of Diablo Canyon. The sample size turns on the desired confidence level and can be influenced by

a decision to stratify the population for sampling. Once the confidence level has been determined (see answer to Interrogatory 46, above) and a sampling technique settled upon, calculation of the sample size becomes a straightforward mathematical procedure.

INTERROGATORY NO. 49:

Define what you consider would be the criteria for additional sampling.

ANSWER TO INTERROGATORY NO. 49:

See the Answer to Interrogatories No. 42 and 46 herein.

INTERROGATORY NO. 50:

With regard to your response to Interrogatory 76, please provide the following:

(a) Indicate in detail references to PG&E documentation that substantiates the factual nature of the allegation.

(b) Indicate in detail references to PG&E documentation showing what, if any, licensing criteria or commitments have been violated by the use of the two different analyses of the containment building.

ANSWER TO INTERROGATORY NO. 50:

(a) The PG&E analysis in question appears at page 2.1.1-18 of the version of the PG&E Phase I Final Report dated 3-15-83.

(b) The Governor is not aware of such documentation by PG&E but PG&E has not shown their use to be proper in the Phase I Final Report.

INTERROGATORY NO. 51:

In regards to your response to Interrogatory 78, please indicate in detail references to PG&E documentation showing what, if any, licensing criteria or commitments have been violated by the use of somewhat different seismic analyses for the containment building for Hosgri vs. DE and DDE.

ANSWER TO INTERROCATORY NO. 51:

The Governor is not aware of such documentation by PG&E, but PG&E has not shown the use of these analyses to be proper in the Phase I Final Report.

INTERROGATORY NO. 52:

In regards to your response to Interrogatory 86, please indicate in detail references to PG&E documentation showing what, if any, licensing criteria or commitments have been violated by the use of 4% damping values for the DE and DDE in modeling of the auxiliary building.

ANSWER TO INTERROGATORY NO. 52:

The Answer to Interrogatory 26 referred to contained a typographical error. The damping value should have read "5%," not "4%."

INTERROGATORY NO. 53:

In regards to your response to Interrogatory 86, please indicate in detail references to PG&E documentation showing what, if any, licensing criteria or commitments have been violated by the use of less conservative value, than that of ACI 318-77, for the concrete in the shear walls of the Auxiliary building.

ANSWER TO INTERROGATORY NO. 53:

The Governor is not aware of any such documentation by PG&E, but Supplement 18 of the SER indicates that the use of this value has been proposed but has not been accepted by the NRC.

INTERROGATORY NO. 54:

In response to Interrogatory 92, indicate what licensing criteria or commitments have been violated by the use of the two different methods of summing member forces for the Hosgri.

ANSWER TO INTERROGATORY NO. 54:

Use of the SRSS method is the only procedure known to be accepted by the NRC.

INTERROGATORY NO. 55:

In response to Interrogatory 94, indicate what licensing criteria or commitments have been violated by increasing horizontal motion by 10% to account for accidental eccentricity in the turbine building and intake structure.

ANSWER TO INTERROGATORY NO. 55:

See Answers to Interrogatories 34 and 40, above.

INTERROGATORY NO. 56:

In response to Interrogatory 94, indicate what licensing criteria or commitments have been violated by use of different analyses for the loaded and unloaded case and by use of the SRSS method to combine the three directions of earthquake motion.

ANSWER TO INTERROGATORY NO. 56:

See Answers to Interrogatory 53, above.

INTERROGATORY NO. 57:

In response to Interrogatory 94, indicate what licensing criteria or commitments have been violated by use of ductility factors of 1.3 for concrete and 3 for steel combined with 7% damping for the Hosgri event.

ANSWER TO INTERROGATORY NO. 57:

The Governor does not know whether these values correctly reflect criteria.

INTERROGATORY NO. 58:

Define the following terms as referenced in response to Interrogatory 60:

(a) "expect statistical assistance"

(b) "rigorous statistical technique"

(c) "sampling procedure"

(d) "sampling criteria"

(e) "sampling acceptance criteria"

ANSWER TO INTERROGATORY NO. 58:

(a) The consultation of an expert in the applicability of statistics to engineered systems committed to by Teledyne in Appendix C to both the Phase I and II Program Management Plans and as discussed on pages 3.5-7 and 3.5-8 of the IDVP Final Report.

(b) In the answer to Interrogatory No. 68, from which the answer to Interrogatory No. 60 is summarized, the term "rigorous statistical technique" is quoted from the IDVP Final

Report, pages 3.5-8. The Governor assumes that the IDVP used the term in its generally accepted sense, i.e., precise statistical technique(s), capable of bearing critical quantitative or qualitative scrutiny.

(c) Procedures, guidelines and techniques for the selection of samples.

(d) Criteria for determining the acceptability of a selected set of design activities, documents, structures, systems or components as a review sample.

(e) The terms used in Interrogatory No. 60 was "acceptance criteria," by which is meant criteria adapted prior to the review to determine, based on the review results, whether the design of a given sample of structures, systems, or components was acceptable, unacceptable, or whether additional verification or sampling was appropriate.

(f) A valid sample is a sample which is wholly drawn from the population under consideration, representative of the population under consideration (see below, part h), sufficiently large to provide the degree of confidence determined in advance to be required and unbiased. Random sampling is a technique used to achieve an unbiased sample by selecting items from the population at random.

(g) The opinion of an engineer or engineers that is used in lieu of statistically valid sampling methods.

(h) The answer to Interrogatory No. 68, from which the answer to Interrogatory No. 60 was summarized, provides a detailed explanation of the concept of "representative sample."

INTERROGATORY NO. 59:

As referenced in your response to Interrogatory 64, for each claimed deviation listed in Table 64, list what you consider to be the criteria or commitments deviated from.

ANSWER TO INTERROGATORY NO. 59:

Table 64 has been replaced by the newly restated Contention 4, parts (a) through (u), set forth in the Contentions of Governor Deukmejian and Joint Intervenors, dated September 8, 1983. The Contention lists the licensing criteria and commitments deviated from.

INTERROGATORY NO.60:

As referenced in your response to Interrogatory 66, identify each valid EOI. For each, identify and list what you consider to be the two errors associated with each valid EOI. Identify and list what you consider to be the error itself and the associated error or errors in the QA program or the implementation thereof.

ANSWER TO INTERROGATORY NO. 60:

The Governor's review to date indicates that the valid EOI's are those which appear in Table 66.2, of the Answer to Interrogatory No. 66 (Set 2). As stated in the Answer to Interrogatory No. 66, the two errors associated with each valid EOI are:

(1) The error itself. Each of the EOI's listed in Table 66.2 have been documented in the IDVP semi-monthly reports and the IDVP Final Report.

The nature of each EOI is as available to PG&E as to the Governor.

(2) The associated error in the QA program or its implementation which allowed the identified error to remain undetected. The Governor objects to providing information on the Diablo Canyon QA/QC compliance prior to November 1981 on the grounds that the Interrogatory seeks discovery of matters which are beyond the scope of the Board's Order of August 26, 1983. All the EOI's which appear in Table 66.2 address design activities which occurred prior to November 1981.

INTERROGATORY NO. 61:

In Contention 3(f)(i), you contend that use of boundary motion inputs to the model for the soil structure interaction analysis of the containment for the DE and DDE was improper.

(a) Explain in detail why you consider the use to be improper.

ANSWER TO INTERROGATORY NO. 61:

See Answers to Interrogatories 17(b) and 18, above.

INTERROGATORY NO. 62:

In Contention 3(f)(ii), you contend that a 7% damping value for rock is unconservative and especially sdo for the DE.

(a) Explain in detail how you think the 7% damping figure was used in the ITR's modeling of soil properties for the containment building and for the auxiliary building.

(b) Explain what you consider to be a conservative value for damping?

(1) for rock

(2) for soil

(3) for each for the DE

(c) Were the values employed by the ITP not conservative in your opinion?

(1) If yes, specify which damping values you consider not to be conservative.

ANSWER TO INTERROGATORY NO. 62:

(a) The contention is intended to apply only to the containment building modeling. As to that building, the PG&E Phase I Final Report does not provide enough information about how damping was used to permit an answer to this subpart.

(b) The question does not provide enough information as to type of rock or soil to permit an answer.

(c) Yes.

(d) For the containment building foundation, 7% would not be conservative.

INTERROGATORY NO. 63:

Do you consider that an omission of analysis of the containment for uplifting of the foundation mat renderes the containment unsafe?

(a) If so, what studies, calculations, or analyses have you conducted or reviewed which supports this conclusion?

(1) State in detail the results of each such study, calculation, or analysis.

(b) List all licensing criteria or commitments which, in your opinion, the absence of an analysis for uplifting violates:

(1) Explain fully how each criterion or commitment is violated.

ANSWER TO INTERROGATORY NO. 63:

This question cannot be answered on the basis of the information given, since it would depend on what the analysis showed.

INTERROGATORY NO. 64:

Explain fully why you consider the lack of specification of soil properties in the modeling of soil springs for the auxiliary building to be improper.

ANSWER TO INTERROGATORY NO. 64:

The PG&E Phase I Final Report provides insufficient information on the soils properties. Without such information, the adequacy of the springs and their values cannot be judged.

INTERROGATORY NO. 65:

In Contention 3(f)(v), you contend that, in the ITP's modeling of the soil springs for the auxiliary building, the motion inputs to the lower ends of the springs do not account for all soil structure interaction phenomena that could be expected.

(a) How should the motion inputs to the lower ends of the springs be modeled in your opinion?

(b) Do you have any analysis, calculation, or study which indicates or quantifies the change in soil structure

interaction which would result from the application of the manner of modeling which you prefer?

(1) If so, state in detail the results of each such analysis, calculation, or study.

(c) Do you consider that the effect any difference in soil structure interaction which you may have found in any such analysis, calculation, or study listed in (b) renders the auxiliary building unsafe?

(1) If so, explain fully.

(d) Do you consider the modeling approach of the ITP to be a deviation from standard industry practice?

(1) If so, explain fully the reason for such conclusion.

(2) List each and every document you rely upon to reach such conclusion.

ANSWER TO INTERROGATORY NO. 65:

(a) It is the applicant's burden, not the Governor's, to perform correct modeling, and to demonstrate it is correct. However, the Governor believes that if soil between elevation 85 and 100 has properties very similar to those of the rock at elevation 85, the springs should not have been used. If the properties are different or very different, the motion at elevation 100 will differ from that at elevation 85. In addition, the motion at elevation 100 will have a rocking and torsional component.

(b) No.

(c) See answer to subpart (b), above.

(d) It is not known whether it is standard industry practice for an unusual case such as this.

INTERROGATORY NO. 66:

How should the crane in the turbine building have been modeled in your opinion?

ANSWER TO INTERROGATORY NO. 66:

It is the applicant's burden to perform correct modeling, and to demonstrate that it is correct. However, the Governor believes that the combination of linear and nonlinear analyses should be fully explaind and justified.

INTERROGATORY NO. 67:

In Contention 3(h), you contend that PG&E's modeling of torsion factors in not shown to be conservative and is unconservative in at least one case.

(a) In the context used, define "conservative" and quantify.

(b) Specify the particular case which you consider to be "unconservative."

(c) What studies, analyses, or calculations do you have knowledge of that indicate PG&E's modeling results in an unsafe structure or component?

ANSWER TO INTERROGATORY NO. 67:

(a) and (b) This conclusion was reached by the IDVP in ITR 58, Rev. O, page 17; see that ITR.

(c) The Governor does not know of any study that reaches the stipulated conclusion as to the structure or any equipment. The analysis has been shown to be unconservative,

in at least one case and all other cases should therefore be checked.

INTERROGATORY NO. 68:

Explain in detail how, in your opinion, the sloshing effects for inside water and hydrodynamic pressure on the outside of intake structure should have been included in the modeling.

(a) Define "not considered" as used in the contention.

(b) What is the significance from the standpoint of safety of a failure to consider such factors?

ANSWER TO INTERROGATORY NO. 68:

(a) The PG&E Phase I Final Report makes no mention of these factors.

(b) Such significance cannot be properly assessed until the analysis is done.

INTERROGATORY NO. 69:

Explain fully why you consider that the combination of linear and nonlinear analyses for different loads in the modeling of the crane at the intake structure is improper.

(a) Do you have any study, calculation, or analysis which indicates that such combination renders the intake structure unsafe?

(1) If so, describe fully the results of such study, calculation, and analysis.

(b) What licensing criteria or licensing commitment is violated by such combination.

(c) Do you consider that such combination would be proper with justification?

(1) If so, what do you consider to be "adequate justification?"

ANSWER TO INTERROGATORY NO. 69:

(a) It is the applicant's burden to prove that all licensing criteria are met and the appropriate margin of safety ensured. No study of the kind specified has been performed by the Governor.

(1) Not applicable.

(b) Not known.

(c) It would depend greatly on the justification provided.

(1) Such a justification should show that inelastic behavior in any member would not cause a change in the response to a horizontal earthquake, and would be fully documented.

INTERROGATORY NO. 70:

Do you have knowlege of any facts or opinion which would lead you to conclude that the ductility estimates utilized in the ITP's modeling of the intake structure are incorrect.

(a) If so, identify and list each and every such fact.

(b) Identify the source of any such opinion and state in detail what that opinion holds.

ANSWER TO INTERROGATORY NO. 70:

The PG&E Phase I Final Report provides insufficient information on how ductilities were estimated for an answer to be given.

(a) and (b) Not applicable.

INTERROGATORY NO. 71:

In Contention 3(l), you contend, in the computations of modes in the containment building having frequencies between 20 and 30 Hz, that it is not clear that criteria were correctly applied.

(a) List each criterion to which the contention refers.

(b) Explain fully in what way or manner it is not clear to you whether each such criterion was correctly applied.

(c) How, in your opinion, should each of the criterion identified by applied.

ANSWER TO INTERROGATORY NO. 71:

(a) It is not clear what criteria does apply and what it requires.

(b) See answer to subpart (a), above.

(c) See answer to subpart (a), above.

INTERROGATORY NO. 72:

In Contention 3(m), you contend that it is not clear whether in the ITP's modeling of the containment building for the DE and DDE criteria were correctly applied.

(a) List each criterion to which the contention refers.

(b) Explain fully in what way or manner it is not clear to you whether each such criterion was correctly applied.

ANSWER TO INTERROGATORY NO. 72:

(a) It is not clear what criteria applies.

(b) See answer to subpart (a), above.

INTERROGATORY NO. 73:

In Contention 3(n), you contend that the stress value for concrete used by the ITP in modeling shear walls in the auxiliary building was improper.

(a) Do you consider that the stress value used by the ITP is not conservative?

(b) If not, what value do you consider to be conservative?

(1) Identify each and every study or analysis that you rely upon for such conclusion.

(c) Identify each and every fact, study, calculation and analysis you rely upon to support your contention that the values used "may cause wide cracks."

(1) Define what you consider to be a "wide crack."

(2) How wide, in your opinion, would a crack need to be before it became significant fo the auxiliary building.

ANSWER TO INTERROGATORY NO. 73:

(a) The PG&E Phase 1 Final Report does not provide sufficient information (e.g. as to amount of reinforcement, formulae used) for a full answer to be given.

(b) See answer to subpart (a), above.

(c) See deposition of William White, page 130 of transcript.

(1) See definition in Dr. White's deposition.

(2) This must be assessed as to a particular case. A crack that is not sufficient to cause collapse may have an adverse effect on the behavior of personnel who attend to equipment.

INTERROGATORY NO. 74:

In Contention 4, you contend that the IDVP has accepted deviations from the licensing criteria without adequate engineering justification.

(a) As used in this contention, define "accepted."

(b) Define "adequate engineering justification."

(c) List each and every fact upon which you rely to support the contention that the IDVP "accepted deviations from the licensing criteria."

ANSWER TO INTERROGATORY NO. 74:

(a) Did not require a change to the design activity, document, structure, system, or components which was not in compliance with the licensing commitment.

(b) See Answer to Interrogatory No. 24 (Set 4), parts (c) and (d).

(c) The facts which support this contention and the criteria deviated from are specifically listed in the newly restated contentions of Governor Deukmejian and Joint

Intervenors, Contention 4, parts (a) through (u), dated September 8, 1983.

INTERROGATORY NO. 75:

For each answer to these interrogatories and all sub-parts thereto, identify each person who participated in the preparation of your answers pursuant to 10 C.F.R. section 2.740(b).

ANSWER TO INTERROGATORY NO. 75:

The firm of MHB Associates, under direction of Richard Hubbard, participated in answering interrogatories 1, 2, 4-8, 11-13, 24-27, 41-49, 58-60, and 74. Dr. Jose Roesset participated in answering interrogatories 2, 3, 9, 10, 14-23, 28-41, 50-57, and 61-73. All partially prepared by Michael J. Strumwasser, Special Counsel to the Attorney General and Susan L. Durbin, Deputy Attorney General. Addresses and business telephone numbers of the above have been previously supplied.

DATED: September 26, 1983.

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of the State of California
SUSAN L. DURBIN
Deputy Attorney General

By Susan L. Durbin
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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of	)	
PACIFIC GAS AND ELECTRIC COMPANY	)	Docket Nos. 50-275 O.L. 50-323 O.L.
(Diablo Canyon Nuclear Power Plant, Units 1 and 2)	)	

CERTIFICATION

I, Susan L. Durbin, hereby certify:

1. I am one of the attorneys for Governor George Deukmejian in the above-entitled matter and, as such, am authorized to execute this certification.

2. I have read the foregoing Response of Governor Deukmejian to Applicant's Fourth Set of Interrogatories numbers 2, 3, 9, 10, 14-23, 28-41, 50-57 and 61-73,and know the contents thereof.

3. I am informed and believe the answers to said interrogatories to be true and correct.

I certify under penalty of perjury that the forgoing is true and correct.

Executed at Los Angeles, California, on September 26, 1983.

Susan L. Durbin

SUSAN L. DURBIN

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of		
PACIFIC GAS AND ELECTRIC CO.	Docket Nos.	50-275 O.L. 50-323 O.L.
(Diablo Canyon Nuclear Power Plant, Unit Nos. 1 and 2		

AFFIDAVIT OF RICHARD B. HUBBARD

FOR GOVERNOR GEORGE DEUKMEJIAN

RICHARD B. HUBBARD, being duly sworn, do say under oath that I, the undersigned have assisted in preparing and reviewing responses number 1, 2, 4 to 8, 11 to 13, 24 to 27, 41 to 49, 58 to 60, and 74 of Governor Deukmejian to Pacific Gas and Electric Company's Fourth Set of Interrogatories, dated September 12,1983. Said answers are true and correct to the best of my knowledge and belief.

Richard B Hubbard
RICHARD B. HUBBARD

Subscribed and sworn to before me this 24th day of Sept., 1983.

Asman Khan
NOTARY PUBLIC

ASMAN KHAN
NOTARY PUBLIC - CALIFORNIA
SANTA CLARA COUNTY
My commission expires Jan. 6, 1984

My Commission expires: Jan 6, 1984

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of	)	
PACIFIC GAS AND ELECTRIC COMPANY	)	Docket Nos. 50-275 O.L. 50-323 O.L.
(Diablo Canyon Nuclear Power Plant, Units 1 and 2)	)	

CERTIFICATE OF SERVICE

I hereby certify that on this date I caused copies of the foregoing RESPONSE OF GOVERNOR DEUKMEJIAN TO APPLICANT'S FOURTH SET OF INTERROGATORIES served on the following by U.S. Mail, first class (except for those persons marked with an asterisk ("*"), to whom the envelope was posted Express Mail), postage prepaid.

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