

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

DOCKETED  
USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD SEP -2 A10:29

In the Matter of )

PACIFIC GAS AND ELECTRIC COMPANY )

(Diablo Canyon Nuclear Power )  
Plant, Units 1 and 2) )

OFFICE OF SECRETARY  
DOCKETING & SERVICE  
BRANCH

Docket Nos. 50-275 O.L.  
50-323 O.L.

ANSWERS OF GOVERNOR DEUKMEJIAN TO  
APPLICANT'S SECOND SET OF INTERROGATORIES

Governor George Deukmejian hereby responds to the second 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:

State each and every fact upon which you base your contention that the licensee has failed to timely develop and implement a systematic quality assurance/quality control program for the design of safety related structures, systems and components for design work at Diablo Canyon Units 1 and 2 since November 1, 1981.

ANSWER TO INTERROGATORY NO. 1:

The Governor's review of the development and implementation of a systematic quality assurance/quality control program for the design, since November 1, 1981, of Diablo Canyon safety-related structures, systems and components

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(SSC's) is not yet complete. Further, the IDVP review of the post November 1, 1981 design activities is not yet complete, nor have all EOI's addressing design matters concerning this time period been resolved by the IDVP and the resolution documented in an appropriate ITR. Furthermore, the IDVP in general has not specifically set forth either its conclusions regarding whether the identified errors were caused by the applicant (PG&E) or its major subcontractors or its identification of the deficiency in the QA/QC process which allowed the identified errors to occur and to remain undetected prior to the IDVP review (see Answer to Interrogatory No. 2).

The Governor's review to date of the FSAR, the IDVP Report, the ITP Report, the SER Supplement #18, and the QA policies, procedures and instructions set forth in the PG&E/Bechtel Diablo Canyon Project QA Manual and the PG&E Engineering Department Procedures Manual has disclosed the examples as tabulated in Table 1 herein which indicate that the applicant has failed to timely develop and implement a systematic quality assurance/quality control program for the design modifications to SS&Cs which have occurred since November 1, 1981. The Governor's review of PG&E's design QA commitments provided in chapter 17 of the FSAR, including PG&E's proposals of June 10 and August 8, 1983 to the NRC to replace the FSAR chapter in its entirety, have also not yet been completed. The answer does not specify pages and paragraphs of referenced documents since that information is as readily available to PG&E as it is to the Governor.

TABLE 1

Deficiencies in QA Program Development & Implementation

(Design Modifications Since November 1, 1981)

	<u>Description of Deficiency</u>	<u>Appendix B Criteria*</u>	<u>Reference</u>
1.	Limitations of Appendix B commitment to "the extent possible" considering the status of design.	All	FSAR, § 17.0
2.	Limitations of Appendix B commitment to "as practicable" as elicited before ASLAB during July 1983 Hearing.	All	Transcript of the ASLAB Hearing on Construction Quality Assurance, pp. 465-466.
3.	Exclusion of Unit 1 at Diablo Canyon as Described in the QA Program Authorization of PG&E's QA Manual for the Design and Construction of Nuclear Power Plants.	All	QA Program Authorization PG&E QA Manual for Design and Construction of Nuclear Power
4.	BNL discovered discrepancies in the design reanalyses and its design verification regarding the response of the annulus structure and the evaluation of two piping systems.	2, 3, 16, 18	SER, Supp. 18, §§ 3.6.2, 3.6.3 and 3.6.4
5.	BNL discovered discrepancies in the design verification of piping by Westinghouse and buried diesel tanks by Harding and Lawson.	4, 7, 18	SER, Supp. 18, §§ 3.6.5 and 3.6.6.

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\*The designation of Appendix B criteria relevant to the identified deficiencies is intended to highlight the major criteria violated and, as such, is not intended to be an exhaustive list. The preceding limitation is necessary also because of the high degree of interrelationship between a number of the criteria of Appendix B.

TABLE 1  
Deficiencies in QA Program Development & Implementation  
(Design Modifications Since November 1, 1981)

<u>Description of Deficiency</u>	<u>Appendix B Criteria</u>	<u>Reference</u>
6. The IDVP design control audit disclosed 24 deficiencies in the ITP quality assurance program development and implementation including incomplete records documentation, lack of procedures, procedures not being followed, inadequate training, failure to implement commitments in a timely manner, inadequate document control, deviations in design control activities, and failure to control procurement activities.	1, 2, 3, 4, 5 6, 7, 16, 17 and 18	ITR 4 (Appendix E particularly)
7. PG&E Engineering Department Procedure 3.1 regarding classification of SS&Cs (the Q-list) is deficient in that classification responsibility is not unambiguously assigned, the applicable revisions to references including Regulatory Guides is not provided, and no regular time interval for distribution of the Q-list is specified.	1, 2, 3, 5	PG&E Eng. Department Procedures 3.1, Rev. 1, 2 & 3 dated 3/1/82, 4/5/82, and 6/30/82.
8. Differences were disclosed between "as-built" and "as-analyzed" instrument tubing support.	3, 6, 10, 16	EOI 1123

TABLE 1  
Deficiencies in QA Program Development & Implementation  
(Design Modifications Since November 1, 1981)

	<u>Description of Deficiency</u>	<u>Appendix B Criteria</u>	<u>Reference</u>
9.	The design analysis finite element model of the control room slab used to generate Hosgri spectra does not agree with the field verified location of the supporting wall.	3, 6, 10, 16	EOI 1124
10.	Revision 1 of the HVAC compressor seismic calculaton used incorrect and unconservative spectra.	3, 6, 16	EOI 1125
11.	ITP used improper stress intensification factors (SIF)	3, 6, 16	EOI 1126, EOI 1138
12.	Deficiencies in ITP reanalyses of station battery racks regarding bolt diameter and resolved shear force.	3, 6, 10, 16	EOI 1128
13.	Errors in the design reanalyses for large bore pipe support 565/3A.	3, 6, 16	EOI 1129
14.	Reanalyses of large bore pipe supports not evaluated as required by the DCP procedure.	3, 6, 16	EOI 1131
15.	Failure to perform an evaluation of auxillary building slabs for in-plane loadings contrary to the PG&E Final Report dated May 18, 1983.	3, 6, 16	EOI 1132

TABLE 1  
Deficiencies in QA Program Development & Implementation  
(Design Modifications Since November 1, 1981)

	<u>Description of Deficiency</u>	<u>Appendix B Criteria</u>	<u>Reference</u>
16.	Incorrect valve modeling in DCP seismic reanalyses	3, 6, 16	EOI 1133, EOI 1135, EOI 1137
17.	Discrepancies in the DCP calculation of first mode frequency for HVAC duct and duct supports.	3, 6, 16	EOI 1134
18.	Use of incorrect bolt allowable stress in the DCP reanalysis.	3, 6, 16	EOI 1136
19.	Error in the design analysis calculation of frequency of a small bore pipe support.	3, 6, 16	EOI 1139
20.	DCP analysis failed to examine the discharge nozzle flanged joint.	3, 6, 16	EOI 1140
21.	DCP failed to identify all high energy lines inside and outside containment.	3, 6, 16	EOI 1141
22.	Pipe support loads due to the effects of various loading combinations were not considered in the design analysis contrary to the DCP design criteria procedure.	3, 6, 16	EOI 1142

INTERROGATORY NO. 2:

State each and every fact upon which you base your contention that the licensee's major subcontractors at Diablo Canyon Units 1 and 2 have failed to timely develop and implement a systematic quality assurance/quality control program for the design of safety related structures, systems and components for design work at Diablo Canyon Units 1 and 2 since November 1, 1981.

ANSWER TO INTERROGATORY NO. 2:

The Governor's review of the development and implementation of a systematic quality assurance/quality control program by the applicant's major subcontractors for the design efforts conducted on SS&Cs since November 1, 1981 is not yet complete. Further, as noted in the answer to Interrogatory No. 1 herein, the IDVP in general did not identify who (PG&E or a major subcontractor) was responsible for the errors disclosed in the review of the ITP's corrective action. Furthermore, the IDVP review of the ITP corrective action is not yet complete. In addition, as prescribed in Criterion 1 of Appendix B, while PG&E may delegate to others, such as major subcontractors, the work of establishing and executing the quality assurance programs, or any part thereof, PG&E still retains responsibility for the delegated activities since the applicant has ultimate responsibility for the establishment and execution of the quality assurance program.

The Governor's review to date of the IDVP Report, the DCP Report, Supplement #18 of the SER, and the QA/QC policies,



TABLE 2

Deficiencies in Major Subcontractors' QA  
Program Development & Implementation

(Design Modifications Since November 1, 1981)

	<u>Description of Deficiency</u>	<u>Appendix B Criteria*</u>	<u>Reference</u>
1.	BNL discovered discrepancies in the design reanalyses and design verification of buried diesel tanks conducted by Harding and Lawson including the reanalyses and reverification conducted in 1982.	2, 3, 16, 18	SER, Supp. 18, § 3.6.6,
2.	BNL discovered deficiencies and omissions noted in PG&E Westinghouse piping models and their design verification	2, 3, 6, 18	SER, Supp. 18, § 3.6.6

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\*The designation of Appendix B criteria relevant to the identified deficiencies is intended to highlight the major criteria violated and as such, is not intended to be an exhaustive list. The preceding limitation is also necessary because of the high degree of interrelationship between a number of the criteria of Appendix B.

TABLE 2

Deficiencies in Major Subcontractors' QA  
Program Development & Implementation

(Design Modifications Since November 1, 1981)

<u>Description of Deficiency</u>	<u>Appendix F Criteria</u>	<u>Reference</u>
3. The internal design interfaces and responsibilities for Unit 1, as documented in Attachment A of Bechtel Diablo Canyon Instruction No. 5, were not included in the procedure until Rev. 2 dated March 11, 1983.	1, 2, 3, 4 5, 7, 16, 18	Bechtel Instruction No. 5
4. The design interfaces for Unit 2 design as required by Attachment B of Bechtel Diablo Canyon Instruction No. 5, Rev. 2, dated March 11, 1983 is listed as "Later."	1, 2, 3, 4 5, 7, 16, 18	Bechtel Instruction No. 5.

INTERROGATORY NO. 3:

Please list each and every major subcontractor for Diablo Canyon Units 1 and 2 who has been involved in the design of safety related structures and/or systems and/or components.

(a) For each such major subcontractor state:

- (i) the time period when the subcontractor did design of safety related structures, systems and components for Diablo Canyon Units 1 and 2.
- (ii) the time period you allege when the subcontractor did not develop and implement a systematic quality assurance/quality control program.

ANSWER TO INTERROGATORY NO. 3:

The list of major subcontractors for Diablo Canyon Units 1 and 2 who had an effect on the final design of the non-seismic safety-related structures, systems and components is identified in ITR-9. Similarly, the list of seismic safety related design contractors is described in ITR-5 and the documents referenced therein. Further, the list and involvement of seismic safety related design contractors are set forth in the following:

- (a) "Preliminary Report, Seismic Verification Program," by Robert L. Cloud Associates, dated November 12, 1981.
- (b) Phase I Program submitted by PG&E dated December 4, 1981.
- (c) Phase II Program submitted by PG&E dated January 13, 1982.

In addition, the list of service-related design subcontractors is described by the IDVP in Section 4.1.4 of its Final Report including a listing of responsible safety related design subcontractors who were not included in the IDVP verification efforts. The Governor is not aware of any subcontractors other than Bechtel who have participated in the ITP's design modification program since November 1981, who did not participate in the original design of Diablo Canyon.

- (i) The Governor has not yet determined the exact time period when the subcontractors did design of safety related structures, systems and components for Diablo Canyon Units 1 and 2. Further, the Governor attempted to obtain this timing information from the IDVP regarding the identified EOI's. However, in the Response of the IDVP to Governor Deukmejian's Second Set of Interrogatories, the IDVP stated in response to Interrogatory No. 39 that "the IDVP generally did not, even when applicable, attempt to determine the exact date of an 'event' giving rise to the EOI." Finally, as set forth at pages 16 and 17 of the Supplemental affidavit of Richard B. Hubbard dated March 26, 1983, the Governor believes that the majority of the original safety related design activities occurred prior to the 1978/79 time period. In addition, the Governor believes that the majority of the design modifications resulting from the IDVP/ITP verification program have occurred since November 1, 1981.

(ii) Pursuant to the recent ASLAB's instructions as set forth in answer to Interrogatory No. 4 herein, the issue of design QA compliance with the regulations and licensing criteria prior to November 1, 1981 is now moot. For the period between November 1981 and the current date, the Governor's review of PG&E and its major subcontractors QA program and its implementation is still in progress (see answers to Interrogatories Nos. 1 and 2).

INTERROGATORY NO. 4:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 1 of Appendix B to 10 C.F.R. part 50 prior to November 1, 1981.

ANSWER TO INTERROGATORY NO. 4:

Based on the ASLAB's August 16, 1983, order, and the Board's further elucidation of its order during the pre-hearing conference on August 23 and 24, it was established that the reopened proceeding would focus on whether the IDVP and the ITP verify the correctness of the Diablo Canyon Unit 1 and 2 design rather than on whether PG&E complied with the commission's design quality assurance regulations in the period prior to November 1, 1981. Thus, the subject area addressed by this interrogatory is now moot.

INTERROGATORY NO. 5:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 2 of Appendix B to 10 C.F.R. part 50 prior to November 1, 1981.

ANSWER TO INTERROGATORY NO. 5:

See Answer to Interrogatory No. 4.

INTERROGATORY NO. 6:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 3 of Appendix B to 10 C.F.R. part 50 prior to November 1, 1981.

ANSWER TO INTERROGATORY NO. 6:

See Answer to Interrogatory No. 4.

INTERROGATORY NO. 7:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 4 of Appendix B to 10 C.F.R. part 50 prior to November 1, 1981.

ANSWER TO INTERROGATORY NO. 7:

See Answer to Interrogatory No. 4.

INTERROGATORY NO. 8:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 5 of Appendix B to 10 C.F.R. part 50 prior to November 1, 1981.

ANSWER TO INTERROGATORY NO. 8:

See Answer to Interrogatory No. 4.

INTERROGATORY NO. 9:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 6 of Appendix B to 10 C.F.R. part 50 prior to November 1, 1981.

ANSWER TO INTERROGATORY NO. 9:

See Answer to Interrogatory No. 4.

INTERROGATORY NO. 10:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 7 of Appendix B to 10 C.F.R. part 50 prior to November 1, 1981.

ANSWER TO INTERROGATORY NO. 10:

See Answer to Interrogatory No. 4.

INTERROGATORY NO. 11:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 10 of Appendix B to 10 C.F.R. part 50 prior to November 1, 1981.

ANSWER TO INTERROGATORY NO. 11:

See Answer to Interrogatory No. 4.

INTERROGATORY NO. 12:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 16 of Appendix B to 10 C.F.R. part 50 prior to November 1, 1981.

ANSWER TO INTERROGATORY NO. 12:

See Answer to Interrogatory No. 4.

INTERROGATORY NO. 13:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 17 of Appendix B to 10 C.F.R. part 50 prior to November 1, 1981.

ANSWER TO INTERROGATORY NO. 13:

See Answer to Interrogatory No. 4.

INTERROGATORY NO. 14:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 18 of Appendix B to 10 C.F.R. part 50 prior to November 1, 1981.

ANSWER TO INTERROGATORY NO. 14:

See Answer to Interrogatory No. 4.

INTERROGATORY NO. 15:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 1 of Appendix B to 10 C.F.R. part 50 since to November 1, 1981.

ANSWER TO INTERROGATORY NO. 15:

See Answer to Interrogatory No. 2.

INTERROGATORY NO. 16:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 2 of Appendix B to 10 C.F.R. part 50 since to November 1, 1981.

ANSWER TO INTERROGATORY NO. 16:

See Answer to Interrogatory No. 2.

INTERROGATORY NO. 17:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 3 of Appendix B to 10 C.F.R. part 50 since to November 1, 1981.

ANSWER TO INTERROGATORY NO. 17:

See Answer to Interrogatory No. 2.

INTERROGATORY NO. 18:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 4 of Appendix B to 10 C.F.R. part 50 since to November 1, 1981.

ANSWER TO INTERROGATORY NO. 18:

See Answer to Interrogatory No. 2.

INTERROGATORY NO. 19:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 5 of Appendix B to 10 C.F.R. part 50 since to November 1, 1981.

ANSWER TO INTERROGATORY NO. 19:

See Answer to Interrogatory No. 2.

INTERROGATORY NO. 20:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 6 of Appendix B to 10 C.F.R. part 50 since to November 1, 1981.

ANSWER TO INTERROGATORY NO. 20:

See Answer to Interrogatory No. 2.

INTERROGATORY NO. 21:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 7 of Appendix B to 10 C.F.R. part 50 since to November 1, 1981.

ANSWER TO INTERROGATORY NO. 21:

See Answer to Interrogatory No. 2.

INTERROGATORY NO. 22:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 10 of Appendix B to 10 C.F.R. part 50 since to November 1, 1981.

ANSWER TO INTERROGATORY NO. 22:

See Answer to Interrogatory No. 2.

INTERROGATORY NO. 23:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 16 of Appendix B to 10 C.F.R. part 50 since to November 1, 1981.

ANSWER TO INTERROGATORY NO. 23:

See Answer to Interrogatory No. 2.

INTERROGATORY NO. 24:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 17 of Appendix B to 10 C.F.R. part 50 since to November 1, 1981.

ANSWER TO INTERROGATORY NO. 24:

See Answer to Interrogatory No. 2.

INTERROGATORY NO. 25:

For each and every major subcontractor for Diablo Canyon Units 1 and 2, state specifically each and every fact you rely on as a basis for your allegation that each such subcontractor's design quality assurance program failed to comply with criterion 17 of Appendix B to 10 C.F.R. part 50 since to November 1, 1981.

ANSWER TO INTERROGATORY NO. 25:

See Answer to Interrogatory No. 2.

INTERROGATORY NO. 26:

State specifically each and every fact you rely on as a basis for your allegation that the licensee's design quality assurance program for Diablo Canyon Units 1 and 2 failed to comply with criterion 1 of Appendix B to 10 C.F.R. part 50 since November 1, 1981.

ANSWER TO INTERROGATORY NO. 26:

See Answer to Interrogatory No. 1.

INTERROGATORY NO. 27:

State specifically each and every fact you rely on as a basis for your allegation that the licensee's design quality assurance program for Diablo Canyon Units 1 and 2 failed to comply with criterion 2 of Appendix B to 10 C.F.R. part 50 since November 1, 1981.

ANSWER TO INTERROGATORY NO. 27:

See Answer to Interrogatory No. 1.

INTERROGATORY NO. 28:

State specifically each and every fact you rely on as a basis for your allegation that the licensee's design quality assurance program for Diablo Canyon Units 1 and 2 failed to comply with criterion 3 of Appendix B to 10 C.F.R. part 50 since November 1, 1981.

ANSWER TO INTERROGATORY NO. 28:

See Answer to Interrogatory No. 1.

INTERROGATORY NO. 29:

State specifically each and every fact you rely on as a basis for your allegation that the licensee's design quality

assurance program for Diablo Canyon Units 1 and 2 failed to comply with criterion 4 of Appendix B to 10 C.F.R. part 50 since November 1, 1981.

ANSWER TO INTERROGATORY NO. 29:

See Answer to Interrogatory No. 1.

INTERROGATORY NO. 30:

State specifically each and every fact you rely on as a basis for your allegation that the licensee's design quality assurance program for Diablo Canyon Units 1 and 2 failed to comply with criterion 5 of Appendix B to 10 C.F.R. part 50 since November 1, 1981.

ANSWER TO INTERROGATORY NO. 30:

See Answer to Interrogatory No. 1.

INTERROGATORY NO. 31:

State specifically each and every fact you rely on as a basis for your allegation that the licensee's design quality assurance program for Diablo Canyon Units 1 and 2 failed to comply with criterion 6 of Appendix B to 10 C.F.R. part 50 since November 1, 1981.

ANSWER TO INTERROGATORY NO. 31:

See Answer to Interrogatory No. 1.

INTERROGATORY NO. 32:

State specifically each and every fact you rely on as a basis for your allegation that the licensee's design quality assurance program for Diablo Canyon Units 1 and 2 failed to comply with criterion 7 of Appendix B to 10 C.F.R. part 50 since November 1, 1981.

ANSWER TO INTERROGATORY NO. 32:

See Answer to Interrogatory No. 1.

INTERROGATORY NO. 33:

State specifically each and every fact you rely on as a basis for your allegation that the licensee's design quality assurance program for Diablo Canyon Units 1 and 2 failed to comply with criterion 7 of Appendix B to 10 C.F.R. part 50 since November 1, 1981.

ANSWER TO INTERROGATORY NO. 33:

See Answer to Interrogatory No. 1.

INTERROGATORY NO. 34:

State specifically each and every fact you rely on as a basis for your allegation that the licensee's design quality assurance program for Diablo Canyon Units 1 and 2 failed to comply with criterion 16 of Appendix B to 10 C.F.R. part 50 since November 1, 1981.

ANSWER TO INTERROGATORY NO. 34:

See Answer to Interrogatory No. 1.

INTERROGATORY NO. 35:

State specifically each and every fact you rely on as a basis for your allegation that the licensee's design quality assurance program for Diablo Canyon Units 1 and 2 failed to comply with criterion 17 of Appendix B to 10 C.F.R. part 50 since November 1, 1981.

ANSWER TO INTERROGATORY NO. 35:

See Answer to Interrogatory No. 1.

INTERROGATORY NO. 36:

State specifically each and every fact you rely on as a basis for your allegation that the licensee's design quality assurance program for Diablo Canyon Units 1 and 2 failed to comply with criterion 18 of Appendix B to 10 C.F.R. part 50 since November 1, 1981.

ANSWER TO INTERROGATORY NO. 36:

See Answer to Interrogatory No. 1.

INTERROGATORY NO. 37:

List specifically each and every license commitment set forth in the Diablo Canyon FSAR which you allege has not been achieved as a result of the licensee's design quality assurance program since November 1, 1981.

ANSWER TO INTERROGATORY NO. 37:

Each valid Error which addresses activities accomplished by the ITP represents an example of a licensing commitment (including a QA program commitment) which has not been achieved during the design modifications which have occurred since November 1, 1981. Two examples of such an Error are set forth in EOI's 1138 and 1139. Further, a number of the ITR's which will address the adequacy of the ITP's design modifications, and particularly the seismic design modifications, have not yet been issued for review by the IDVP. Also see responses to Interrogatories Nos. 1 and 2.

Thus, the Governor's review of the IDVP's identification and resolution of EOI's, as well as the ITP's corrective action measures, is of necessity not yet complete.

INTERROGATORY NO. 38:

State specifically each and every fact upon which you base your allegation that the licensee's design quality assurance program since November 1, 1981 has caused commitments in the Diablo Canyon FSAR not to be achieved.

ANSWER TO INTERROGATORY NO. 38:

See Answer to Interrogatory No. 37 and Interrogatory No. 1.

INTERROGATORY NO. 39:

List specifically each and every license commitment set forth in the Diablo Canyon FSAR which you allege has not been achieved as a result of major subcontractors' design quality assurance program since November 1, 1981.

ANSWER TO INTERROGATORY NO. 39:

See Answer to Interrogatory No. 37 and Interrogatory No. 2.

INTERROGATORY NO. 40:

List specifically each and every portion of the licensee's design quality assurance program from November 1, 1981 to the present which you believe is deficient.

ANSWER TO INTERROGATORY NO. 40:

See Answer to Interrogatory No. 1.

INTERROGATORY NO. 41:

State each and every fact upon which you base your judgment regarding deficiency as to each such portion of licensee's design quality assurance program.

ANSWER TO INTERROGATORY NO. 41:

See Answer to Interrogatory No. 1.

INTERROGATORY NO. 42:

List specifically each and every implementing procedure of the licensee's design quality assurance program from November 1, 1981 to the present which you believe to be deficient.

ANSWER TO INTERROGATORY NO. 42:

See Answer to Interrogatory No. 1.

INTERROGATORY NO. 43:

State each and every fact upon which you base your judgment regarding each such deficiency for each such implementing procedure of the licensee's design quality assurance program.

ANSWER TO INTERROGATORY NO. 43:

See Answer to Interrogatory No. 1.

INTERROGATORY NO. 44:

For each and every major subcontractor for Diablo Canyon Units 1 and 2 since November 1, 1981, list specifically each and every portion of each such subcontractor's design quality assurance program for which you believe to be deficient.

ANSWER TO INTERROGATORY NO. 44:

See Answer to Interrogatory No. 2.

INTERROGATORY NO. 45:

State each and every fact upon which you base your judgment regarding each such deficiency for each such portion of each such subcontractor's design quality assurance program.

ANSWER TO INTERROGATORY NO. 45:

See Answer to Interrogatory No. 2.

INTERROGATORY NO. 46:

For each and every major subcontractor for Diablo Canyon Units 1 and 2 since November 1, 1981, list specifically each and every implementing procedure of each such subcontractor's design quality assurance program for which you believe to be deficient.

ANSWER TO INTERROGATORY NO. 46:

See Answer to Interrogatory No. 2.

INTERROGATORY NO. 47:

State each and every fact upon which you base your judgment regarding each such deficiency for each such implementing procedure of each such subcontractor's design quality assurance program.

ANSWER TO INTERROGATORY NO. 47:

See Answer to Interrogatory No. 2.

INTERROGATORY NO. 48:

Do you believe there are any of the 18 criteria of Appendix B to 10 C.F.R. part 50 which the licensee's design quality assurance program does not address?

ANSWER TO INTERROGATORY NO. 48:

The Governor's review to date of the PG&E quality assurance program in effect since November 1, 1981 indicates that the PG&E QA manual addresses each of the 18 criteria of Appendix B. However, the adequacy of the QA program is still

under review, and deficiencies have been identified as described in answer to Interrogatory No. 1.

INTERROGATORY NO. 49:

Do you believe there are any of the 18 criteria of Appendix B to 10 C.F.R. part 50 which any of the major subcontractor's design quality assurance program do not address?

ANSWER TO INTERROGATORY NO. 49:

At this time, the Governor has only reviewed the QA program description for one of the major design subcontractors (Bechtel). The Bechtel QA program in effect since mid-1982 appears to address each of the 18 criteria of Appendix B. However, the adequacy of the Bechtel QA program is still under review, and deficiencies have been identified as described in answers to Interrogatories Nos. 1 and 2.

INTERROGATORY NO. 50:

State each and every fact upon which you base your allegation that the scope of the IDVP's review of the seismic design of safety related SS&Cs is too narrow.

ANSWER TO INTERROGATORY NO. 50:

The Governor's review of the seismic portion of the IDVP is not complete at this time, in part because the IDVP has not yet documented the completion of all seismic Interim Technical Reports (ITR's), of all EOI's resolutions in the ITR's, or of the IDVP's Final Report.

The Governor's review to date indicates that the scope of the IDVP review of seismic design is too narrow for several reasons as identified below.

First, the IDVP did not verify samples from each seismic design activity, or from each seismic design group within each seismic design activity, which it did review.

The IDVP states in their Final Report that firms were excluded from IDVP review on the following bases:

1. Involved in licensing only.
2. Involved in design studies, or provided minor design input.
3. Performing NDE.
4. Provided design input which was not used in final designs.
5. Providing designs or design reviews which were not used.

The IDVP identified the following firms as being excluded from IDVP review:

1. R. L. Cloud Associates
2. Teledyne Engineering Services
3. Westinghouse (NSSS Supplier)
4. James Engineering Company.
5. Kaiser Engineers
6. Mark C. Jones
7. Nu Tech Incorporated
8. Western Canada Hydraulic Laboratories
9. G. E. Company

(See IDVP Report, pp. 4.1.4-2 and 4.1.4-3)

The Governor is particularly concerned with the exclusion of Westinghouse NSSS design work from IDVP review,

since NSSS design is a critical and major aspect of plant design.

The above list may not be an exhaustive list of design groups whose design activities were not reviewed by the IDVP. However, it is clear that PG&E has direct access to data underlying the IDVP and ITP efforts unavailable to the Governor, and can more readily compile a complete list than can the Governor.

Further, the IDVP did not select statistically valid samples from which to draw conclusions, as set forth in the Answer to Interrogatory No. 68.

Third, the IDVP failed to verify independently the analyses, but merely checked data of inputs to models used by PG&E, or performed limited analysis as set forth in the Answer to Interrogatory No. 70.

Finally, the IDVP review was limited to Diablo Canyon Unit 1 (see NEUREG - 0675, SUPPLEMENT NO. 18, Diablo Canyon SER, p. C.1-4); Unit 2 was excluded from the scope of review.

For the above reasons, the Governor's review indicates that the scope of seismic review of the IDVP is too narrow to provide assurance of the seismic design adequacy of structures, systems and components at Diablo Canyon.

INTERROGATORY NO. 51:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 51:

The references which apply to Interrogatory No. 51 are given in the body of the Answer to Interrogatory No. 50.

Paragraph and page information are not always supplied in every case since this information is as readily available to PG&E as to the Governor.

INTERROGATORY NO. 52:

State each and every fact upon which you base your allegation that the IDVP did not verify samples from each of the seismic design activities.

ANSWER TO INTERROGATORY NO. 52:

See the Answer to Interrogatory No. 50.

INTERROGATORY NO. 53:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 53:

See the Answer to Interrogatory No. 50.

INTERROGATORY NO. 54:

State each and every fact upon which you base your allegation that the IDVP did not verify samples from each of the design groups in the design chain performing the seismic design activities it did review.

ANSWER TO INTERROGATORY NO. 54:

See the Answer to Interrogatory No. 50.

INTERROGATORY NO. 55:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 55:

See the Answer to Interrogatory No. 50.

INTERROGATORY NO. 56:

State each and every fact upon which you base your allegation that the IDVP did not verify samples from each of the non-seismic design activities it did review.

ANSWER TO INTERROGATORY NO. 56:

PG&E, in its Answers to Governor's Second Set of Interrogatories, stated on page 20 that the DCP had not reviewed the non-seismic design work for each and every design group in the design chain for each and every safety related structure, system and component modified since November 1, 1981. PG&E further stated that the reason for this was that the November 19, 1981 NRC letter from Harold Denton required the review of non-seismic design activities by an independent contractor.

In addition, the IDVP in its Response to Governor's Second Set of Interrogatories states on pages 15-16 that it had not reviewed the non-seismic design work of each and every design group in the design chain for each and every safety related system, structure and component at Diablo Canyon. The IDVP Phase II review consisted of (a) a fluid system, (b) an

air system, and (c) an electrical system associated with one of the above. Design work outside the above three systems was reviewed only in special instances, such as additional verification for generic EOI's, and review of certain cases in the ITP Corrective Action Program. The IDVP further stated that identification of every design group whose work was not reviewed was not part of the IDVP effort, and that any design groups not reviewed by the IDVP were either beyond the scope of the IDVP program or outside the sample selected by the IDVP.

Therefore, there appears to be little disagreement that some design activities performed by some design groups in the design chain were not verified by IDVP samples. The Governor is attempting to ascertain exactly which activities by which groups were not reviewed. Neither PG&E nor the IDVP were able to provide a listing of unreviewed design activities or design groups in response to the Governor's Interrogatories No. 29(a) and No. 38(a) respectively. Therefore, the Governor will continue the review of the scope of the Diablo Canyon non-seismic design verification activities and will supplement this Response if and when a more definitive listing of unreviewed design activities is developed.

INTERROGATORY NO. 57:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 57:

The references to the Response to Interrogatory No. 57 are provided in the body of the Response to Interrogatory No. 56.

INTERROGATORY NO. 58:

State each and every fact upon which you base your allegation that the IDVP did not verify samples from each of the design groups in the design chain that performed the non-seismic design activities it did review.

ANSWER TO INTERROGATORY NO. 58:

The facts which support the Governor's conclusion that the IDVP has not reviewed samples from each non-seismic design group in the design chain are stated in the Response to Interrogatory No. 56. As stated in the Response to Interrogatory No. 56, the Governor was not provided with the specific identification of each unreviewed design group in the answers to the Governor's Interrogatories supplied by PG&E and the IDVP. An example of a design group and activities not fully reviewed by the IDVP and the ITP are the Westinghouse NSSS design. Westinghouse provided major and critical design effort to Diablo Canyon but the Westinghouse NSSS was excluded from the scope of the design verification program because of the interpretation of Westinghouse's activities as "design work done by a vendor in support of the sale and licensing of their equipment" (see the IDVP Final Report, §§ 1.3.2 and 4.1.4).

The Governor believes that PG&E, which has direct access to data underlying the IDVP and ITP efforts unavailable

to the Governor, can more readily compile a list of the design groups whose work was not reviewed than can the Governor.

INTERROGATORY NO. 59:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 59:

The references to the Response to Interrogatory No. 59 are provided in the body of the Response to Interrogatory No. 58.

INTERROGATORY NO. 60:

State each and every fact upon which you base your allegation that the number of samples obtained for the non-seismic design activities the IDVP did verify are insufficient to provide mathematically verifiable conclusions about even those activities.

ANSWER TO INTERROGATORY NO. 60:

The Governor's review to date indicates that the IDVP's sampling program was deficient for the reasons set forth in the Response to Interrogatory No. 68. The portion of the Response to Interrogatory No. 68 pertinent to Interrogatory No. 60 include the following:

1. The sampling program was not conceived or executed using expert statistical assistance or rigorous statistical techniques.

2. The sampling procedures, criteria and acceptance criteria were not set forth beforehand.
3. The samples selected were not valid random samples. Rather, a number of samples were based solely on subjective engineering judgment.
4. The samples selected were not representative of the populations to which conclusions were extrapolated.

INTERROGATORY NO. 61:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 61:

See Answer to Interrogatory No. 69.

INTERROGATORY NO. 62:

State each and every fact upon which you base your allegation that the IDVP has accepted substitution of mean measured performance of structures and materials in lieu of code-specified minima.

ANSWER TO INTERROGATORY NO. 62:

This contention is based on the lack of documentation by the IDVP of a full verification by it of use in the PG&E Phase I Final Report of material properties based on test values rather than specified minimum value.

INTERROGATORY NO. 63:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 63:

No specific page and paragraph of IDVP materials can be cited, since a complete verification is not documented by IDVP.

INTERROGATORY NO. 64:

State each and every fact upon which you base your allegation that the IDVP has accepted deviations from the equipment standards set forth in PG&E's license commitments without providing an adequate engineering justification for the change.

ANSWER TO INTERROGATORY NO. 64:

The Governor's review of the IDVP's resolution of EOI's is not yet complete. Further, all EOI's have not yet been resolved by the IDVP, nor have the resolution of all EOI's yet been documented in ITRs.

The Governor's review to date has identified the following examples, summarized in Table 64, of EOI's where the IDVP accepted deviations from the Diablo Canyon licensing commitments without providing an adequate engineering justification.

The answer does not specify pages and paragraphs of each EOI since that information is as readily available to PG&E as it is to the Governor.

TABLE 64

IDVP ACCEPTED DEVIATIONS FROM DIABLO CANYON LICENSING CRITERIA

Description of Deviation	EOI Nos.
1. Contrary to the requirements of FSAR Section 17.1 regarding compliance of the as-built installation with the design documents, the IDVP review of the AFWS disclosed that the as-built installation failed to meet the design drawings in that (i) a steam trap on the turbine-driven AFW pump steam supply line was not provided and (ii) there were discrepancies in the arrangement of the long-term cooling water supply line.	8027, 8048
2. Contrary to FSAR Section 8.3.3., the electrical design did not fully comply with commitments regarding separation and color coding.	8055, 8059
3. Contrary to the single failure criterion of Appendix A to 10 CFR Part 50, a single failure may cause loss of redundant power divisions because redundant electric power division trains were electrically interconnected through the circuit breakers and a single power transfer switch.	8041
4. Contrary to GDC 57 of Appendix A, valve operators for the isolation valves which provide the steam supply to the turbine-driven auxiliary feed pump from two of the main steam generators were not classified and procured as safety related components.	8018

TABLE 64

IDVP ACCEPTED DEVIATIONS FROM DIABLO CANYON LICENSING CRITERIA

Description of Deviation	EOI Nos.
5. The single failure of an auxiliary relay would prevent automatic closure of the redundant steam generator blowdown isolation valves on automatic initiation of the AFWS contrary to a Westinghouse interface requirement and FSAR Figure 7.2-1.	8052
6. Flow transmitter FT-78 and flow control valve FCV-95 are located in a harsh environment but were not listed as such in the PG&E environmental qualification report and are not yet environmentally qualified.	8052
7. Portions of the CRVPS were omitted from PG&E's environmental qualification report.	8056
8. CRVPS equipment identified in the FSAR as necessary to maintain control room habitability during safe shutdown were not evaluated regarding the effects of a moderate energy pipe break.	8050
9. The fire zone separation for the motor driven AFW pump room was not consistent with licensing document descriptions with regard to a large grated ventilation opening in the ceiling as well as discrepancies in the PG&E fire review noted in EOI's 8037, 8019, and 8021 which results in an inadequate margin of safety.	8038, 8037 8019, 8021
10. Contrary to licensing document descriptions, each of the three 4160 volt cable spreading rooms has a ventilation opening leading up to the 4160 volt switchgear rooms which results in an inadequate margin of fire safety.	8039
11. Verification of system design pressures and temperatures for safety related systems including its use in equipment specification were not included in the IDVP's additional verification program for items within the Westinghouse design scope, but rather were improperly limited by the IDVP to PG&E design scope systems.	8009, 8010 8062

TABLE 64

IDVP ACCEPTED DEVIATIONS FROM DIABLO CANYON LICENSING CRITERIA

Description of Deviation	EOI Nos.
12. Contrary to FSAR Section 3.6, possible jet impingement loads were not considered in the design and qualification of safety related piping and equipment inside containment.	7002
13. Contrary to QA program commitments in FSAR Section 17.1, documented evidence was inadequate to demonstrate that rupture restraints outside and inside containment have been properly designed and installed to provide protection against rupture in high pressure piping.	6002
14. For the containment exterior shell review the ITP review used the AISC Code rather than Section III of the ASME Code contrary to the commitment in Table 3.2-4 of the FSAR.	SER, Supp.18 at p. C.3-17

INTERROGATORY NO. 65:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 65:

See Answer to Interrogatory No. 64.

INTERROGATORY NO. 66:

State each and every fact upon which you base your allegation that the IDVP has failed to ascertain the root cause of the deviation from PG&E's license commitments and the regulatory requirements that it was and is discovering.

ANSWER TO INTERROGATORY NO. 66:

In many cases, the IDVP has resolved EOI's as specific problems, rather than attempting to find out what factors or events led to the discrepancy's existence. Examples of such resolutions are cases where EOI's were resolved by analysis or modifications which resolved the specific concern identified, without giving any indication as to how the concern arose. In fact, the Governor's review could not identify a single EOI for which the underlying cause, or series of events leading to the error was identified in the IDVP documentation. Each valid EOI represents at least two errors: the error itself, and the accompanying error or errors in the QA program or its implementation which allowed the original error to remain undetected. In no case did the IDVP specifically identify the second error or errors in quality assurance.

Table 66.1 provides a listing of the EOI's which the Governor's review to date has identified as cases where the IDVP failed to ascertain the root cause of the identified discrepancy. Table 66.2 summarizes the categories of deficiencies in disposition of EOI's identified in Table 66.1. (The use of the term "generic" in these answers is intended to conform to the PG&E terminology and implies no agreement with PG&E's or the IDVP's characterization.)

TABLE 66.1

LISTING OF EOI RESOLUTIONS WHERE ROOT CAUSE WAS NOT ADDRESSED

<u>EOI</u>	<u>ITR</u>	<u>COMMENTS</u>
7004 7005 8001	47	Closed by IDVP; concern proved to exist generically, but safety significance was not addressed in ITR, nor was root cause of errors. PG&E is now resolving any design implications in its Iterative Design Process.
8003	47	(Same as for 7004, 7005 and 8001 above).
8005	14	Closed by IDVP; root cause of error was not addressed. Rather, the adequacy was justified by analysis.
8006	47	(Same as for 7004, 7005 and 8001 above).
8009 8010	46	Closed by IDVP; concern proved to exist generically. The IDVP did not address the safety significance in ITR, or the root cause of the errors. PG&E is now performing a general reanalysis.
8011	21	Closed by IDVP; root cause of error was not addressed.
8014	21	Closed by IDVP; resolution omitted mention of four out of six components identified in original EOI. Root cause of error was not addressed, nor were potential generic implications.
8015	22	Closed by IDVP; root cause of the error was not addressed, nor were the possible negative effects of not requiring flow testing which the IDVP it self identified.
8017	49	Closed by IDVP; concern proved to exist generically. The IDVP did not address the safety significance in the ITR, or the root cause of the error. PG&E is performing a general review and making modifications as necessary.

TABLE 66.1

LISTING OF EOI RESOLUTIONS WHERE ROOT CAUSE WAS NOT ADDRESSED

8019	18	Closed by IDVP; root cause of the error was not addressed. Rather, the adequacy was justified by analysis.
8020		
8021		
8022	24	Closed by IDVP; root cause of the error was not addressed. Rather, the adequacy was justified by analysis.
8023	24	Closed by IDVP; root cause of the error was not addressed, nor were the potential generic implications. The error was resolved by modifications.
8024		
8025		
8026		
8027	22	Closed by IDVP; root cause of the error was not addressed.
8031	21	Closed by IDVP; root cause of the error was not addressed. Rather, the adequacy was justified by analysis. Some of the affected equipment was transferred to EOI file 8064.
8032	27	Closed by IDVP; root cause of the error was not addressed, nor were the potential generic implications. The error was resolved by modifications.
8033	47	(Same as for 7004, 7005, and 8001 above).
8034		
8035	18	Closed by IDVP; root cause of the error was not addressed.
8036		
8038	18	Closed by IDVP; root cause of the error was not addressed. Rather, the adequacy was justified by analysis.
8039		
8040	14	(Same as for 8005 above).
8041	26	Closed by IDVP; root cause of the error was not addressed.
8044	26	(Same as for 8041 above).
8045	24	(Same as for 8022 above).

TABLE 66.1

LISTING OF EOI RESOLUTIONS WHERE ROOT CAUSE WAS NOT ADDRESSED

8048	22	Closed by IDVP; root cause of the error was not addressed.
8049	23	Closed by IDVP; root cause of the error was not addressed. Rather, the adequacy was justified by analysis.
8050	21	Closed by IDVP; root cause of the error was not addressed. Rather, the adequacy was justified by analysis.
8051	27	Closed by IDVP; root cause of the error was not addressed.
8053	28	Closed by IDVP; root cause of the error was not addressed.
8055	27	(Same as for 8051 above).
8056	28	(Same as for 8053 above).
8057	49	(Same as for 8017 above).
8060	22	Closed by IDVP; root cause of the error was not addressed. The error was resolved by modifications.
8062	22	(Same as for 8009 and 8010 above).
8063	25	Closed by IDVP; root cause of the error was not addressed. The error was resolved by modifications.
8065	48	Closed by IDVP; root cause of the error was not addressed. Rather, the adequacy was justified by analysis.

TABLE 66.2

SUMMARY OF TABLE 66.1

Root Cause of Error Not Addressed

	<u>Generic Concern</u>	<u>Resolved by Modification</u>	<u>Resolved by Analysis</u>	<u>Other</u>
<u>TOTAL</u>	12	7	13	13
<u>EOI's</u>	7004	8023	8005	8011
	7005	8024	8019	8014
	8001	8025	8020	8015
	8003	8026	8021	8027
	8006	8032	8022	8035
	8009	8060	8031	8036
	8010	8063	8038	8041
	8017		8039	8044
	8033		8040	8048
	8034		8045	8051
	8057		8049	8053
	8062		8050	8055
			8065	8056

INTERROGATORY NO. 67:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 67:

Table 66.1 identifies the EOI's and the Interim Technical Reports in which they are discussed. Table 66.1 does not specify pages and paragraphs within ITR's since that information is as readily available to PG&E as to the Governor.

INTERROGATORY NO. 68:

State each and every fact upon which you base your allegation that the IDVP has failed to verify independently

that all safety related structures, systems, and components at Diablo Canyon meet PG&E's licensing commitments.

ANSWER TO INTERROGATORY NO. 68:

The Governor's review to date indicates that the IDVP has failed to verify independently that all safety related structures, systems and components of Diablo Canyon meet PG&E's licensing commitments.

The IDVP reviewed a sample of structures, systems and components at Diablo Canyon. For example, the IDVP review of non-seismic design focused on the Auxiliary Feedwater System, the Control Room Ventilation and Pressurization System, and the 4160-volt Electrical Distribution System. To claim that the IDVP had verified the non-seismic design of other safety related systems, structures and components would require the extrapolation of the IDVP's conclusions to the unreviewed safety systems. While the extension of analytical conclusions is a valid exercise under certain specific conditions, the IDVP review has not met those conditions and therefore conclusions cannot be drawn as to the adequacy of design activities in the unreviewed portion of the plant, for the reasons set forth below.

The extrapolation of conclusions from a sample to a population is a statistical exercise and requires expert knowledge and use of statistical principles. However, the IDVP committed only to "consider" the use of statistical techniques to "augment the program" in the Phase I and II Program Management Plans (see Appendix C to both the Phase I and II

Program Management Plans). Later, the IDVP determined that "rigorous statistical techniques are largely inappropriate for a design verification program," and decided not to retain a statistical expert as consultant to the IDVP (see the IDVP Final Report, pp. 3.5-7 and 3.5.-8). Therefore the IDVP did not have the expert assistance necessary to establish a valid sampling program.

The IDVP samples provide inadequate bases for the extrapolation of results to the unreviewed population of safety related systems, structures and components of Diablo Canyon. Deficiencies in the IDVP's samples are set forth below as follows:

1. The samples are not representative of the entire population. Conclusions based on a sample can only be extrapolated to a population similar to the sample. Work performed in one design activity cannot represent work performed in a different design activity. Therefore, the IDVP should have reviewed samples of all of the design activities. As set forth in the Response to Interrogatory No. 56, the IDVP did not. The work product of one design subcontractor cannot represent the work product of a different design subcontractor. Therefore, for a given design activity, the IDVP should have sampled work for every subcontractor. As set forth in the Response to Interrogatory No. 58, the IDVP did

not. Further, the Governor's continuing review has failed to identify any IDVP analysis which purports to justify the safety systems from which review samples were taken as being representative of all other safety related systems, structures and components of Diablo Canyon.

2. The samples are not random. The IDVP sampling program relied on subjective engineering judgments rather than statistically valid sampling techniques. (See Supplemental Affidavit of Richard Hubbard Concerning Breakdowns in the Diablo Canyon Quality Assurance Program, pp. 33-34).
3. The sampling criteria are not explicit. The IDVP has failed to set forth its criteria for the selection of samples, such as desired degree of confidence, acceptance criteria of the review, sample size, or criteria for additional sampling. Therefore, the IDVP has failed to provide any documented basis that they conceived and executed a valid sampling program.

In summary, the Governor concludes that the extrapolation of the areas reviewed by the IDVP to the unreviewed portions of Diablo Canyon is inappropriate, based on the above deficiencies in the IDVP's sampling program.

Further, the Governor believes that deficiencies exist in the IDVP's disposition of identified non-compliances in the

areas sampled. As set forth in the Responses to Interrogatories No. 66 and 124, the IDVP did not address the root cause and generic implications of many identified discrepancies between PG&E's licensing commitments and the actual design of Diablo Canyon.

The Governor's review of the Interim Technical Reports (ITR's) in which the IDVP's review samples are discussed is not yet complete. The Governor is also waiting for further information from PG&E and the IDVP (such as ITR's and updates of the IDVP Final Report).

INTERROGATORY NO. 69:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 69:

The references used in the Answer to Interrogatory No. 68 are identified in the body of the Answer to Interrogatory No. 68.

INTERROGATORY NO. 70:

State each and every fact upon which you base your allegation that the IDVP has performed no independent verifications, but has merely checked data inputs to models used by PG&E.

ANSWER TO INTERROGATORY NO. 70:

This contention is based on the lack of complete, independent analyses, similar to the analyses done by Brookhaven

National Laboratories, by the IDVP for the Containment Auxiliary Building, Fuel Handling Building, Turbine Building or Intake Structure. While some independence analyses have been done they are highly limited, and do not verify the seismic design of all structures.

INTERROGATORY NO. 71:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 71:

ITR 6, the first ITR dealing with the seismic analysis of a structure, contains only an analysis for natural frequencies and modal shapes rather than an analysis to obtain the complete dynamic response of the structure (ITR 6, Scope, p.8). Page 35 of ITR 6 recommends an examination of the seismic analysis of the remaining structures, to review design and field changes, and to review the new Auxiliary Building analysis, but there is no discussion or recommendations of a full, independent analysis by the IDVP.

The document entitled Verification Program for PG&E Corrective Action, which appears to be ITR 8, sets forth the IDVP plan of action for the Containment Structure, Auxiliary Building, Fuel Handling Building and Intake Structure at Tables 1, 2, 3 and 5, and at pages 5, 9, 13, and 19, respectively. Neither these tables nor the referencing texts state that full, independent analyses of these structures will be done by the

IDVP. Table 4, on page 17, dealing with the Turbine Building was not completed at the time of review.

ITR 50 states that the IDVP has conducted independent analyses of two piping models in the containment annulus but indicates no other independent review of this structure.

INTERROGATORY NO. 72:

State each and every fact upon which you base your allegation that the IDVP has failed to verify that modeling by PG&E of soils properties for the containment building is justified and proper.

ANSWER TO INTERROGATORY NO. 72:

This contention is based on the lack of documentation by the IDVP of an independent verification by it of the correctness and reasonableness of PG&E's modeling of the soils properties and soils structure interaction for the Containment Building.

INTERROGATORY NO. 73:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 73:

No ITR page or paragraph of IDVP material can be cited, since a complete, independent analysis is not documented by the IDVP.

INTERROGATORY NO. 74:

State each and every fact upon which you base your

allegation that the IDVP has failed to verify PG&E's computations for modes in the containment building having frequencies between 20 and 33 HZ.

ANSWER TO INTERROGATORY NO. 74:

This contention is based on the absence from any ITR of a documented verification of the correctness and appropriateness of PG&E's seismic analysis of the Containment Building for the DE and the DDE for modes with frequencies greater than 20 HZ.

INTERROGATORY NO. 75:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 75:

No specific IDVP materials page or paragraph can be cited, since a complete verification of this modeling approach is not documented by the IDVP.

INTERROGATORY NO. 76:

State each and every fact upon which you base your allegation that the IDVP has failed to verify that use of inconsistent seismic techniques of modeling of accelerations, displacements, and shell forces in the containment building is justifiable and proper.

ANSWER TO INTERROGATORY NO. 76:

This contention is based on the absence of documented verification by the IDVP of the correctness and appropriateness

of the use by PG&E of a time history modal superposition analysis to determine accelerations and displacements in its seismic analysis of the Containment Building, while using a response spectra analysis to determine shell forces in the same building.

INTERROGATORY NO. 77:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 77:

No specific IDVP materials, page and paragraph can be cited, since a complete verification of the use of this modeling approach has not been documented by the IDVP.

INTERROGATORY NO. 78:

State each and every fact upon which you base your allegation that the IDVP has failed to verify that failure by PG&E to use two horizontal components in its seismic modeling of the containment building for the DE and DDE, as it did for the Hosgri, is justifiable and proper.

ANSWER TO INTERROGATORY NO. 78:

This contention is based on the absence of documentation by the IDVP that it has fully verified the correctness and appropriateness of the use by PG&E of a seismic analysis for the Containment Building that uses only one horizontal component of motion for the DE and the DDE, but uses two horizontal components of motion for the Hosgri.

INTERROGATORY NO. 79:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 79:

No specific IDVP materials, page and paragraph can be cited, since a complete verification of the use of this modeling approach has not been documented by the IDVP.

INTERROGATORY NO. 80:

State each and every fact upon which you base your allegation that the IDVP failed to verify that use by PG&E of inappropriate and potentially dangerous stress factors and load factors for steel still used in the containment building, is justifiable and proper.

ANSWER TO INTERROGATORY NO. 80:

This contention is based on the absence of documentation by the IDVP that it has adequately verified the correctness and appropriateness of the stress factors and load factors for steel used in PG&E's analysis of the Containment Building, and of PG&E's application of relevant seismic criteria in that analysis.

INTERROGATORY NO. 81:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 81:

No specific page and paragraph of IDVP materials can be cited, since a complete verification of the relevant factors has not been documented by the IDVP.

INTERROGATORY NO. 82:

State each and every fact upon which you base your allegation that the IDVP has failed to verify that PG&E's failure to specify all damping values used in modeling of each mode in the containment building, is justifiable and proper.

ANSWER TO INTERROGATORY NO. 82:

The contention is based on the absence from the PG&E Phase I Final Report of a full listing of modal damping values used in the horizontal analysis of the Containment Building for the DE and the DDE, and the lack of documentation by the IDVP that it has fully verified Building the correctness and appropriateness of modal damping valves in that analysis.

INTERROGATORY NO. 83:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 83:

No specific page and paragraph of IDVP materials can be cited, since a complete verification of PG&E's use of correct and proper damping values has not been documented by IDVP.

INTERROGATORY NO. 84:

State each and every fact upon which you base your allegation that the IDVP has failed to verify that the values used by PG&E in modeling soils properties for the auxiliary building are correct and properly used.

ANSWER TO INTERROGATORY NO. 84:

This contention is based on the lack of documentation by the IDVP that it has fully verified the correctness and appropriateness of PG&E's use of soils springs in its modeling of the Auxiliary Building, including the physical meaning and intended purpose of the soil springs, the boundary conditions at the ends of the springs, and the way in which the springs account for soil mass. INTERROGATORY NO. 85:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 85:

The discussion in ITR 6, section 5.1.1, page 11, is incomplete and fails to describe a full verification of the factors listed in the answer to the preceding interrogatory.

INTERROGATORY NO. 86:

State each and every fact upon which you base your allegation that the IDVP has failed to verify that all damping factors used by PG&E in modeling of the DE for auxiliary buildings are conservative and proper.

ANSWER TO INTERROGATORY NO. 86:

This contention is based on the lack of documentation by the IDVP that it has fully verified the correctness and appropriateness of the use by PG&E of 4% damping values for the DE and the DDE in its modeling of the Auxiliary Building including the correctness of PG&E's identification and application of relevant seismic criteria.

INTERROGATORY NO. 87:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 87:

No specific page and paragraph of IDVP material can be cited, since a complete verification of the use of correct and proper damping values has not been documented.

INTERROGATORY NO. 88:

State each and every fact upon which you base your allegation that the IDVP has failed to verify that all stress values for concrete in shear walls used by PG&E in modeling the auxiliary building are conservative and proper.

ANSWER TO INTERROGATORY NO. 88:

This contention is based on the lack of documentation by the IDVP that it has fully verified the appropriateness of use by PG&E of allowable shear stress for the concrete in the shear walls of the Auxiliary Building of  $10(\sqrt{f'c})$ , a less conservative value than that of ACI 318-77.

INTERROGATORY NO. 89:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 89:

No specific page and paragraph of IDVP materials can be cited, since a complete verification of the use of this value has not been documented by the IDVP.

INTERROGATORY NO. 90:

State each and every fact upon which you base your allegation that the IDVP has failed to verify that PG&E's modeling of the crane in the turbine building at full load is complete, covers all cases, and is conservative and proper.

ANSWER TO INTERROGATORY NO. 90:

This contention is based on the lack of documentation by the IDVP that it has fully verified that PG&E's modeling of the crane at fuel load has been done for all cases, with the crane loaded or unloaded and parked at various locations, and not solely for the crane unloaded and parked at column line 9.

INTERROGATORY NO. 91:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 91:

No specific page and paragraph of IDVP materials can be cited, since a complete verification of this modeling analysis has not been documented by IDVP.

INTERROGATORY NO. 92:

State each and every fact upon which you base your allegation that the IDVP has failed to verify that PG&E's use of the double algebraic sum method of calculation, rather than the square root of the sum of the squares method, is justifiable and properly done.

ANSWER TO INTERROGATORY NO. 92:

This contention is based on the lack of documentation by the IDVP that it has fully verified the correctness and appropriateness of use by PG&E of the response spectra modal superposition method with modal responses combined by the square root sum of the squares method in calculating member forces for the Hosgri, except for closely spaced modes, which were combined using the double algebraic sum method.

INTERROGATORY NO. 93:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 93:

No specific page and paragraph of IDVP materials can be cited, since a complete verification of this technique has not been documented by the IDVP.

INTERROGATORY NO. 94:

State each and every fact upon which you base your allegation that the IDVP has failed to verify that PG&E's modeling of torsion factors by differing techniques for different buildings is conservative and properly done.

ANSWER TO INTERROGATORY NO. 94:

This contention is based on the lack of documentation by the IDVP that it has fully verified the correctness and appropriateness of the modeling methods by which PG&E has accounted for torsional motion in all structures, including accounting for accidental eccentricity in the Turbine Building and the Intake Structure by increasing horizontal motion by 10%.

INTERROGATORY NO. 95:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 95:

No specific page and paragraph of IDVP materials can be cited, since a complete verification of the relevant modeling techniques has not been documented by the IDVP.

INTERROGATORY NO. 96:

State each and every fact upon which you base your allegation that the IDVP has failed to verify how hydrodynamic forces were computed by PG&E in its modeling of the intake structure, and that such computation was properly and correctly done.

ANSWER TO INTERROGATORY NO. 96:

This contention is based on the lack of explanation in the PG&E Phase I Final Report of how the hydrodynamic forces in the Intake Structure were modeled, and on the lack of documentation by the IDVP that it has fully verified the correctness and appropriateness of such modeling.

INTERROGATORY NO. 97:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 97:

No specific page and paragraph of PG&E or IDVP materials can be cited, since a complete explanation or verification of this modeling has not been documented by either.

INTERROGATORY NO. 98:

State each and every fact upon which you base your allegation that the IDVP has failed to verify that PG&E's use in modeling the intake structure of different models for non-linear vertical dynamic amplification and for horizontal seismic loading, and PG&E's method of combining their responses, are justifiable and properly done.

ANSWER TO INTERROGATORY NO. 98:

This contention is based on the lack of documentation by IDVP that it has fully verified correctness and appropriateness of the use by PG&E of a linear elastic analysis of the horizontal and vertical response for the unloaded case,

a nonlinear time history analysis for the vertical response for the loaded case, and use of the SRSS method to combine the three directions of earthquake motion.

INTERROGATORY NO. 99:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 99:

No specific page or paragraph of IDVP materials can be cited, since a complete explanation and verification of this modeling technique has not been documented by the IDVP.

INTERROGATORY NO. 100:

State each and every fact upon which you base your allegation that the IDVP has failed to verify that PG&E's use of ductility factors for steel and concrete in modeling the intake structure is conservative and properly done.

ANSWER TO INTERROGATORY NO. 100:

This contention is based on the lack of documentation by the IDVP that it has fully verified the correctness and appropriateness of the use by PG&E of ductility factors of 1.3 for concrete, 3 for steel, and imprecisely specified local factors (identified only as being required to demonstrate that the function of design Class I equipment will not be adversely affected), combined with 7% damping for the Hosgri event.

INTERROGATORY NO. 101:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 101:

No specific page or paragraph of IDVP materials can be cited, since a complete explanation and verification of this modeling technique has not been documented by the IDVP. ITR 58, Rev. O, has a brief comment on ductilities at page 17, but this is a conclusory statement that provides no explanation, documentation or verification.

INTERROGATORY NO. 102:

State each and every fact upon which you base your allegation that the standards which the IDVP utilized to determine whether the non-seismic design activities it reviewed met PG&E's license commitments were improper.

ANSWER TO INTERROGATORY NO. 102:

See Answer to Interrogatory No. 64.

INTERROGATORY NO. 103:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 103:

See Answer to Interrogatory No. 64.

INTERROGATORY NO. 104:

State each and every fact upon which you base your allegation that the IDVP has accepted deviations from the equipment standards set forth in PG&E's license commitments without providing an adequate engineering justification for the changes.

ANSWER TO INTERROGATORY NO. 104:

See Answer to Interrogatory No. 64.

INTERROGATORY NO. 105:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 105:

See Answer to Interrogatory No. 64.

INTERROGATORY NO. 106:

State each and every fact upon which you base your allegation that the IDVP has failed to ascertain the root cause of the deviations from PG&E's license commitments that it was and is discovering.

ANSWER TO INTERROGATORY NO. 106:

Interrogatory No. 106 appears to be similar to Interrogatory No. 66, except more limited in wording. Therefore, the response to Interrogatory No. 66 also addresses the response to Interrogatory No. 106.

INTERROGATORY NO. 107:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 107:

See Answer to Interrogatory No. 67.

INTERROGATORY NO. 108:

State each and every fact upon which you base your allegation that the IDVP has no systematic program for verifying that the design of equipment supplied to PG&E from its subcontractors met PG&E's license commitments for such equipment.

ANSWER TO INTERROGATORY NO. 108:

During the ASLAB pre-hearing conference on August 23 and 24, 1983, counsel for PG&E acknowledged that the IDVP had no systematic program for verifying that the design of equipment and components supplied to PG&E by its contractors met the license application criteria. A major example is Westinghouse supplied equipment. While the IDVP/ITP program did identify errors in the Westinghouse equipment such as the accumulator cabinets and the main control boards, in general, the IDVP limited its review to the PG&E/Westinghouse seismic interface as set forth in ITR-11. Further, not even all safety-related design subcontractors were reviewed by IDVP. For example, Section 4.1.4 of the IDVP Final Report provides a list of safety-related design subcontractors who were not

included in the IDVP verification efforts. Thus, the Governor's review to date indicates that the apparent weakness of PG&E's design quality assurance program has rendered the design of all the plant's structures, systems, and components suspect (also see the ASLAB's Order of August 16, 1983).

The Governor's review of this matter is not yet complete. The answer does not specify pages and paragraphs of each referenced document since that information is as readily available to PG&E as it is to the Governor.

INTERROGATORY NO. 109:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 109:

See Answer to Interrogatory No. 108.

INTERROGATORY NO. 110:

State each and every fact upon which you base your allegation that the IDVP has failed to verify whether equipment and components supplied to PG&E by PG&E's subcontractors met all seismic design requirements.

ANSWER TO INTERROGATORY NO. 110:

See Answer to Interrogatory No. 108.

INTERROGATORY NO. 111:

Please identify each and every document which you claim supports each fact set forth in the preceding response

and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 111:

See Answer to Interrogatory No. 108.

INTERROGATORY NO. 112:

State each and every fact upon which you base your allegation that the IDVP has failed to verify whether equipment supplied to PG&E by PG&E's subcontractors met all non-seismic design requirements.

ANSWER TO INTERROGATORY NO. 112:

See Answer to Interrogatory No. 108.

INTERROGATORY NO. 113:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 113:

See Answer to Interrogatory No. 108.

INTERROGATORY NO. 114:

State each and every fact upon which you base your allegation that the IDVP has failed to require PG&E to implement a corrective and preventative action program that is sufficient to assure that the seismic design deficiencies that have been uncovered do not exist in other unexamined portions of the plant or will not be repeated in future design documents.

ANSWER TO INTERROGATORY NO. 114:

As stated in Answers to Interrogatories No. 66 and 124, the Governor's review of the IDVP's Interim Technical Reports (ITR's) has led to the conclusion that the root causes and generic implications of EOI's were not adequately addressed by the IDVP. The Governor believes that adequate consideration of the root causes and generic implications of identified deficiencies is essential to assure that similar problems will not occur in future design documents. The above discussion applies to seismic as well as non-seismic design deficiencies.

Examples identified in the Governor's review to date of EOI's for which the root causes and generic implications of the discovered deficiencies have not been adequately addressed may be found in Tables 66.1 and 124. Also see responses to Interrogatory No. 68 regarding inadequacies in the IDVP sampling of ITP activities.

The Governor's review of the ITP programs corrective and preventative action program is ongoing. Further, the majority of the IDVP ITR's regarding its review of this subject have not yet been issued.

INTERROGATORY NO. 115:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 115:

Tables 66.1 and 124, referred to in the Response to Interrogatory No. 114, identify EOI's and the Interim Technical Reports in which the EOI's are discussed. Page and paragraph information is not given since that information is as readily available to PG&E as it is to the Governor.

INTERROGATORY NO. 116:

State each and every fact upon which you base your allegation that the IDVP has failed to look for the root cause of the discrepancies it has found in the seismic design.

ANSWER TO INTERROGATORY NO. 116:

This contention is based on the absence of documentation by the IDVP of an effective pursuit of the root cause or causes of the discrepancies found in the seismic design of Diablo Canyon.

INTERROGATORY NO. 117:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 117:

The specific IDVP materials page and paragraph can be cited; since the IDVP has failed to provide any documentation of a thorough or effective pursuit of root causes.

INTERROGATORY NO. 118:

State each and every fact upon which you base your allegation that the IDVP has failed to recognize the generic

nature of a number of the seismic design discrepancies uncovered.

ANSWER TO INTERROGATORY NO. 118:

This contention is based on the absence of documentation by the IDVP of an effective pursuit of the generic implications of the discrepancies uncovered on the seismic design of Diablo Canyon.

INTERROGATORY NO. 119:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 119:

No specific IDVP materials, page and paragraph number can be cited, since the IDVP has failed to provide any documentation of a thorough or effective pursuit of generic implications.

INTERROGATORY NO. 120:

State each and every fact upon which you base your allegation that the IDVP has failed to require PG&E to implement a corrective and preventative action program that is sufficient to assure that the non-seismic design deficiencies that have been uncovered do not exist in other, unexamined portions of the plant or will not be repeated in future design documents.

ANSWER TO INTERROGATORY NO. 120:

The Answer to Interrogatory No. 114 addresses both seismic and non-seismic design deficiencies regarding a corrective and preventative action program review of the IDVP and therefore addresses Interrogatory No. 120.

INTERROGATORY NO. 121:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 121:

See Answer to Interrogatory No. 115.

INTERROGATORY NO. 122:

State each and every fact upon which you base your allegation that the IDVP has failed to look for the root cause of the discrepancies it has found in the non-seismic design.

ANSWER TO INTERROGATORY NO. 122:

Interrogatory No. 122 appears to be similar to Interrogatory No. 66, except in No. 122 the Governor is asked to identify cases where the IDVP failed to "look for" root causes, whereas Interrogatory No. 66 asks for cases where the IDVP failed to "ascertain" root causes.

The Governor is unable to distinguish, based on the available documentation, whether the IDVP failed to look for root causes, or looked for root causes but failed to ascertain

them. Therefore, the response to Interrogatory No. 122 is the same as the response to Interrogatory No. 66.

INTERROGATORY NO. 123:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 123:

See Answer to Interrogatory No. 67.

INTERROGATORY NO. 124:

State each and every fact upon which you base your allegation that the IDVP has failed to recognize the generic nature of a number of the non-seismic design discrepancies uncovered.

ANSWER TO INTERROGATORY NO. 124:

The Governor's review of the IDVP's Interim Technical Reports (ITR's) is not yet complete.

There are essentially two ways to consider the generic nature of an identified deficiency in a plant system. The first is to actually search throughout other plant systems for similar problems (i.e. additional verification). The second is to determine the root cause of the deficiency, or the sequence of events which led to the deficiency, and assess the potential for that root cause or series of events to impact other activities involving other plant systems (see answer no. 66).

As stated in the response to Interrogatory No. 66, the Governor's review to date has identified no instance in which

the IDVP ascertained the root cause or sequence of events which led to a discrepancy between the Diablo Canyon design and PG&E's licensing commitments. Therefore, even in those cases where some additional verification was performed, the IDVP failed to identify the root cause of the discrepancy.

Table 124 sets forth those EOI's identified to date for which the Governor concludes that the IDVP has failed to recognize the generic nature of the identified deficiencies.

TABLE 124

LISTING OF EOI RESOLUTIONS WHERE GENERIC NATURE  
WAS NOT ADDRESSED

	<u>Resolved by Modification</u>	<u>Resolved by Analysis</u>	<u>Other</u>
<u>TOTAL</u>	7	13	13
<u>EOI's (ITR #)</u>	8023 (24)	8005 (14)	8011 (21)
	8024 (24)	8019 (18)	8014 (21)
	8025 (24)	8020 (18)	8015 (22)
	8026 (24)	8021 (18)	8027 (22)
	8032 (18)	8022 (24)	8035 (18)
	8060 (22)	8031 (21)	8036 (18)
	8063 (25)	8038 (18)	8041 (26)
		8039 (18)	8044 (25)
		8040 (14)	8048 (22)
		8045 (24)	8051 (27)
		8049 (23)	8053 (28)
		8050 (21)	8055 (27)
		8065 (48)	8056 (28)

INTERROGATORY NO. 125:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 125:

Table 124 identifies the Interim Technical Reports in which the referenced EOI's are discussed. Page and paragraph information is not given since that information is as readily available to PG&E as it is to the Governor..

INTERROGATORY NO. 126:

State each and every fact upon which you base your allegation that the IDVP has failed to require PG&E to implement a corrective and preventative action program that is sufficient to assure that the deficiencies in the design documents of its equipment subcontractors do not exist in the design documents of contractors whose work was not examined and will not occur in the design work of future subcontractors.

ANSWER TO INTERROGATORY NO. 126:

The Governor believes that unless the root causes and generic implications of identified deficiencies are addressed, the deficiencies could exist in unreviewed portions of the plant. This includes portions where design was the responsibility of various subcontractors (particularly since all would have had design interfaces with PG&E). Therefore, the considerations identified in response to Interrogatory No. 114 address this Interrogatory as well.

INTERROGATORY NO. 127:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 127:

See Answer to Interrogatory No. 115.

INTERROGATORY NO. 128:

State each and every fact upon which you base your allegation that the IDVP has no systematic program for reviewing whether the seismic design modifications it has requested that PG&E perform have occurred.

ANSWER TO INTERROGATORY NO. 128:

The Governor's review to date of Interim Technical Reports indicates that the IDVP did not verify that each and every design modification requested by the IDVP was performed by PG&E. Rather, the IDVP utilized samples to verify PG&E's performance of the modifications. The above applies both to seismic and non-seismic modifications.

The Governor's review to date indicates that the IDVP's use of samples was generally deficient as set forth in the response to Interrogatories No. 60 and 68. The Governor believes that the IDVP has not utilized sampling techniques adequate to support the extrapolation of conclusions to entire plant populations. Therefore the Governor does not believe that the IDVP has developed and implemented a systematic

program sufficient to assure that each and every requested design modification has been implemented by PG&E.

INTERROGATORY NO. 129:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 129:

See Answer to Interrogatory No. 69.

INTERROGATORY NO. 130:

State each and every fact upon which you base your allegation that the IDVP has no systematic program for reviewing whether the non-seismic design modifications it has requested that PG&E perform have occurred.

ANSWER TO INTERROGATORY NO. 130:

Since the response to Interrogatory No. 128 addresses this question for both seismic and non-seismic design modifications, see the response to Interrogatory No. 128.

INTERROGATORY NO. 131:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 131:

See Answer to Interrogatory No. 69.

INTERROGATORY NO. 132:

State each and every fact upon which you base your allegation that PG&E's Internal Technical Program ("ITP") does not provide assurance, equivalent to Appendix B compliance, that PG&E has and will meet its license commitments for the seismic design of SS&C's at Diablo Canyon.

ANSWER TO INTERROGATORY NO. 132:

The Governor's response to this interrogatory is set forth in the responses to the preceding Answer to Interrogatory No. 131. Major subject areas regarding the insufficient assurance relative to seismic design of SS&Cs provided by the ITP are set forth herein in Table 132.

The Governor's review of the ITP is not yet complete as described in detail in the referenced interrogatory responses. The answer does not specify pages and paragraphs of each referenced document since that information is as readily available to PG&E as it is to the Governor.

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TABLE 132

INSUFFICIENT ASSURANCE BY ITP

SEISMIC DESIGN OF DIABLO CANYON SS&Cs

- |    |                |   |
|----|----------------|---|
| 1. | 1, 2, 3        | Timely development and implementation of QA/QC program for design modifications since November 1, 1981. |
| 2. | 62, 63         | Mean values of structures and materials.  |
| 3. | 70 to 101      | Seismic design modeling.  |
| 4. | 50 to 55       | Scope of ITP seismic corrective action program.   |
| 5. | 116 to 119, 66 | Ascertainment of root causes and generic nature of design errors.                                       |
| 6. | 69             | Analysis of deviations from licensing commitments.  |
| 7. | 108 to 113     | Review of equipment.  |
| 8. | 114            | Initiation of preventative and corrective actions.  |

INTERROGATORY NO. 133:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 133:

See Answer to Interrogatory No. 132.

INTERROGATORY NO. 134:

State each and every fact upon which you base your allegation that PG&E and its major subcontractors failed to develop and implement in a timely fashion a QA/QC program for the design of important to safety but not safety related SS&C's

at Diablo Canyon which met (and meet) the requirements of GDC-1 of Appendix A to 10 C.F.R. part 50 ("Appendix A").

ANSWER TO INTERROGATORY NO. 134:

Pursuant to the ASLAB's oral ruling during the pre-hearing conference on August 23 - 29, 1983, the Board determined that Diablo Canyon's compliance with GDC-1 of Appendix A, and the IDVP review of such compliance, was an issue that will not be examined in the reopened hearing. Thus, the subject area addressed by this interrogatory is no longer relevant to the proceeding before the Board.

INTERROGATORY NO. 135:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 135:

See Answer to Interrogatory No. 134.

INTERROGATORY NO. 136:

State each and every fact upon which you base your allegation that the IDVP has not and will not provide any assurance, equivalent to Appendix A compliance that the design of important to safety but not safety related SS&C's at Diablo Canyon meets the regulatory requirements for the design of such equipment.

ANSWER TO INTERROGATORY NO. 136:

See Answer to Interrogatory No. 134.

INTERROGATORY NO. 137:

Please identify each and every document which you claim supports each fact set forth in the preceding response and correlate each such document as specifically as possible (page and paragraph number) with each such fact.

ANSWER TO INTERROGATORY NO. 137:

See Answer to Interrogatory No. 134.

INTERROGATORY NO. 138:

For each even numbered interrogatory from number 50 through number 130, state specifically (section #, page and line, etc.) where in the regulations, the Commission order of November 19, 1981, the Denton letter of November 19, 1981, or the IDVP's Phase I and II program plans that the activity (or lack thereof) by the IDVP you allege did (or did not) take place is required to take (or not take) place.

ANSWER TO INTERROGATORY NO. 138:

The Governor has not completed the determination of where in the regulations, the Commission's order of November 19, 1981, the Denton letter of November 19, 1981, or the IDVP Phase I and Phase II program plans that the activities addressed by the design QA/QC contentions adopted by the Board, and described in PG&E interrogatories 50 through 130 herein, are set forth. In general, the Governor believes that Criterion III of Appendix B to 10 CFR 50 requires that measures be established by PG&E to assure that regulatory requirements as specified in the license application are correctly translated into specifications, procedures and instructions.

The requirement for compliance with the license application commitments is also provided in 10 CFR Sections 50.34(b) and 50.57(a). The requirement to determine the cause of conditions adverse to quality including "basic causes" is set forth in the Commission's November 19, 1981 order as well as in Criterion XVI of Appendix B. Further, as set forth in Criterion XVI, the corrective action measures shall be adequate to preclude repetition.

Criterion XVIII of Appendix B requires that PG&E carry out planned and periodic audits to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program. In addition, as specified in Section 10 of ANSI/ASME Standard NQA-1-P179 entitled "Quality Assurance Program Requirements for Nuclear Power Plants" where sampling is used to verify acceptability of a group of items, the sampling procedure shall be based on recognized standard practices.

The Governor has provided a number of references to specific requirements of the regulations, Commission Order and Denton letter in the body of the responses to Interrogatories 50 to 132. Furthermore, the Governor's review of the IDVP is not yet complete (nor is the IDVP complete as well documented in Supplement 18 of the Diablo Canyon SER). The answer does not specify section number, page and line, etc., of the referenced documents since that information is as readily available to PG&E as it is to the Governor.

INTERROGATORY NO. 139:

Define "root cause" as used in your proposed contention II A 1 (c).

ANSWER TO INTERROGATORY NO. 139:

See answer 13(h) to PG&E's First Set of Interrogatories to the Governor.

INTERROGATORY NO. 140:

Define "equipment standards" as used in your proposed contention II B 1 (b).

ANSWER TO INTERROGATORY NO. 140:

Pursuant to the discussions at the pre-hearing conference on August 23 and 29, 1983, the "equipment standards" used in the Governor's proposed contention refer to the licensing commitments (criteria) set forth in the Diablo Canyon PSAR, FSAR, Hosgri Report, SER, SER Supplements, and other licensing documents relied upon by the NRC including letters to the NRC from PG&E.

INTERROGATORY NO. 141:

Please list each and every "equipment standard" set forth in PG&E's license commitments which you believe the IDVP has accepted deviations from.

ANSWER TO INTERROGATORY NO. 141:

See Answer to Interrogatory No. 64.

INTERROGATORY NO. 142:

Define "torsion factors" as used in your proposed contention II B 1 (g).

ANSWER TO INTERROGATORY NO. 142:

In its approach to accounting for accidental eccentricity in the Turbine Building and Intake Structure, PG&E takes into account the torsion generated by accidental eccentricity by multiplying the horizontal motion by a factor of 1.1. This is the factor referred to in the cited contention as "torsion factor."

INTERROGATORY NO. 143:

Define "hydrodynamic forces" as used in your proposed contention II B 1 (r).

ANSWER TO INTERROGATORY NO. 143:

The term "hydrodynamic forces" is a well established one. It refers to forces exerted on a structure by fluids (predominantly water) due to the motion of one or the other. A typical example is wave forces when waves are generated by winds or tsunamis. Hydrodynamic forces are also generated by vibrations of the structure during an earthquake if the structure contains a fluid (i.e., sloshing in tanks) or if it is adjacent to a fluid (as in a dam). The Intake Structure is subjected to both conditions, and it is to this type of force that the term refers.

INTERROGATORY NO. 144:

Define "generic nature" as used in your proposed contention II C 1 (b).

ANSWER TO INTERROGATORY NO. 144:

"Generic nature" is the potential that an identified deficiency belongs to a larger group of deficiencies which may

be characterized by a common type, a common root cause, or a common series of events which led to their existence.

The generic nature of an identified deficiency (for instance, an EOI) is the potential for similar deficiencies to exist in other systems, structures or components of the plant, or for other deficiencies to exist due to similar causes or due to a similar series of events. See also response to Interrogatory No. 124.

INTERROGATORY NO. 142 (sic) 145:

Please list each regulation, or regulatory guide, by specific section and/or subsection, which requires the identification of a "root" cause when a deviation occurs, or at any time, or which defines "root cause."

ANSWER TO INTERROGATORY NO. 145:

The Governor is not aware of any regulation or regulatory guide which defines "root cause." However, paragraph 5(b) of Attachment 1 to the Commission's November 19, 1981 order states that the IDVP shall assess "to basic cause of all design errors identified." Further, in testimony by William Dircks, Executive Director for Operations of the NRC, to the U.S. House Subcommittee on Energy and the Environment, and to the Commission on November 19, 1981, Mr. Dircks stated that in cases such as Diablo Canyon where QA/QC problems had been identified "the corrective action taken was not sufficiently broad" and "too frequently, the response was one of treating the symptom, rather than finding the basic cause and correcting it."

Also, see answer to Interrogatory No. 138 regarding the requirements for corrective action, and Interrogatory No. 139 for the definition of "root cause."

INTERROGATORY NO. 143 (sic) 146:

For each answer to these interrogatories, and all subparts thereto, identify each person who participated in the preparation of your answers pursuant to 10 C.F.R.

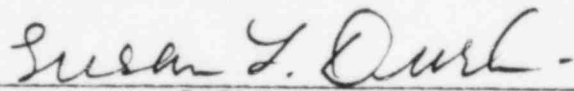
Section 2.740(b)

ANSWER TO INTERROGATORY NO. 146:

Richard B. Hubbard assisted in the preparation of the Governor's response to PG&E interrogatories 1 to 49, 56 to 61, 64 to 69, 102 to 115, 120 to 141, and 144 to 146. Dr. Jose M. Roesset assisted in the preparation of the Governor's response to PG&E interrogatories 50 to 55, 62 to 63, 70 to 101, 116 to 119, and 142 to 143.

DATED: August 31, 1983

JOHN K. VAN DE KAMP, Attorney General  
of the State of California  
ANDREA SHERIDAN ORDIN, Chief  
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MICHAEL J. STRUMWASSER, Special  
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By   
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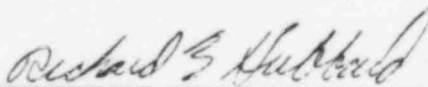
UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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

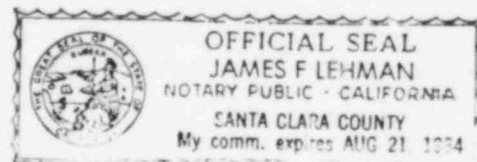
RICHARD B. HUBBARD, being duly sworn, do say under oath that I, the undersigned have assisted in preparing and reviewing responses number 1 to 61, 64 to 69, 102 to 115, 120 to 141, and 144 to 146 of Governor Deukmejian to Pacific Gas and Electric Company's Second Set of Interrogatories, dated July 27, 1983. Said answers are true and correct to the best of my knowledge and belief.

  
\_\_\_\_\_  
RICHARD B. HUBBARD

Subscribed and sworn to before  
me this 30 day of AUGUST, 1983.

  
\_\_\_\_\_  
NOTARY PUBLIC

My Commission expires: 8/21/84



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of )

PACIFIC GAS AND ELECTRIC COMPANY )

(Diablo Canyon Nuclear Power )  
Plant, Units 1 and 2) )

Docket Nos. 50-275 O.L.  
50-323 O.L.

CERTIFICATION

I, Susan L. Durbin, hereby certify:

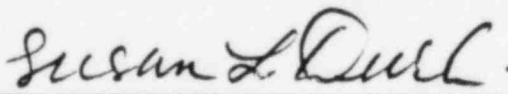
1. I am one of the attorneys for Governor George Deukmejian in the above entitled matter and, as such, am authorized to execute this certification.

2. I have read the foregoing Governor Deukmejian's Answers to Applicant's Second Set of Interrogatories and know the contents thereof.

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

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

Executed at Los Angeles, California, on August 31,  
1983.

  
\_\_\_\_\_  
SUSAN L. DURBIN

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 ANSWERS OF GOVERNOR DEUKMEJIAN TO APPLICANT'S SECOND SET OF INTERROGATORIES AND ANSWERS OF GOVERNOR DEUKMEJIAN TO APPLICANT'S THIRD 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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DATED: August 31, 1983

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