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USNRCUNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARDOFFICE OF SECRETARY  
DOCKETING & SERVICE  
BRANCH

In the Matter of )

PACIFIC GAS AND ELECTRIC COMPANY )

(Diablo Canyon Nuclear Power  
Plant, Units Nos. 1 and 2) )Docket Nos. 50-275 C.L.  
50-323 O.L.

(Low Power Proceeding)

RESPONSE OF GOVERNOR EDMUND G. BROWN, JR.  
TO SECOND SET OF INTERROGATORIES  
OF NRC STAFF

On October 14, 1981, the NRC Staff propounded interrogatories to Governor Brown. We hereby respond to those discovery requests.

Interrogatory 1

Name each piece of equipment associated with Diablo Canyon's pressurizer heaters that Governor Brown believes should be required to meet all applicable safety-grade design criteria, including but not limited to diversity (GDC 22), seismic and environmental qualification (GDC 2 and 4), automatic initiation (GDC 20), separation and independence (GDC 3 and 22), quality assurance (GDC 1), adequate, reliable on-site power supplies (GDC 17) and the single failure criteria.

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Response 1

All components of the pressurizer heater system, including supports and interconnecting wiring should be required to meet the applicable safety-grade design criteria. PG&E has responded that only that equipment associated with the capability of obtaining power from the on-site emergency power supply needs to meet GDC 10, 14, 15, 17 and 20 of Appendix A to 10CFR50.<sup>1/</sup> This is further defined in PG&E's Answer to Interrogatory No. 41 as the 480 volt vital breakers 52-1G-72 & -1H-74, control switches, and cable between the vital bus and the breakers.<sup>2/</sup> This implies then that all of the rest of the pressurizer heater system has not been designed to meet the safety-grade design criteria listed above. The remainder of the system, therefore, consists of the heaters themselves and their associated controls, along with interconnecting wiring and supports. See PG&E January 26, 1981 submittal to NRC on Full Power License Requirements and associated Figures II.E.3.1-1 & -2 for diagrams showing the components contained within the pressurizer heater system.<sup>3/</sup>

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<sup>1/</sup> Applicant Pacific Gas & Electric Company's Answers to Joint Intervenor's Second Set of Interrogatories, page 1 & 2.

<sup>2/</sup> Ibid <sup>1/</sup>, pages 16 & 17.

<sup>3/</sup> Philip A. Crane to Frank J. Miraglia, January 26, 1981, pages II.E-10 through 19.

Interrogatory 2

What is the basis for Governor Brown's belief that the equipment identified in the answer to Interrogatory #1 should be required to meet all applicable safety-grade criteria?

Response 2

See Response A.8 to NRC Staff's Request for Admissions.

Interrogatory 3

For each piece of equipment identified in the answer to Interrogatory #1, identify a) the design criteria Governor Brown believes it should be required to meet; and b) the applicable NRC regulation(s) or other statutory provision(s) which Governor Brown believes requires the equipment to meet the criteria identified in his response to 3(a).

Response 3

See Response 4 below.

Interrogatory 4

Identify the NRC regulation(s) or other statutory provision(s) which Governor Brown believes requires PG&E to have Diablo Canyon's pressurizer heaters and associated controls meet all applicable safety-grade design criteria, including but not limited to diversity (GDC 22), seismic and environmental qualification (GDC 2 and 4), automatic initiation (GDC 20), separation and independence (GDC 3 and 22), quality assurance (GDC 1), adequate reliable on-site power supplies (GDC 17) and the single failure criterion.

#### Response 4

10CFR50.55a(a)(1) requires that structures, systems, and components shall be designed, fabricated, erected, constructed, tested, and inspected to quality standards commensurate with the importance of the safety function to be performed. There can be no disagreement that all systems at Diablo Canyon must meet the applicable safety-grade design criteria. There may be some disagreement on what is applicable. If that is the thrust of this interrogatory, see Response 9 for a discussion on Diablo Canyon's failure to comply with applicable criteria. For specific reference to applicable codes, standards, etc., the NRC Standard Review Plan identifies the acceptance criteria for safety related instrumentation and control equipment. 1/ The pressurizer heaters and controls should be evaluated in accordance with these criteria. A copy of this Table is attached.

#### Interrogatory 5

Specifically state why Governor Brown believes the equipment associated with Diablo Canyon's pressurizer heaters should be classified as "components important to safety."

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1/ NUREG 75/087, Section 7, Table 7-1.

Response 5

See Response A.8 to NRC Staff's Request for Admissions.

Interrogatory 6

Contention 10 alleges that the heater groups should be required to meet certain GDC's identified in the contention. How does Governor Brown believe the applicant's proposal to connect two out of four of the heater groups to Diablo Canyon's present on-site emergency power supplies fails to provide an equivalent or acceptable level of protection to the level of protection which would be provided if the identified GDC's were met?

Response 6

The proposed arrangement addresses only the reliability of power supply to the pressurizer heaters. The heaters and associated equipment, instrumentation, controls, and supports are still subject to failures introduced through incomplete attention and compliance with the referenced safety-grade criteria.

Interrogatory 7

Under NRC regulation(s), what general design criteria does Governor Brown believe must be met by PG&E in order to connect two out of four of the heater groups to the present on-site emergency power supplies?

Response 7

All of the applicable design criteria must be met. See SRP Table 7.1 attached hereto for specific GDC references.

Interrogatory 8

Specify how Governor Brown believes PG&E has failed to comply with the NRC regulation(s) identified in the answer to Interrogatory #4 and with the general design criteria identified in the answer to Interrogatory #7.

Response 8

See Responses 4 and 9.

Interrogatory 9

Specify how Governor Brown believes the pressurizer heaters and associated controls at Diablo Canyon fail to comply with (GDC 20) "automatic initiation"; (GDC 17), "reliable on-site power supplies"; (GDC 22), "protection system independence"; (GDC 2), "seismic and environmental qualification"; (GDC 4), "seismic and environmental qualification"; (GDC 3) "fire protection"; and (GDC 1) "quality standards and records" in 10 C.F.R. § 50, Appendix A.

Response 9

Contention 10 does not state that the pressurizer heaters and associated controls fail to comply with specific details in the General Design Criteria but rather that this equipment has not been classified as safety-grade and, therefore, has not been required to meet the safety-grade design criteria listed. There is obviously no way to evaluate that compliance since PG&E has not submitted any detailed information on how these

components do or do not meet the specific criteria. This Interrogatory is therefore premature until sufficient detailed information is available to evaluate compliance. However, it is likely that non-compliances exist for the following reasons:

- a. GDC 20 requires, among other things, that the protection system shall be designed "to initiate the operation of systems important to safety." Standard Review Plan Table 7-1 extends the applicability of GDC 20 to all instrumentation and control functions important to safety. <sup>1/</sup> PG&E's January 26, 1981 response to Full Power License Requirements describes the manual procedure necessary for transferring the pressurizer heater power supply onto the ESF buses. This requires the dispatch of an operator to a location three floors down in the Auxiliary Building and verbal confirmation that such action has been taken. <sup>2/</sup> This complex procedure does not meet the automatic initiation requirements of GDC 20.
- b. None of the pressurizer heater system, other than the breakers, switches and portion of the bus connection cables identified in Response 1, have been qualified in accordance with GDC 2 (seismic and environmental

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<sup>1/</sup> NUREG 75/087, Section 7, Table 7-1.

<sup>2/</sup> Philip A. Crane to Frank J. Miraglia, January 26, 1981, page II E-14.



qualification) GDC 22 (protection system independence, "separation") on GDC 3 (fire protection.

- c. Since these components have not been classified as important to safety, the requirement of GDC 1 (Quality standards and records) do not appear to have been applied.

#### Interrogatory 10

State specifically the reasons why Governor Brown believes that PG&E's proposal to connect two out of four of the heater groups to Diablo Canyon's present on-site emergency power supplies fails to protect the public health and safety and give the reasons why Governor Brown believes that the equipment associated with Diablo Canyon's pressurizer heaters fails to protect the public health and safety.

#### Response 10

The proposed system does not provide adequate assurance that the mitigating systems will be available and that the plant operators will be able to respond to the needs for maintenance of natural circulation capability. The failure to assure this capability imposes undue risk to public health and safety.

#### Interrogatory 11

What additional information does Governor Brown believe should be provided by PG&E to insure that the equipment



associated with Diablo Canyon's pressurizer heaters is adequate to protect the public health and safety and that the proposal to connect two out of four of the heater groups to Diablo Canyon's present on-site emergency power supplies is adequate to protect the public health and safety?

Response 11

Demonstrate that the heaters and associated controls have been classified as "components important to safety" and that they meet the applicable safety-grade design criteria.

Interrogatory 12

Specify the NRC regulation(s), safety-grade criteria, NUREG(s), Standard Review Plans, Regulatory Guide(s) or statutory provision(s) Governor Brown believes the pressurizer power-operated relief valves (PORVs), safety valves and block valves at Diablo Canyon are required to meet.

Response 12

Diablo Canyon Safety Valves are classified as safety-grade and subjected to the requirements of Design Class I, Code Class I as described in FSAR Tables 3.2-1, 3.2-2, 3.2-3, and 3.2-4. Similarly, they were identified in the Hosgri Amendment to the FSAR as having been seismically tested (See Hosgri Seismic evaluation, VOL. III, Table 7-7 "Seismic Qualification Minimum Required Active Valves for Hot Shutdown and/or Cold Shutdown.") The PORV's and Block Valves are not specifically identified in the FSAR Section 3.2 tables but

they are included in the Hosgri Seismic Evaluation (Vol. III Table 7.8, "Summary - Seismic Qualification Valves Required for Normal Shutdown and/or Cold Shutdown.") There are few other details of the classification and qualification of these three types of valves.

However, proper operation of power operated relief valves, associated block valves and the instruments and controls for these valves is essential to mitigate the consequences of accidents. In addition, their failure can cause or aggravate a LOCA. Therefore, these valves must also be classified as safety-grade components and required to meet all safety-grade design criteria. There is insufficient information to know if the existing valves and their associated equipment meet the necessary requirements to insure reliable performance of their safety function under worst case accident conditions.

Similarly, the associated control and instruments for these valves must comply with applicable codes, standards, etc. The NRC Standard Review Plan (NUREG 75/087 Section 7, Table 7-1) identifies the acceptance criteria for safety-related instrumentation and control equipment which should be applied to these components. A copy of this table is attached.

Until details are provided on how the valves and components meet the above safety and acceptance criteria, there can be no assurance of their adequacy to perform properly in all off-normal and accident conditions.

### Interrogatory 13

State specifically the reasons why Governor Brown believes that PG&E has not met the requirements, criteria and guidance stated in the answer to Interrogatory 12.

### Response 13

See Response 12.

### Interrogatory 14

Give detailed reasons why Governor Brown believes that Diablo Canyon's PORVs, safety valves and block valves must be classified as components important to safety.

### Response 14

In addition to the discussion in Response 12, there are conditions where the block valves and PORVs may individually or collectively constitute a potential break in the reactor coolant pressure boundary. Failure to operate correctly, in either opening or closing, may cause or aggravate a small LOCA. The valves can also play an important role in mitigating the effects of an ATWS accident. They may also serve as a mechanism for control and/or mitigation of accident conditions when called upon to operate in the bleed and feed mode (in conjunction with Safety Injection). Components which have this large an impact on pressure boundary integrity, accidents, and safety should be classed as safety-grade.

Interrogatory 15

Explain every scenario and the probability of occurrence in which Governor Brown believes failure of Diablo Canyon's PORVs, safety valves and block valves could cause or aggravate a LOCA or operational transient.

Response 15

See discussion in Response to Admissions B.1, B.2, B.3, B.7, B.10, B.17 and Interrogatories 12 and 14.

Interrogatory 16

State specifically the reasons why Governor Brown believes that the operation of Diablo Canyon's PORVs, safety valves, and block valves are deficient to protect the public health and safety.

Response 16

Under normal circumstance and assuming proper operation of equipment, there may be no concern regarding these valves. The deficiency in question in contention 12 is the classification and qualification of the valves and their associated controls and instrumentation, without which there can be no assurance that the public health and safety will be protected in off-normal and accident conditions.

Interrogatory 17

What additional information does Governor Brown believe should be provided by PG&E to insure that operation of Diablo

Canyon's PORVs, safety valves and block valves is adequate to protect the public health and safety?

Response 17

See Response 12.

Interrogatory 18

Name each instrument and control Governor Brown believes is associated with Diablo Canyon's PORVs and associated block valves.

Response 18

The devices of interest are those used to energize, control or monitor the operation of the PORV and block valves, as set forth on FSAR Figure 3.2-07 (sheet 2 of 4) and Figure 7.3-21 (sheet 1 of 2).

Interrogatory 19

Why does Governor Brown believe the instrument(s) and control(s) identified in the answer to Interrogatory 18 should be classified as safety-graded design criteria?

Response 19

Proper and reliable operation of safety-grade valve cannot be insured unless their associated control and instrumentation is also qualified, designed, installed and tested according to the applicable safety and acceptance criteria.

Interrogatory 20

For each instrument and control identified in the answer to Interrogatory 18, identify the design criteria Governor Brown believes it should be required to meet.

Response 20

See Response 12.

Interrogatory 21

Specify how Governor Brown believes the pressurizer PORVs, and safety valves at Diablo Canyon fail to meet (GDC 1), "quality standards and records"; (GDC 14), "reactor coolant pressure boundary"; (GDC 15), "reactor coolant system design"; and (GDC 30), "quality of reactor coolant pressure boundary" in 10 C.F.R. 50, Appendix A.

Response 21

Contention 12 does not state that the PORV and block valves and associated controls and instrumentation fail to comply with specific details in the General Design Criteria but rather that this equipment has not been classified as safety-grade and therefore has not been required to meet the safety grade design criteria listed. Until PG&E submits detailed information on how the components do or do not meet the specific criteria, the evaluation suggested by the interrogatory is not possible. This interrogatory is therefore, premature until sufficient detail is available on which to



evaluate compliance. However, since some valves and components are clearly not classed as safety-grade, there is a high likelihood that deficiencies would be discovered.

Unless and until the valves and their associated controls and instrumentation are classified as safety-grade and details provided on their compliance with the GDC and other acceptance criteria, there is no assurance that the valves will actually meet the subject criteria. At this time there is insufficient detailed information available to complete the assessment.

#### Interrogatory 22

Specify how Governor Brown believes Diablo Canyon's pressurizer PORVs and pressurizer safety valves fail to meet Standard Review Plan (SRP) 3.9.2, "Dynamic Testing and Analyses of Systems, Components, and Equipment"; (SRP) 3.9.3., "ASME Code Class 1, 2 and 3 Components, Component Supports, and Core Support Structures"; Regulatory Guide 1.48 "Design limits and loading combinations for seismic Category 1 fluid systems components"; and Regulatory Guide 1.68 "pre-operational and Initial Startup Test Programs for Water Cooled Power Reactors."

#### Response 22

See Response 21.

#### Interrogatory 23

Why does Governor Brown believe the safety-classification as shown in the FSAR for pressurizer PORV block valves at Diablo Canyon is not adequate to protect the health and safety of the public?

Response 23

Refer to Responses to Admissions B.1, B.2, B.3, B.7, B.10, B.17 and Interrogatories 12 and 14.

Interrogatory 24

What additional information does Governor Brown believe should be provided by PG&E to insure that the pressurizer PORV block valves at Diablo Canyon are adequate to protect the health and safety of the public?

Response 24

See Response 21.

Interrogatory 25

What does Governor Brown believe that designating block valves as safety-related equipment is not adequate to protect the health and safety of the public?

Response 25

The meaning of this sentence is uncertain (e.g. should there be a colon after believe or should "What" be "Why"?). Assuming the question should start with "Why", the answer is the same as stated earlier. See, for instance, Response 21.

Interrogatory 26

What are the reasons why Governor Brown believes that block valves should be designated as safety-grade equipment?

Response 26

This interrogatory has been answered in earlier responses to Admissions and Interrogatories. See, for instance, Response 23.

Interrogatory 27

Explain in detail how Governor Brown believes the pressurizer power-operated relief valves, safety valves and PORV block valves should be tested and qualified for correct and reliable operation over the range of accident conditions which the Diablo Canyon plant may experience.

Response 27

This interrogatory has been answered earlier but the main issue is that the full range of environmental conditions be covered including where necessary, accidents which are not now considered design basis accidents. It is also essential that the results be directly applicable to the Diablo Canyon Site and its as-built configuration.

Interrogatory 28

For each of the statements in NRC Staff's Request for Admissions by Governor Edmund G. Brown (October 14, 1980) which Governor Brown does not admit, identify the witness(es) which Governor Brown will present on that issue.

Response 28

In a previous filing (dated October 16, 1981) on the Diablo Canyon Docket, witnesses have been identified and their qualifications provided.

Interrogatory 29

For each of the statements in NRC Staff's Request for Admissions by Governor Edmund G. Brown (October 14, 1980)

which Governor Brown does not admit, explain the basis for Governor Brown's position on that statement including any documents relied upon.

Response 29

For each Admission Statement not admitted by the Governor, the specific concern has been addressed in the Response to the Admission Statement.

Interrogatory 30

What is the basis for Joint Intervenors' belief that, if classified as "components important to safety," the pressurizer heaters and valves identified in admitted Contentions 10 and 12 from the low power proceeding must meet the GDCs and other requirements listed in those contentions.

Response 30

The Governor is not aware of the Joint Intervenors' belief on this specific point.

Interrogatory 31

State any rule(s), regulation(s) or other statute(s) which require equipment or systems designated as "components important to safety" to meet the GDCs and other requirements listed in Contentions 10 and 12 from the low power proceeding.

Response 31

See Response 4.

#### Document Requests

1. Provide all documents identified in Governor Brown's answers to Interrogatories 1 through 31 which are not already in the possession of the U. S. Nuclear Regulatory Commission.

2. Provide all documents within the possession or control of Governor Brown which relate to the pressurizer heaters for the Diablo Canyon Nuclear Facility, which are not already in the possession of the U. S. Nuclear Regulatory Commission.

#### Response to Document Requests

All documents referred to in the above responses are on the Diablo Canyon docket or are in the public domain or are attached hereto. Thus, no additional documents are provided.

Respectfully submitted,

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NUREG-75/087



U.S. NUCLEAR REGULATORY COMMISSION  
**STANDARD REVIEW PLAN**  
 OFFICE OF NUCLEAR REACTOR REGULATION

TABLE 7-1  
 ACCEPTANCE CRITERIA FOR INSTRUMENTATION AND CONTROLS

Table 7-1 contains the acceptance criteria for the SRP sections of Chapter 7. These acceptance criteria include the applicable General Design Criteria, IEEE standards, Regulatory Guides, and Branch Technical Positions (BTP) of the Instrumentation and Control Systems Branch (ICSB). The applicability of these criteria to specific sections of Chapter 7 is indicated by an X in the matrix listing of criteria and SAR sections. The BTP listed in Table 7-1 are contained in Appendix 7-A to the Chapter 7 SRP section.

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USNRC STANDARD REVIEW PLAN

Standard review plans are prepared for the guidance of the Office of Nuclear Reactor Regulation staff responsible for the review of applications to construct and operate nuclear power plants. These documents are made available to the public as part of the Commission's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Standard review plans are not substitutes for regulatory guides or the Commission's regulations and compliance with them is not required. The standard review plan sections are keyed to Revision 2 of the Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants. Not all sections of the Standard Format have a corresponding review plan.

Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggestions for improvement will be considered and should be sent to the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, D.C. 20688.

7.1-6

ACCEPTANCE CRITERIA FOR INSTRUMENTATION AND CONTROL SYSTEMS - TABLE 7-1

CRITERIA	TITLE	APPLICABILITY							REMARKS
		7.1	7.2	7.3	7.4	7.5	7.6	7.7	
1. 10 CFR Part 50									
a. 10 CFR §50.34	Contents of Application: Technical Information	X	X	X	X	X	X	X	
b. 10 CFR §50.36	Technical Specifications	X	X	X	X	X	X		
c. 10 CFR §50.55a	Codes and Standards	X	X	X	X	X	X	X	
2. General Design Criteria (GDC), Appendix A to 10 CFR Part 50									
a. GDC 1	Quality Standards and Records	X	X	X	X	X	X		
b. GDC 2	Design Bases for Protection Against Natural Phenomena	X	X	X	X	X	X		
c. GDC 3	Fire Protection	X	X	X	X	X	X		
d. GDC 4	Environmental and Missile Design Bases	X	X	X	X	X	X		
e. GDC 5	Sharing of Structures, Systems, and Components	X	X	X	X	X	X		
f. GDC 10	Reactor Design	X	X	X	X	X	X		
g. GDC 12	Suppression of Reactor Power Oscillations	X	X			X		X	
h. GDC 13	Instrumentation and Control	X	X	X	X	X	X	X	
i. GDC 15	Reactor Coolant System Design	X	X			X	X	X	
j. GDC 19	Control Room	X	X	X	X	X	X	X	
k. GDC 20	Protection System Functions	X	X	X	X	X	X		
l. GDC 21	Protection Systems Reliability and Testability	X	X	X	X	X	X		
m. GDC 22	Protection System Independence	X	X	X	X	X	X		
n. GDC 23	Protection System Failure Modes	X	X	X	X	X	X		
o. GDC 24	Separation of Protection and Control Systems	X	X	X	X	X	X	X	
p. GDC 25	Protection System Requirements for Reactivity Control Malfunctions	X	X			X			

TABLE 7-1 (CONTINUED)

CRITERIA	TITLE	APPLICABILITY							REMARKS
		7.1	7.2	7.3	7.4	7.5	7.6	7.7	
q. GDC 26	Reactivity Control System Redundancy and Capability	X	X		X	X		X	
r. GDC 27	Combined Reactivity Control Systems Capability	X	X		X	X		X	
s. GDC 28	Reactivity Limits	X	X			X	X	X	7.6 Interlocks only
t. GDC 29	Protection Against Anticipated Operational Occurrences	X	X	X	X	X	X	X	
u. GDC 33	Reactor Coolant Makeup	X			X	X			
v. GDC 34	Residual Heat Removal	X		X	X	X	X		
w. GDC 35	Emergency Core Cooling	X	X	X		X	X		
x. GDC 37	Testing of Emergency Core Cooling System	X	X	X		X	X		
y. GDC 38	Containment Heat Removal	X		X		X	X		
z. GDC 40	Testing of Containment Heat Removal System	X		X		X	X		
aa. GDC 41	Containment Atmosphere Cleanup	X		X		X	X		
bb. GDC 43	Testing of Containment Atmosphere Cleanup Systems	X		X		X	X		
cc. GDC 44	Cooling Water	X		X		X	X		
dd. GDC 46	Testing of Cooling Water System	X		X		X	X		
ee. GDC 50	Containment Design Basis	X		X		X	X		
ff. GDC 54	Piping Systems Penetrating Containment	X		X		X	X		
gg. GDC 55	Reactor Coolant Pressure Boundary Penetrating Containment	X		X		X	X		
hh. GDC 56	Primary Containment Isolation	X		X		X	X		
ii. GDC 57	Closed Systems Isolation Valves	X		X		X	X		

TABLE 7-1 (CONTINUED)

CRITERIA	TITLE	APPLICABILITY							REMARKS
		7.1	7.2	7.3	7.4	7.5	7.6	7.7	
3. Institute of Electrical and Electronics Engineers (IEEE) Standards:									
a. IEEE Std. 279 (ANSI N42.7)	Criteria for Protection Systems for Nuclear Power Generating Stations	X	X	X	X	X	X	X	See 10 CFR §50.55a(h) and Reg. Guide 1.62.
b. IEEE Std 308	Criteria for Class IE Electric Systems for Nuclear Power Generating Stations	X			X	X	X		See Reg. Guide 1.32.
c. IEEE Std 317	Electric Penetration Assemblies in Containment Structures for Nuclear Power Generating Stations	X	X	X	X	X	X	X	See Reg. Guide 1.63. SRP Section 3.11.
d. IEEE Std. 336 (ANSI N45.2.4)	Installation, Inspection and Testing Requirements for Instrumentation and Electric Equipment During the Construction of Nuclear Power Generating Stations	X	X	X	X	X	X	X	See Reg. Guide 1.30.
e. IEEE Std 338	Criteria for the Periodic Testing of Nuclear Power Generating Station Protection Systems	X	X	X	X	X	X		See Reg. Guide 1.118.
f. IEEE Std 344 (ANSI N41.7)	Guide for Seismic Qualification of Class I Electrical Equipment for Nuclear Power Generating Stations	X	X	X	X	X	X		See Reg. Guide 1.100. SRP Section 3.10.
g. IEEE Std 379 (ANSI N41.2)	Guide for the Application of the Single Failure Criterion to Nuclear Power Generating Station Protection Systems	X	X	X	X	X	X	X	See Reg. Guide 1.53.
h. IEEE Std 384 (ANSI N41.14)	Criteria for Separation of Class IE Equipment and Circuits	X	X	X	X	X	X	X	See Reg. Guide 1.75.

TABLE 7-1 (CONTINUED)

CRITERIA	TITLE	APPLICABILITY							REMARKS
		7.1	7.2	7.3	7.4	7.5	7.6	7.7	
4. Regulatory Guides (RG)									
a. RG 1.6	Independence Between Redundant Standby (Onsite) Power Sources and Between Their Distribution Systems	X			X	X	X		
b. RG 1.7	Control of Combustible Gas Concentrations in Containment Following a Loss-of-Coolant Accident	X		X		X			
c. RG 1.11	Instrument Lines Penetrating Primary Reactor Containment	X	X	X	X	X	X		
d. RG 1.22	Periodic Testing of Protection System Actuation Functions	X	X	X	X	X	X		
e. RG 1.29	Seismic Design Classification	X	X	X	X	X	X		SRP Section 3.10
f. RG 1.30	Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment	X	X	X	X	X	X	X	
g. RG 1.32	Use of IEEE Std 308 "Criteria for Class 1E Electric Systems for Nuclear Power Generating Stations"	X			X	X	X		
h. RG 1.47	Bypassed and Inoperable Status Indication for Nuclear Power Plant Safety Systems	X	X	X	X	X	X		Use in conjunction with Position 3, RG 1.17.
i. RG 1.53	Application of the Single-Failure Criterion to Nuclear Power Plant Protection Systems	X	X	X	X	X	X		
j. RG 1.62	Manual Initiation of Protection Actions	X	X	X	X		X		



TABLE 7-1 (CONTINUED)

CRITERIA	TITLE	APPLICABILITY							REMARKS
		7.1	7.2	7.3	7.4	7.5	7.6	7.7	
k. RG 1.63	Electric Penetration Assemblies in Containment Structures for Water-Cooled Nuclear Power Plant	X	X	X	X	X	X	X	
l. RG 1.68	Preoperational and Initial Startup Test Programs for Water-Cooled Power Reactors	X	X	X	X	X	X	X	
m. RG 1.70	Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants, Rev. 2	X	X	X	X	X	X	X	
n. RG 1.75	Physical Independence of Electric Systems	X	X	X		X			
o. RG 1.78	Assumptions for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release	X					X		
p. RG 1.89	Qualification of Class 1E Equipment for Nuclear Power Plants	X	X	X	X	X	X		SRP Section 3.11.
q. RG 1.96	Design of Main Steam Isolation Valve Leakage Control Systems for Boiling Water Reactor Nuclear Power Plants	X		X					
r. RG 1.12	Instrumentation for Earthquakes	X					X		
s. RG 1.45	Reactor Coolant Pressure Boundary Leakage Detection Systems	X					X		
t. RG 1.67	Installation of Overpressure Protection Devices	X					X		
u. RG 1.80	Pre-operational Testing of Instrument Air	X		X	X		X		SRP Section 9.



TABLE 7-1 (CONTINUED)

CRITERIA	TITLE	APPLICABILITY							REMARKS
		7.1	7.2	7.3	7.4	7.5	7.6	7.7	
v. RG 1.95	Protection of Nuclear Power Plant Control Room Operators Against Accidental Chlorine Releases	X					X		
w. RG 1.97	Instrumentation for Light Water Cooled Nuclear Power Plants to Assess Plant Conditions During and following an Accident	X				X			
x. RG 1.100	Seismic Qualification of Electrical Equipment for Nuclear Power Plants	X	X	X	X	X	X		SRP Section 3.10.
y. RG 1.105	Instrument Spans and Setpoints	X	X	X	X	X	X		
z. RG 1.118	Periodic Testing of Electric Power and Protection Systems	X	X	X	X	X	X		
aa. RG 1.120	Fire Protection Guidelines for Nuclear Power Plants	X	X	X	X	X	X	X	SRP Section 3.10.
5. Branch Technical Positions (BTP) ICSB									
a. BTP ICSB 1	Backfitting of the Protection and Emergency Power Systems of Nuclear Reactors	X	X	X	X		X		DOR Responsibility.
b. BTP ICSB 3	Isolation of Low Pressure Systems from the High Pressure Reactor Coolant System	X			X		X		
c. BTP ICSB 4 (PSB)	Requirements on Motor-Operated Valves in the ECCS Accumulator Lines	X			X		X		
d. BTP ICSB 5	Scram Breaker Test Requirements - Technical Specifications	X	X						
e. BTP ICSB 9	Definition and Use of "Channel-Calibration" - Technical Specifications	X	X		X	X	X		

TABLE 7-1 (CONTINUED)

CRITERIA	TITLE	APPLICABILITY							REMARKS
		7.1	7.2	7.3	7.4	7.5	7.6	7.7	
f. BTP ICSB 10	Electrical and Mechanical Equipment Seismic Qualification Program	X	X		X	X	X		Replaced by Reg. Guide 1.100
g. BTP ICSB 12	Protection System Trip Point Changes for Operation with Reactor Coolant Pumps Out of Service	X	X	X					
h. BTP ICSB 13	Design Criteria for Auxiliary Feedwater Systems	X		X					
i. BTP ICSB 14	Spurious Withdrawals of Single Control Rods in Pressurized Water Reactors	X	X					X	
j. BTP ICSB 15 (PSB)	Reactor Coolant Pump Breaker Qualification	X	X						
k. BTP ICSB 16	Control Element Assembly (CEA) Interlocks in Combustion Engineering Reactors	X	X						
l. BTP ICSB 18 (PSB)	Application of the Single Failure Criterion to Manually-Controlled Electrically-Operated Valves	X		X	X		X		
m. BTP ICSB 19	Acceptability of Design Criteria for Hydrogen Mixing and Drywell Vacuum Relief Systems	X		X			X		
n. BTP ICSB 20	Design of Instrumentation and Controls Provided to Accomplish Changeover from Injection to Recirculation Mode	X		X	X		X		
o. BTP ICSB 21	Guidance for Application of Reg. Guide 1.47	X	X	X	X	X	X		
p. BTP ICSB 22	Guidance for Application of Reg. Guide 1.22	X	X	X	X	X	X		

TABLE 7-1 (CONTINUED)

CRITERIA	TITLE	APPLICABILITY							REMARKS
		7.1	7.2	7.3	7.4	7.5	7.6	7.7	
q. BTP ICSB 23	Qualification of Safety-Related Display Instrumentation for Post-Accident Condition Monitoring and Safe Shutdown	X				X			Replaced by Reg. Guide 1.97.
r. BTP ICSB 24	Testing of Reactor Trip System and Engineered Safety Feature Actuation System Sensor Response Times	X	X	X	X		X		Replaced by Reg. Guide 1.118.
s. BTP ICSB 25	Guidance for the Interpretation of General Design Criterion 37 for Testing the Operability of the Emergency Core Cooling System as a Whole	X		X	X				
t. BTP ICSB 26	Requirements for Reactor Protection System Anticipatory Trips	X	X						
u. BTP ICSB 27	Design Criteria for Thermal Overload Protection for Motors of Motor-Operated Valves	X		X	X		X		Replaced by Reg. Guide 1.106

REV. 1

1-9

7.1-14

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

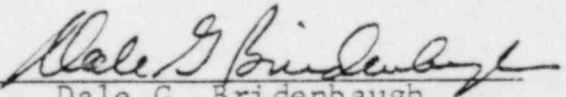
In the Matter of )  
PACIFIC GAS AND ELECTRIC COMPANY )  
(Diablo Canyon Nuclear Power )  
Plant, Unit Nos. 1 and 2)

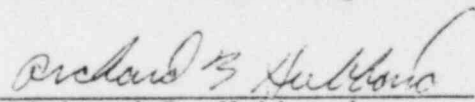
Docket No. 50-275 O.L.  
50-323 O.L.

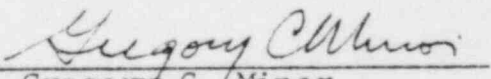
AFFIDAVIT OF

DALE G. BRIDENBAUGH, RICHARD B. HUBBARD, AND GREGORY C. MINOR  
FOR GOVERNOR EDMUND G. BROWN, JR.

DALE G. BRIDENBAUGH, RICHARD B. HUBBARD, AND GREGORY C. MINOR, being duly sworn, do say under oath that I, the undersigned have assisted in preparing and reviewing responses of Governor Edmund G. Brown, Jr. to NRC Staff's Second Set of Interrogatories Nos. 1-31. Said answers are true and correct to the best of my knowledge and belief.

  
Dale G. Bridenbaugh

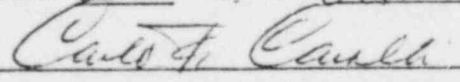
  
Richard B. Hubbard

  
Gregory C. Minor

October 30, 1981

Subscribed and sworn to before

me this 30th day of October, 1981.

  
NOTARY PUBLIC

My commission expires: 10/5/84

