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ACCESSION NBR: 9112260132      DOC. DATE: 91/10/24      NOTARIZED: YES      DOCKET #  
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 50-323 Diablo Canyon Nuclear Power Plant, Unit 2, Pacific Ga      05000323  
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SUBJECT: Forwards response to Generic Ltr 91-06, "Resolution of Generic Issue A-30, 'Adequacy of Safety-Related DC Power Supplies.'"

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October 24, 1991

PG&E Letter No. DCL-91-260



U.S. Nuclear Regulatory Commission  
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Re: Docket No. 50-275, OL-DPR-80  
Docket No. 50-323, OL-DPR-82  
Diablo Canyon Units 1 and 2  
Response to Generic Letter (GL) 91-06, "Resolution of Generic  
Issue A-30, 'Adequacy of Safety-Related DC Power Supplies,'  
Pursuant to 10 CFR 50.54(f)"

Gentlemen:

The response to GL 91-06 for Diablo Canyon Power Plant Units 1 and 2 is  
presented in the enclosure to this letter.

Subscribed to in San Francisco, California this 24th day of October 1991.

Respectfully submitted,

Pacific Gas and Electric Company

By *J. D. Shiffer*  
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Senior Vice President and  
General Manager  
Nuclear Power Generation

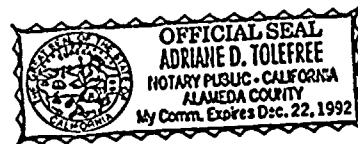
Howard V. Golub  
Richard F. Locke  
Attorneys for Pacific  
Gas and Electric Company

By *Richard F. Locke*  
Richard F. Locke

Subscribed and sworn to before me  
this 24th day of October 1991

*Adriane D. Tolefree*  
Adriane D. Tolefree, Notary Public  
for the County of Alameda,  
State of California

My commission expires December 22, 1992.



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October 24, 1991

cc: Ann P. Hodgdon  
John B. Martin  
Philip J. Morrill  
Harry Rood  
Howard J. Wong  
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Diablo Distribution

Enclosure

5505S/85K/ALN/2232



## ENCLOSURE

Response to Generic Letter (GL) 91-06

The itemized questions in Enclosure 1 of GL 91-06 and PG&E's responses to the questions are provided below.

Question 1

*"Unit \_\_\_\_."*

Response

The following responses apply to both Units 1 and 2.

Question 2

- "a. The number of independent redundant divisions of Class 1E of safety-related dc power for this plant is \_\_\_\_\_. (Include any separate Class 1E or safety-related dc, such as any dc dedicated to the diesel generators.)*
- b. The number of functional safety-related divisions of dc power necessary to attain safe shutdown for this unit is \_\_\_\_\_."*

Response

Units 1 and 2 each have three independent divisions (trains) of safety-related, Class 1E DC power. Two of these three trains are required to attain safe shutdown.

Question 3

*"Does the control room at this unit have the following separate, independently annunciated alarms and indications for each division of dc power?*

*a. Alarms*

- 1. Battery disconnect or circuit breaker open?*
- 2. Battery charger disconnect or circuit breaker open (both input ac and output dc)?*
- 3. DC system ground?*
- 4. DC bus undervoltage?*
- 5. DC bus overvoltage?*
- 6. Battery charger failure?*
- 7. Battery discharge?*

*b. Indications*

- 1. Battery float charge current?*
- 2. Battery circuit output current?*





3. *Battery discharge?*
4. *Bus voltage?*

c. *Does the unit have written procedures for response to the above alarms and indications?"*

Response

Units 1 and 2 have control room alarms for items a.2 through a.6 (the alarm for item a.5 is actually a battery charger overvoltage alarm) and control room indications for items b.1 through b.4. Each division of dc power inputs to a common annunciator window alarm and each division has its own indication in the control room. DCPD annunciator response procedures contain guidance regarding these control room alarms and indications. With respect to item a.1, DCPD does not have circuit breakers or other disconnect devices for the batteries, and alarms therefore are not required. PG&E does not have a control room alarm to specifically address item a.7; however, the battery charger associated with a battery, and the alarms and indications for the charger and the battery, would be sufficient to detect such a problem.

Question 4

*"Does this unit have indication of bypassed and inoperable status of circuit breakers or other devices that can be used to disconnect the battery and battery charger from its dc bus and the battery charger from its ac power source during maintenance or testing?"*

Response

Units 1 and 2 do not have control room indication specifically for the purpose of indicating maintenance or testing on the dc systems. The indications of bypassed or inoperable status are covered by the annunciator response procedures described in the response to Question 3. If a battery and battery charger are disconnected from the associated bus, control room alarms will activate due to bus undervoltage. If a battery charger is disconnected from its AC power source, control room alarms will activate to indicate the absence of AC power to the charger.

Question 5

*"If the answer to any part of question 3 or 4 is no, then provide information justifying the existing design features of the facility's safety-related dc systems. (Note: for questions involving supporting type information (questions numbers 5 and 9) instead of developing and supplying the information in response to this letter, you may commit to further evaluate the need for such provisions during the performance of your individual plant examination for severe accident vulnerability (IPE). If you select this option, you are required to: (1) so state in response to these questions; and (2) commit to explicitly address questions 5 and 9 in your IPE submittal per the guidelines outlined in NUREG-1335 (Section 2.1.6, Subitem 7), 'Individual Plant Examination: Submittal Guidance.'"*



Response

As discussed in the answer to Question 3, PG&E does not have a control room alarm to specifically address item a.7. However, PG&E believes that the battery charger associated with a battery, and the alarms and indications for the charger and the battery, resolve item a.7. Therefore, PG&E believes that the items are adequately resolved such that further review is not required.

Question 6

*"(1) Have you conducted a review of maintenance and testing activities to minimize the potential for human error causing more than one dc division to be unavailable?"*

*"(2) Do plant procedures prohibit maintenance or testing on redundant dc divisions at the same time?"*

Response

PG&E has not conducted a review with the specific goal of minimizing the potential for human error causing more than one dc division to be unavailable. However, PG&E believes that plant procedures adequately implement the Technical Specification requirements such that the possibility for causing more than one dc division to be unavailable is minimized. The series of battery maintenance and testing procedures that could cause a dc division to be made inoperable prohibit maintenance or testing on redundant dc divisions at the same time.

Question 7

*"Are maintenance, surveillance and test procedures regarding station batteries conducted routinely at this plant? If the facility Technical Specifications have provisions equivalent to those found in the Westinghouse and Combustion Engineering Standard Technical Specifications for maintenance and surveillance, then question 7 may be skipped and a statement to that effect may be inserted here."*

Response

The Units 1 and 2 safety-related dc power system Technical Specification (TS) 3.8.3.1 has provisions equivalent to the corresponding Westinghouse Standard TS 3.8.3.1.

Question 8

*"Does this plant have operational features such that following loss of one safety-related dc power supply or bus:*

- a. *Capability is maintained for ensuring continued and adequate reactor cooling?*



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- b. *Reactor coolant system integrity and isolation capability are maintained?"*
- c. *Operating procedures, instrumentation (including indicators and annunciators), and control functions are adequate to initiate systems as required to maintain adequate core cooling?*

Response

The loss of a safety-related dc train is covered by Abnormal Operating Procedure (OP) AP-23, "Loss of Vital DC Bus." OP AP-23 contains direction to stabilize the plant and restore power to the affected dc bus. The auxiliary feedwater and residual heat removal systems are used to maintain adequate reactor cooling, and the loss of a single safety-related dc train or bus during plant operation does not impact the ability of these systems to provide reactor coolant system (RCS) cooling. Likewise, such a loss does not impact the ability of the power-operated relief valves (PORV) to maintain RCS integrity nor the ability of the PORV block valves or the reactor vessel head vent valves to maintain RCS isolation capability.

Question 9

*"If the answer to any part of question 6, 7 or 8 is no, then provide your basis for not performing the maintenance, surveillance and test procedures described and/or the bases for not including the operational features cited."*

Response

On the basis of our responses to Questions 6, 7, and 8, PG&E believes that the provisions of those questions are adequately resolved and that further resolution is not required.



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