

March 27, 1989

Docket Nos.: 50-275  
and 50-323

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Mr. J. D. Shiffer, Vice President  
Nuclear Power Generation  
c/o Nuclear Power Generation, Licensing  
Pacific Gas and Electric Company  
77 Beale Street, Room 1451  
San Francisco, California 94106

Dear Mr. Shiffer:

SUBJECT: ISSUANCE OF AMENDMENTS IN RESPONSE TO LAR 88-03 (TAC NOS. 68032  
AND 68033)

The Commission has issued the enclosed Amendment No.34 to Facility Operating License No. DPR-80 and Amendment No.33 to Facility Operating License No. DPR-82 for the Diablo Canyon Nuclear Power Plant, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications in response to your application transmitted by letter dated April 18, 1988 (reference License Amendment Request 88-03).

These amendments revise Technical Specification 2.2.1 and the associated bases to reduce the steam generator water level low and low-low setpoints from 15 to 7.2 percent of the narrow range span. A copy of the related Safety Evaluation and the Notice of Issuance is enclosed.

Sincerely,

original signed by

Harry Rood, Senior Project Manager  
Project Directorate V  
Division of Reactor Projects - III,  
IV, V and Special Projects

Enclosures:

1. Amendment No. 34 to DPR-80
2. Amendment No. 33 to DPR-82
3. Safety Evaluation
4. Notice of Issuance

cc w/enclosures:  
See next page

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JLde  
02/23/89

<sup>HR</sup>  
DRSP/PD5  
HRood  
02/22/89

OGC  
<sup>GM</sup>  
3/10/89

~~DRSP/PD5~~  
GKoughton  
03/15/89

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

March 27, 1989

Docket Nos.: 50-275  
and 50-323

Mr. J. D. Shiffer, Vice President  
Nuclear Power Generation  
c/o Nuclear Power Generation, Licensing  
Pacific Gas and Electric Company  
77 Beale Street, Room 1451  
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Sincerely,

A handwritten signature in cursive script that reads "Harry Rood".

Harry Rood, Senior Project Manager  
Project Directorate V  
Division of Reactor Projects - III,  
IV, V and Special Projects

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cc w/enclosures:  
See next page

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Diablo Canyon

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- 2 -

Diablo Canyon

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

PACIFIC GAS AND ELECTRIC COMPANY  
DIABLO CANYON NUCLEAR POWER PLANT, UNIT 1  
DOCKET NO. 50-275  
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 34  
License No. DPR-80

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Pacific Gas & Electric Company (the licensee) dated April 18, 1988 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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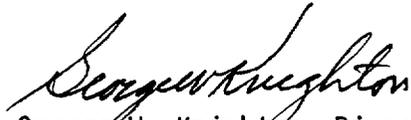
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-80 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 34 , are hereby incorporated in the license. Pacific Gas & Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment becomes effective at the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



George W. Knighton, Director  
Project Directorate V  
Division of Reactor Projects - III,  
IV, V and Special Projects

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: March 27, 1989



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

PACIFIC GAS AND ELECTRIC COMPANY  
DIABLO CANYON NUCLEAR POWER PLANT, UNIT 2  
DOCKET NO. 50-323  
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 33  
License No. DPR-82

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Pacific Gas & Electric Company (the licensee) dated April 18, 1988 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public;  
and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-82 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 33 , are hereby incorporated in the license. Pacific Gas & Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment becomes effective at the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
George W. Knighton, Director  
Project Directorate V  
Division of Reactor Projects - III,  
IV, V and Special Projects

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: March 27, 1989

ATTACHMENT TO LICENSE AMENDMENT NOS. 34 AND 33  
FACILITY OPERATING LICENSE NOS. DPR-80 AND DPR-82  
DOCKET NOS. 50-275 AND 50-323

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change.

Remove

2-5

B 2-7

Insert

2-5

B 2-7

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
13. Steam Generator Water Level-Low-Low	$\geq 7.2\%$ of narrow range instrument span-each steam generator	$\geq 6.2\%$ of narrow range instrument span-each steam generator
14. Steam Generator Water Level-Low Coincident with Steam/Feedwater Flow Mismatch	$\geq 7.2\%$ of narrow range instrument span-each steam generator $< 40\%$ of full steam flow at RATED THERMAL POWER	$\geq 6.2\%$ of narrow range instrument span-each steam generator $< 42.5\%$ of full steam flow at RATED THERMAL POWER
15. Undervoltage-Reactor Coolant Pumps	$\geq 8050$ volts-each bus	$\geq 7935$ volts-each bus
16. Underfrequency-Reactor Coolant Pumps	$\geq 54.0$ Hz - each bus	$\geq 53.9$ Hz - each bus
17. Turbine Trip a. Low Autostop Oil Pressure b. Turbine Stop Valve Closure	$\geq 50$ psig $\geq 1\%$ open	$\geq 45$ psig $\geq 1\%$ open
18. Safety Injection Input from ESF	N.A.	N.A.
19. Reactor Coolant Pump Breaker Position Trip	N.A.	N.A.
20. Reactor Trip Breakers	N.A.	N.A.
21. Automatic Trip and Interlock Logic	N.A.	N.A.

DIABLO CANYON - UNITS 1 & 2

2-5

Amendment Nos. 34 and 33

## LIMITING SAFETY SYSTEM SETTINGS

### BASES

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#### Steam Generator Water Level

The Steam Generator Water Level Low-Low trip protects the reactor from loss of heat sink in the event of a sustained steam/feedwater flow mismatch resulting from loss of normal feedwater. The specified Setpoint provides allowances for starting delays of the Auxiliary Feedwater System.

#### Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level

The Steam/Feedwater Flow Mismatch in coincidence with a Steam Generator Low Water Level trip is not used in the transient and accident analyses but is included in Table 2.2-1 to ensure the functional capability of the specified trip settings and thereby enhance the overall reliability of the Reactor Trip System. This trip is redundant to the Steam Generator Water Level Low-Low trip. The Steam/Feedwater Flow Mismatch portion of this trip is activated when the steam flow exceeds the feedwater flow by greater than or equal to  $1.45 \times 10^6$  lbs/hr for Unit 1 and  $1.49 \times 10^6$  lbs/hr for Unit 2. The Steam Generator Low Water level portion of the trip is activated when the water level drops below 7.2%, as indicated by the narrow range instrument. These trip values include sufficient allowance in excess of normal operating values to preclude spurious trips but will initiate a Reactor trip before the steam generators are dry. Therefore, the required capacity and starting time requirements of the auxiliary feedwater pumps are reduced and the resulting thermal transient on the Reactor Coolant System and steam generators is minimized.

#### Undervoltage and Underfrequency - Reactor Coolant Pump Busses

The Undervoltage and Underfrequency Reactor Coolant Pump Bus trips provide core protection against DNB as a result of complete loss of forced coolant flow. The specified Setpoints assure a Reactor trip signal is generated before the Low Flow Trip Setpoint is reached. Time delays are incorporated in the Underfrequency and Undervoltage trips to prevent spurious Reactor trips from momentary electrical power transients. For undervoltage, the delay is set so that the time required for a signal to reach the Reactor trip breakers following the simultaneous trip of two or more reactor coolant pump bus circuit breakers shall not exceed 0.9 seconds. For underfrequency, the delay is set so that the time required for a signal to reach the Reactor trip breakers after the Underfrequency Trip Setpoint is reached shall not exceed 0.3 seconds. On decreasing power, the Undervoltage and Underfrequency Reactor Coolant Pump Bus trips are automatically blocked by P-7 (a power level of approximately 10% of RATED THERMAL POWER with a turbine impulse chamber pressure at approximately 10% of full power equivalent); and on increasing power, reinstated automatically by P-7.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 34 TO FACILITY OPERATING LICENSE NO. DPR-80  
AND AMENDMENT NO. 33 TO FACILITY OPERATING LICENSE NO. DPR-82  
PACIFIC GAS AND ELECTRIC COMPANY  
DIABLO CANYON NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-275 AND 50-323

1.0 INTRODUCTION

By letter dated April 18, 1988 (reference LAR 88-02), Pacific Gas and Electric Company (PG&E or the licensee) requested amendments to the Technical Specifications (TS) appended to Facility Operating License Nos. DPR-80 and DPR-82 for the Diablo Canyon Nuclear Power Plant, (DCNPP) Unit Nos. 1 and 2, respectively. The proposed amendments would change the DCNPP Combined Technical Specifications by revising TS 2.2.1, "Reactor Trip System Instrumentation Setpoints," Table 2.2-1, "Reactor Trip System Instrumentation Trip Setpoints," Items 13 and 14 to reduce the steam generator water level low and low-low setpoints from 15 to 7.2 percent of the narrow range span. Also, the associated TS bases would be changed accordingly.

2.0 EVALUATION

The NRC staff has evaluated the proposed changes and has concluded that they are acceptable. The staff's evaluation is given below.

The purpose of the change as stated by PG&E is to decrease the number of unnecessary reactor trips caused by (1) steam generator water level low-low and (2) steam generator water level low coincident with steam/feedwater flow mismatch. This will in turn reduce the number of challenges to the reactor protection systems and impose fewer thermal transients on the plants.

The primary change proposed to support the setpoint reduction involves the replacement of the existing Barton 764 steam generator level transmitters with more accurate Rosemount 1154 transmitters. The actual reduction proposed would be from 15% to 7.2% of the narrow range span.

As part of the proposed change, PG&E provided WCAP-11784, "Calculation of Steam Generator Level Low and Low-Low Trip Setpoint With Use of a Rosemount 1154 Transmitter," dated March 1988. The non-proprietary version (WCAP-11785) was also provided. The staff also reviewed the

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PG&E design calculation sheets related to the accuracy of the new transmitters.

The methodology used to calculate the setpoints as described in WCAP-11784 is similar to the methodology previously approved by the staff for the V. C. Summer Plant (NUREG-0717 SSER #4 August 1982). Based on similarity, the staff considers the setpoint methodology to be acceptable. This methodology is a statistical (square root of the sum of the squares) method.

The two largest contributors to the original 15% setpoint (reference PG&E letter to F. J. Miraglia (NRC) dated February 19, 1981) involved post accident transmitter error and an additional margin of safety. The proposed Rosemount transmitters have been type-tested by IEEE Standards 323-1974, 323-1983 and 344-1975. This testing involved baseline accuracy tests, radiation tests, functional tests, LOCA/high energy line break tests, one year post accident simulation and a final functional test. Accident test levels were chosen to encompass the Diablo Canyon postulated accident environment. The tests show the proposed Rosemount transmitters to be more accurate than the original Barton equipment during the postulated accident environment. Based on this, the staff does not require an additional margin for safety for this equipment. The additional margin had originally been required due to the inaccuracies of the Barton transmitter when operated at the lower end of its scale. Due to the accuracy demonstrated by testing, the staff finds the removal of the additional margin acceptable for these Rosemount transmitters.

The revised setpoint calculation (using WCAP-11784) shows that the improved accuracy of the Rosemount transmitters combined with the improved setpoint calculation methodology as compared to the original 15 percent calculation allows the steam generator water level low-low setpoint to be reduced to 7.2 percent of the narrow range instrument span. The staff finds both the above change and the corresponding allowable value of 6.2 percent as shown on the proposed technical specification to be acceptable. The staff also finds the same change for the steam generator water level low with steam flow/feed flow mismatch reactor trip to be acceptable, for the same reasons.

In summary, the staff has reviewed the proposed revision of Technical Specification 2.2.1 and for the reasons given above, finds the changes described in the April 18, 1988 PG&E submittal to be acceptable.

### 3.0 ENVIRONMENTAL CONCLUSION

Pursuant to 10 CFR 51.21, 51.32, and 51.35, an Environmental Assessment and Finding of No Significant Impact has been prepared and published (54 FR 12032) in the Federal Register on March 23, 1989. Accordingly, based upon the environmental assessment, the Commission has determined that the issuance of the amendments will not have a significant effect on the quality of the human environment.

UNITED STATES NUCLEAR REGULATORY COMMISSION  
PACIFIC GAS AND ELECTRIC COMPANY  
DOCKETS NOS. 50-275 AND 50-323  
NOTICE OF ISSUANCE OF AMENDMENTS TO  
FACILITY OPERATING LICENSES

The United States Nuclear Regulatory Commission (the Commission) has issued Amendments Nos. 34 and 33 to Facility Operating Licenses Nos. DPR-80 and DPR-82, issued to the Pacific Gas and Electric Company (the licensee), which revised the Technical Specifications (TS) for operation of the Diablo Canyon Nuclear Power Plant, Units Nos. 1 and 2 (DCNPP), located in San Luis Obispo County, California. The amendments are effective as of the date of issuance.

The amendments changed the DCNPP Combined Technical Specifications by revising TS 2.2.1, "Reactor Trip System Instrumentation Setpoints," Table 2.2-1, "Reactor Trip System Instrumentation Trip Setpoints," Items 13 and 14 to reduce the steam generator water level low and low-low setpoints from 15 to 7.2 percent of the narrow range span. Also, the associated TS bases were changed.

The application for the amendments complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations. The Commission has made appropriate findings, as required by the Act and the Commission's regulations in 10 CFR Chapter I, which are set forth in the license amendments.

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Notice of Consideration of Issuance of Amendments to Facility Operating Licenses and Opportunity for Hearing in connection with this action was published in the FEDERAL REGISTER on June 23, 1988 at 53 FR 23708. No request for hearing or petition to intervene was filed following this notice.

Also in connection with this action, the Commission prepared an Environmental Assessment and Finding of No Significant Impact which was published in the FEDERAL REGISTER on March 23, 1989 at 54 FR 12032.

For further details with respect to this action, see (1) the application for amendments dated April 18, 1988, (2) Amendments Nos. 34 and 33 to Licenses Nos. DPR-80 and DPR-82, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 2120 L Street, NW., Washington, DC 20555, and at the California Polytechnic State University Library, Government Documents and Maps Department, San Luis Obispo, California 93407. A copy of items (2) and (3) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Director, Division of Reactor Projects - III, IV, V and Special Projects.

Dated at Rockville, Maryland, this 27th day of March, 1989.

FOR THE NUCLEAR REGULATORY COMMISSION



Harry Rood, Senior Project Manager  
Project Directorate V  
Division of Reactor Projects - III,  
IV, V and Special Projects

**4.0 CONCLUSION**

We have concluded, based on the considerations discussed above, that:  
(1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and  
(2) such activities will be conducted in compliance with the Commission's regulations and (3) the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

**Principal Contributors: James Stewart  
Harry Rood**

**Dated: March 27, 1989**