

APR 18 1984

Docket No.: 50-275

Mr. J. O. Schuyler, Vice President  
Nuclear Power Generation  
c/o Nuclear Power Generation, Licensing  
Pacific Gas & Electric Company  
77 Beale Street, Room 1435  
San Francisco, California 94106

Dear Mr. Schuyler:

Subject: Order to Modify Facility Operating License No. DPR-76  
(Diablo Canyon Nuclear Power Plant, Unit 1)

The Nuclear Regulatory Commission has issued the enclosed Subject Order. The Order sets forth License Condition 2.C.(11) which amends the license. The condition pertains to certain piping and piping support efforts that must be completed by Pacific Gas & Electric Company prior to Diablo Canyon Unit 1 operating above 5 percent of rated power.

The staff intends to audit and evaluate your efforts as they progress, including observation of the plant walkdowns. We request that you inform us as early as possible of your schedule for the hot walkdown of the main feedwater system piping to be performed after exceeding 5 percent power.

The enclosed Order will be forwarded to the office of the Federal Register for publication.

Sincerely,

ORIGINAL SIGNED BY

Darrell G. Eisenhut, Director  
Division of Licensing  
Office of Nuclear Reactor Regulation

Enclosure:  
Order to Modify Facility  
Operating License No. DPR-76

cc: See next page

*for* DE:DIR HS  
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HSchierling/yt  
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DL:LB#3  
JLee  
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GWKnighton  
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*ESC*  
DELD  
LChandler  
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DL:AD/L  
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DL:DIR  
DGE Eisenhut  
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APR 18 1984

ORDER TO MODIFY FACILITY OPERATING LICENSE NO. DPR-76  
DIABLO CANYON NUCLEAR POWER PLANT, UNIT 1

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Docket File 50-275/323

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Diablo Canyon

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of )  
 )  
PACIFIC GAS & ELECTRIC COMPANY ) Docket No. 50-275  
(Diablo Canyon Nuclear Power )  
Plant, Unit 1) )

ORDER MODIFYING LICENSE

I.

The Pacific Gas and Electric Company (PG&E or the Licensee) holds License No. DPR-76 which authorizes the Licensee to conduct low-power operation of the Diablo Canyon Nuclear Power Plant, Unit 1, at up to 5% of the facility's rated power. The license was issued on September 22, 1981, and was recently fully reinstated by the Commission after having been suspended in November 1981 pending the successful completion of an independent design verification program.

II.

During the staff's review of the results of the independent design verification program and other matters related to the readiness of Diablo Canyon Unit 1 for low-power operation upon reinstatement of the suspended license, a number of concerns were raised regarding the adequacy of the design and design control measures for piping and piping supports. In recent weeks, the Commission and the staff have devoted substantial

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attention to these concerns to ensure that the piping and piping supports would not pose an undue risk to public health and safety if Diablo Canyon Unit 1 were permitted to operate at low power.

Among its evaluations and inspections of the piping issue, the staff convened a peer review group of technical experts to review certain concerns raised by Mr. Isa Yin, an NRC inspector who had reported, on the basis of his review and inspection, inadequate compliance with design requirements, document controls and personnel training for piping and piping supports. The peer review group met with Mr. Yin, PG&E representatives, and some of the contractors involved in the independent design verification program. The group visited Diablo Canyon, and later met with Mr. Charles Stokes, a former employee at the Diablo Canyon Project site who had made allegations concerning the adequacy of small-bore piping and piping supports. The group later met with Mr. Yin to discuss the group's proposed findings. In addition to the staff's reviews and inspections of the piping and piping supports, the Advisory Committee on Reactor Safeguards (ACRS) met in public session on April 6, 1984, to hear from Mr. Yin, other members of the NRC staff, and Mr. Stokes.

The peer review group and the ACRS concluded that Mr. Yin's concerns did not warrant delaying low-power operation of Diablo Canyon Unit 1. Mr. Yin informed the ACRS that, upon further review of the matter, he did not believe that resolution of the piping issues required further deferral of the reinstatement of the low-power operating license for Diablo Canyon Unit 1. Accordingly, the Commission reinstated the low-power license on April 13, 1984. See CLI-84-5, at 4-6.

The peer review group, the ACRS, and Mr. Yin agree that the piping issue requires resolution prior to authorizing full-power operation of Diablo Canyon Unit 1. On the basis of the various reviews of this matter, the staff believes that a number of actions are necessary to ensure the adequacy of small and large-bore piping and pipe supports and to ensure correction of deficiencies, if any, before Diablo Canyon Unit 1 can be permitted to operate above 5% rated power.

### III.

Accordingly, pursuant to sections 103, 161(i), 161(o), 182 and 186 of the Atomic Energy Act of 1954, as amended, and 10 CFR 2.204 and 10 CFR Part 50 of the Commission's regulations, IT IS HEREBY ORDERED THAT the Licensee shall not operate Diablo Canyon Unit 1 above 5% power until the Licensee has completed the specific actions which are set forth below in new License Condition 2.C.(11) to Facility Operating License No. DPR-76:

#### 2.C.(11): Piping and Piping Supports

1. PG&E shall complete the review of all small-bore piping supports which were reanalyzed and requalified by computer analysis. The review shall include consideration of the additional technical topics, as appropriate, contained in License Condition No. 7 below.
2. PG&E shall identify all cases in which rigid supports are placed in close proximity to other rigid supports or anchors. For these cases PG&E shall conduct a program that assures loads shared between these



adjacent supports and anchors result in acceptable piping and support stresses. Upon completion of this effort, PG&E shall submit a report to the NRC staff documenting the results of the program.

3. PG&E shall identify all cases in which snubbers are placed in close proximity to rigid supports and anchors. For these cases, utilizing snubber lock-up motion criteria acceptable to the staff, PG&E shall demonstrate that acceptable piping and piping support stresses are met. Upon completion of this effort, PG&E shall submit a report to the NRC staff documenting the results.
4. PG&E shall identify all pipe supports for which thermal gaps have been specifically included in the piping thermal analyses. For these cases the licensee shall develop a program for periodic inservice inspection to assure that these thermal gaps are maintained throughout the operating life of the plant. PG&E shall submit to the NRC staff a report containing the gap monitoring program.
5. PG&E shall provide to the NRC the procedures and schedules for the hot walkdown of the main steam system piping. PG&E shall document the main steam hot walkdown results in a report to the NRC staff.
6. PG&E shall conduct a review of the "Pipe Support Design Tolerance Clarification" program (PSDTC) and "Diablo Problem" system (DP) activities. The review shall include specific identification of the following:

- (a) Support changes which deviated from the defined PSDTC program scope;
- (b) Any significant deviations between as-built and design configurations stemming from the PSDTC or DP activities; and
- (c) Any unresolved matters identified by the DP system.

The purpose of this review is to ensure that all design changes and modifications have been resolved and documented in an appropriate manner. Upon completion PG&E shall submit a report to the NRC staff documenting the results of this review.

7. PG&E shall conduct a program to demonstrate that the following technical topics have been adequately addressed in the design of small and large-bore piping supports:
  - (a) Inclusion of warping normal and shear stresses due to torsion in those open sections where warping effects are significant.
  - (b) Resolution of differences between the AISC Code and Bechtel criteria with regard to allowable lengths of unbraced angle sections in bending.
  - (c) Consideration of lateral/torsional buckling under axial loading of angle members.

- (d) Inclusion of axial and torsional loads due to load eccentricity where appropriate.
- (e) Correct calculation of pipe support fundamental frequency by Rayleigh's method.
- (f) Consideration of flare bevel weld effective throat thickness as used on structural steel tubing with an outside radius of less than  $2T$ .

PG&E shall submit a report to the NRC staff documenting the results of the program.

8. The Director, Division of Licensing, Office of Nuclear Reactor Regulation, may relax any of the foregoing conditions for good cause.

#### IV.

The Licensee may request a hearing on this Order. Any request for a hearing on this Order must be submitted within 20 days of the date of this Order to the Director, Division of Licensing, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C., 20555. A copy of the request shall also be sent to the Executive Legal Director, U.S.N.R.C., Washington, D.C., 20555.

If a hearing is to be held, the Commission will issue an Order designating the time and place of any such hearing. If a hearing is

held on this Order, the issue for hearing shall be whether this Order should be sustained.

This Order shall become effective without further proceedings upon the Licensee's consent to the Order or upon expiration of the period within which the Licensee may request a hearing. If the Licensee requests a hearing this Order shall be effective in accordance with an Order issued following further proceedings on this Order.

FOR THE NUCLEAR REGULATORY COMMISSION

**ORIGINAL SIGNED BY**

Darrell G. Eisenhut, Director  
Division of Licensing  
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland,  
this 18th day of April, 1984.

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