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FACIL: 50-275 Diablo Canyon Nuclear Power Plant, Unit 1, Pacific Ga 05000275
50-323 Diablo Canyon Nuclear Power Plant, Unit 2, Pacific Ga 05000323
AUTH. NAME AUTHOR AFFILIATION
PATE, R. J. Region 5, Ofc of the Director
RECIP. NAME RECIPIENT AFFILIATION
SHIFFER, J. D. Pacific Gas & Electric Co.

SUBJECT: Ack receipt of 880120 ltr informing NRC of corrective actions taken in response to notice of violation in insp on 871221. Actions will be verified during future insp.

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NOTES: 50-275/86-33

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Docket Nos. 50-275 and 50-323

Pacific Gas and Electrinc Company
77 Beale Street
Room 1451
San Francisco, California 94106

Attention: J. D. Shiffer, Vice President
Nuclear Power Generation

Gentlemen:

Thank you for your letter dated January 20, 1988, in response to our Notice of Violation and Inspection Report Nos. 50-275/86-33 and 50-323/86-31, dated December 21, 1987, informing us of the steps you have taken to correct the items which we brought to your attention. Your corrective actions will be verified during a future inspection.

Your cooperation with us is appreciated.

Sincerely,

Original Signed
R. J. Pate, Chief
Reactor Safety Branch

bcc w/copy of letter dated 1/20/88:
docket file
State of California
G. Cook
B. Faulkenberry
J. Martin
Resident Inspector
Project Inspector
M. Smith
LFMB

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J. Martin

PACIFIC GAS AND ELECTRIC COMPANY

77 BEALE STREET • SAN FRANCISCO, CALIFORNIA 94106 • (415) 781-4211 • TWX 910-372-6587

JAMES D. SHIFFER
VICE PRESIDENT
NUCLEAR POWER GENERATION

January 20, 1988

PG&E Letter No.: DCL-88-012

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington D.C. 20555

Re: Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
Reply to Notice of Violation in NRC Letter Dated December 21, 1987

Gentlemen:

By letter dated December 21, 1987, the NRC forwarded a Notice of Violation to PG&E citing two Severity Level IV violations and one Severity Level V violation related to environmental qualification of electrical equipment. PG&E's response to this Notice of Violation is provided in the enclosure.

Kindly acknowledge receipt of this material on the enclosed copy of this letter and return it in the enclosed addressed envelope.

Sincerely,

J. D. Shiffer

Enclosure

cc: J. B. Martin
M. M. Mendonca
P. P. Narbut
B. Norton
B. H. Vogler
CPUC
Diablo Distribution

1875S/0053K/DJH/1725

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ENCLOSURE

REPLY TO NOTICE OF VIOLATION IN NRC
LETTER DATED DECEMBER 21, 1987

In a letter dated December 21, 1987, NRC Region V issued a Notice of Violation citing two Severity Level IV violations and one Severity Level V violation identified during the inspection documentation in NRC Inspection Report No. 50-275/86-33 and 50-323/86-31 for Diablo Canyon Power Plant (DCPP). The statements of violation and PG&E's responses are as follows:

1. STATEMENT OF VIOLATION

> Contrary to paragraphs (f) and (k) of 10 CFR 50.49 and sections 2.2 and 5(1) of NUREG-0588, Category II, PG&E did not establish complete functional performance requirements for safety-related Conax RTDs in that the required accuracy for the RTDs was specified in the file as "±1.75°F," but there were no criteria or standard values established with which to evaluate the data against this specification. Examination of the raw data showed that several of the samples during the design basis event simulation deviated from the others by more than 1.75°F.
>
> This is a Severity Level IV violation (Supplement I).

REASON FOR VIOLATION IF ADMITTED

PG&E acknowledges that the violation occurred as described in the Statement of Violation. PG&E did not establish sufficiently complete functional performance requirements for safety-related Conax resistance temperature detectors (RTDs). The required accuracy of the RTDs was conservatively specified as ±1.75°F, but there were insufficient additional requirements established to ensure that this ±1.75°F accuracy requirement was met during, as well as before and after, the design basis event (DBE) simulation tests. The environmental qualification (EQ) file (IH-36) documented the acceptability of the subject Conax RTD based on pre- and post-DBE calibration, which confirmed that the accuracy was unchanged by the DBE environmental testing. The fact that the temperatures measured by the seven RTDs inside the chamber during the DBE simulation deviated slightly more than the ±1.75°F acceptance criterion is typical of this type of testing.

Steam is constantly being introduced into the chamber, creating a nonuniform environment. The acceptability of the subject RTD was based on the fact that it closely tracked the other RTDs being environmentally tested and that it met the acceptance criteria under pre- and post-test laboratory conditions. However, the PG&E criteria did not consider inaccuracies that could be created during the DBE test for the Conax RTDs.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

The EQ file for the Conax RTDs was modified to include supporting documentation that provides evidence to support qualification during the DBE testing. The harsh environment of the DBE simulation could affect RTD accuracy by lowering insulation values and shunting the RTD. Therefore, the cabling system was analyzed with data taken from tests of the cable installed at DCPP to determine the shunting resistance that could be introduced in the RTD circuit. The analysis demonstrated that the RTD met the acceptance criterion in the file at the time of the audit. In addition, the acceptance criterion in the file was relaxed to ±2.75°F based on an analysis of the accuracy requirements of the instrument system. The file has been revised, and the results of the calculation have been provided to the NRC inspectors.

Other RTD EQ files have been reviewed to ensure that acceptance criteria are met, including shunting cable effects from harsh DBE environments. All RTD files meet EQ acceptance criteria.

CORRECTIVE STEPS THAT WILL BE TAKEN TO BE TAKEN TO AVOID FURTHER VIOLATION

No further corrective steps are necessary to prevent recurrence.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

PG&E is presently in full compliance.

2. STATEMENT OF VIOLATION

> Contrary to paragraphs (f) and (k) of 10 CFR 50.49 and section 5(1) of NUREG 0588, Category II, the qualification documentation for Limitorque motorized valve actuators (ID No. 8703) did not establish similarity between the installed actuator and that tested in that, unlike that tested, there was no gear case grease relief on the installed actuator. The files contained no analyses to demonstrate that grease reliefs were not required for the DCPP applications.
>
> This is a Severity Level IV violation (Supplement I).

REASON FOR THE VIOLATION IF ADMITTED

PG&E acknowledges that the violation occurred as described in the Statement of Violation. The documentation in EQ file IH-7A for Limitorque motor-operated valves inside containment indicated that the operator had been tested with a grease relief, but the installed operator did not have a grease relief. However, PG&E had an earlier report, WCAP-7410-L, which documented successful testing of this Limitorque operator without a grease relief. This report was not part of the file at the time of the inspection but was shown to the

NRC inspectors during the inspection. PG&E agrees that EQ file IH-7A should have contained a similarity analysis to demonstrate that a grease relief is not required for the DCPP application, or the grease relief should have been installed.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

PG&E Engineering has reviewed and evaluated the possible effects of a gear housing without a grease relief on the operability of the Limitorque motor operator under loss-of-coolant accident (LOCA) and main steam line break (MSLB) conditions. The result of this evaluation was that MSLB and LOCA conditions will not cause grease to extrude from the gear housing because: (1) maintenance personnel when adding grease leave ample room to allow for expansion of the grease; (2) compartments of the operator are not totally sealed and, thereby, are equally pressurized; therefore, grease is not likely to be forced into other compartments. EQ file IH-7A was revised on February 2, 1987, by addition of a calculation on thermal expansion of the grease in the gear housing to demonstrate valve operability and justify the continued operability of Limitorque valve operators without grease reliefs.

To eliminate the concern, PG&E installed grease reliefs on the gear housings of the three Limitorque valve operators inside Unit 2 containment which did not have grease reliefs (PG&E tag Nos. 8701, 8702, and 8703).

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATION

Grease reliefs on the gear housings of the three Limitorque valve operators inside Unit 1 containment will be installed during the next scheduled refueling outage.

In addition, as discussed with the NRC, PG&E will install grease reliefs on Limitorque operators outside containment that could be subjected to higher temperature during a MSLB and which are required to operate to achieve safe plant shutdown. These grease reliefs will be installed during scheduled valve maintenance.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Grease reliefs will be installed on the environmentally qualified Limitorque valve operators in Unit 1 containment during the Unit 1 second refueling outage, currently scheduled to begin in March 1988.

3. STATEMENT OF VIOLATION

> Contrary to paragraph (1) of 10 CFR 50.49, PG&E had not upgraded to 10 CFR 50.49 requirements the level of qualification of their Scotch 33+/Scotchco putty cable splice insulation system used on qualified equipment

purchased after the effective date of 10 CFR 50.49 (February 22, 1983) and the file contained no sound reasons to the contrary.

This is a Severity Level V violation (Supplement I).

REASON FOR VIOLATION IF ADMITTED

PG&E acknowledges that the violation occurred as described in the Statement of Violation. Scotch 33+ taped electrical connections were qualified in accordance with NUREG-0588, Category II. This qualification was documented in EQ file EH-26. This file justified operation with taped connections in environmentally qualified equipment outside containment prior to the effective date of 10 CFR 50.49. However, 10 CFR 50.49 requires additional qualification for new and replacement components where modifications were made after February 22, 1983. Because the approved engineering drawings were not updated to restrict the use of tape splices after that date, a limited number of terminations were tape spliced.

CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND THE RESULTS ACHIEVED

The affected detail drawings were revised and reissued on January 20, 1987, to specify the use of qualified replacement splices. Maintenance Bulletin No. 14 was issued to instruct maintenance personnel to use the qualified replacement splices. In September 1987, a walkdown of accessible plant areas was conducted to inspect safety related splices requiring environmental qualification for a harsh environment. Approximately 480 splices were inspected. Of these, only 19 were actually installed after February 1983. Tape splices located in high radiation areas that were inaccessible during plant operation (approximately 40) were excluded from this walkdown.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

1. A walkdown of tape splices located in high radiation areas will be conducted to determine if any were installed after February 1983.

2. All tape splices installed after February 1983, as determined by the September 1987 and upcoming walkdown, will be replaced with qualified Raychem splices.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

1. A walkdown of tape splices located in high radiation areas will be conducted during the second refueling outages of Units 1 and 2, currently scheduled to begin in March 1988 and October 1988, respectively.

2. All tape splices which were determined to have been installed after February 1983 will be replaced on a priority basis during the second and third refueling outages for Units 1 and 2. For those to be replaced

during the third refueling outage, a justification for continued operation (JCO) demonstrates operability of the tape splice to the third refueling outage.