March 4, 1993

Docket Nos. 50-275
and 50-323

Mr. Gregory M. Rueger
Nuclear Power Generation, B14A
Pacific Gas and Electric Company
77 Beale Street, Room 1451
P.O. Box 770000
San Francisco, California 94177

Dear Mr. Rueger:

SUBJECT: REQUEST FOR RELIEF FROM THE ASME CODE INSPECTION REQUIREMENTS FOR CONTAINMENT ELECTRICAL PENETRATIONS, DIABLO CANYON UNITS 1 AND 2 (TAC NOS. M84115 AND M84116)

By letters dated July 14, 1992, as supplemented February 8, 1993, you requested relief from the ASME Code requirements for inspection of containment electrical penetration welds. The relief request proposed substitution of the alternative requirements of Code case N-505, which has not been incorporated by reference in the appropriate Regulatory Guide. The staff concluded that the proposed alternative may be authorized pursuant to 10 CFR 50.55a(a)(3). This alternative will provide an acceptable level of quality and safety.

A copy of the related Safety Evaluation is enclosed. This completes the staff effort on this issue and closes TAC Nos. M84115 and M84116. If you have any questions regarding this matter, please contact Sheri Peterson at (301) 504-1325.

Sincerely,
Original signed by
Theodore R. Quay, Director
Project Directorate V
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:
Safety Evaluation

cc w/enclosure:
See next page

DISTRIBUTION

Docket Files	NRC & LPDRs	PDV r/f	JRoe	TMurley/FMiraglia
MVirgilio	DFoster	SPeterson	TQuay	JPartlow
OGC	ERossi	JLieberman	EJordan	JMitchell
GHill (4)	ACRS (10)	OPA	OC/LFDCB	KPerkins, RV

*See Previous Concurrence

OFC	LA/PDV*	PM/PDV*	OGC*	D/PDV
NAME	DFoster	SPeterson:lh	MYoung	TQuay
DATE	03/02/93	03/02/93	03/02/93	3/4/93

OFFICIAL RECORD COPY DOCUMENT NAME:DC84115.REL

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 4, 1993

Docket Nos. 50-275
and 50-323

Mr. Gregory M. Rueger
Nuclear Power Generation, B14A
Pacific Gas and Electric Company
77 Beale Street, Room 1451
P.O. Box 770000
San Francisco, California 94177

Dear Mr. Rueger:

SUBJECT: REQUEST FOR RELIEF FROM THE ASME CODE INSPECTION REQUIREMENTS FOR CONTAINMENT ELECTRICAL PENETRATIONS, DIABLO CANYON UNITS 1 AND 2 (TAC NOS. M84115 AND M84116)

By letters dated July 14, 1992, as supplemented February 8, 1993, you requested relief from the ASME Code requirements for inspection of containment electrical penetration welds. The relief request proposed substitution of the alternative requirements of Code case N-505, which has not been incorporated by reference in the appropriate Regulatory Guide. The staff concluded that the proposed alternative may be authorized pursuant to 10 CFR 50.55a(a)(3). This alternative will provide an acceptable level of quality and safety.

A copy of the related Safety Evaluation is enclosed. This completes the staff effort on this issue and closes TAC Nos. M84115 and M84116. If you have any questions regarding this matter, please contact Sheri Peterson at (301) 504-1325.

Sincerely,

Theodore R. Quay

Theodore R. Quay, Director
Project Directorate V
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosure:
Safety Evaluation

cc w/enclosure:
See next page

Mr. Gregory M. Rueger
Pacific Gas and Electric Company

Diablo Canyon

cc:
NRC Resident Inspector
Diablo Canyon Nuclear Power Plant
c/o U.S. Nuclear Regulatory Commission
P. O. Box 369
Avila Beach, California 93424

Dr. Richard Ferguson, Energy Chair
Sierra Club California
6715 Rocky Canyon
Creston, California 93432

Ms. Nancy Culver
San Luis Obispo
Mothers for Peace
P. O. Box 164
Pismo Beach, California 93448

Ms. Jacquelyn C. Wheeler
3303 Barranca Court
San Luis Obispo, California 93401

Managing Editor
The County Telegram Tribune
1321 Johnson Avenue
P. O. Box 112
San Luis Obispo, California 93406

Chairman
San Luis Obispo County Board of
Supervisors
Room 370
County Government Center
San Luis Obispo, California 93408

Mr. Truman Burns
Mr. Robert Kinosian
California Public Utilities Commission
505 Van Ness, Rm. 4102
San Francisco, California 94102

Diablo Canyon Independent Safety Committee
ATTN: Robert R. Wellington, Esq.
Legal Counsel
857 Cass Street, Suite D
Monterey, California 93940

Mr. Hank Kocol
Radiologic Health Branch
State Department of Health Services
Post Office Box 942732
Sacramento, California 94234

Regional Administrator, Region V
U.S. Nuclear Regulatory Commission
1450 Maria Lane, Suite 210
Walnut Creek, California 94596

Mr. Peter H. Kaufman
Deputy Attorney General
State of California
110 West A Street, Suite 700
San Diego, California 92101

Michael M. Strumwasser, Esq.
Special Assistant Attorney General
State of California
Department of Justice
3580 Wilshire Boulevard, Room 800
Los Angeles, California 90010

Christopher J. Warner, Esq.
Pacific Gas & Electric Company
Post Office Box 7442
San Francisco, California 94120

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST FOR RELIEF FROM THE ASME CODE INSPECTION REQUIREMENTS

FOR CONTAINMENT ELECTRICAL PENETRATION WELDS

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON POWER PLANT, UNITS 1 AND 2

DOCKET NOS. 50-275 AND 50-323

1.0 INTRODUCTION

By letters dated July 14, 1992 and February 8, 1993, Pacific Gas and Electric (PG&E), the licensee, requested relief from the inspection requirements of ASME Code Section III, paragraph NE-5221. In place of NE-5221, the licensee proposed substitution of Code case N-505. NE-5221 specifies that volumetric methods, either radiography (RT) or ultrasonic (UT), be employed to inspect full penetration butt welds in containment penetrations. Code case N-505 provides for alternative use of liquid penetrant (PT) or magnetic particle (MT) examination of containment penetration welds. Code case N-505 has been adopted by the ASME Main Committee but its evaluation for incorporation by reference in the appropriate Regulatory Guide is pre-decisional, hence the need for NRC approval.

The proposed Code case application was for refueling outage work planned on four 12 inch diameter containment electrical penetrations at Diablo Canyon Power Plant Units 1 and 2. Two electrical penetrations on each unit were planned to be replaced during their respective refueling outages; unit 2 fifth refueling outage (2R5) and unit 1 sixth refueling outage (1R6). The final closure welds would be butt weld joints on the outside portion of containment electrical penetrations 10E and 6E (both units). The closure weld would be performed after the cables were reinstalled in the conduit.

The basis of the licensee's request was the impracticality of performing RT of a cable conduit with wires and cables inside. Their presence would interfere with the interpretation of a radiograph. The licensee has had unsatisfactory experiences with UT in previous similar applications. In the past, UT has resulted in false indications of flaws. This resulted in an excessive amount of weld repair and delays that were found to be unnecessary.

2.0 DISCUSSION

ASME Section III permits electrical penetration welds to be either lap joints with fillet welds or full penetration butt joints. Fillet welds can only be examined by means of a surface examination (PT or MT). Full penetration butt

welds are required by the Code to be examined by volumetric means (RT or UT). This is a more comprehensive, and thus more stringent, examination than the surface examination required of the fillet welds.

Code case N-505 permits surface examinations of the butt weld as it is being executed as an alternative to the volumetric examination requirement in Section III. This is accomplished by requiring PT or MT of the butt weld root pass and the completed weld. Since a majority of weld defects are found in either the root or final passes, this examination of both passes provides a reasonable assurance that a structurally sound weld is produced. For welds greater in thickness than 3/8 inch, an intermediate PT or MT examination is required after approximately half the weld thickness has been deposited.

A second requirement of the Code case is a reduction in the allowable stress for the weld joint. The allowable stress for the joint is reduced to 80% of that for a radiographed butt joint. This follows the practice of pressure vessel design wherein allowable joint strength is reduced by factors that are dependent upon the degree and type of weld examination. The staff finds this to be a reasonably conservative approach to structural design.

A prime function of the containment is leak isolation in the event of design basis events. In order to perform this function, leak tightness must be maintained to the maximum extent practical. This can be demonstrated by one of a variety of leak tests: pressure test with air, helium leak, or vacuum box. In addition to the surface examinations specified in the Code case, the licensee is required to perform a leak tightness test on the associated containment electrical penetration welds in accordance with Diablo Canyon Post Modification Test-45.06, "Pressurized Test of Conax Penetrations 06E and 10E Welds." Thus, the proposed alternative will provide reasonable assurance that the subject butt welds would perform the intended functions and, thus, provide an acceptable level of quality and safety.

3.0 CONCLUSION

Pursuant to 10 CFR 50.55a(a)(3), the use of other Code cases may be authorized by the staff. The licensee must demonstrate that (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements of this section would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety. The staff finds that the proposed use of Code case N-505 will provide an acceptable level of quality and safety and, pursuant to 10 CFR 50.55a(a)(3)(i), is authorized for use during refueling outages 2R5 and 1R6 at Diablo Canyon Power Plant.

Principal Contributor: G. Hornseth

Date: March 4, 1993

Docket Nos. 50-275
and 50-323

Mr. Gregory M. Rueger
Nuclear Power Generation, B14A
Pacific Gas and Electric Company
77 Beale Street, Room 1451
P.O. Box 770000
San Francisco, California 94177

Dear Mr. Rueger:

SUBJECT: REQUEST FOR RELIEF FROM THE ASME CODE INSPECTION REQUIREMENTS FOR CONTAINMENT ELECTRICAL PENETRATIONS, DIABLO CANYON UNITS 1 AND 2 (TAC NOS. M84115 AND M84116)

By letters dated July 14, 1992, as supplemented February 8, 1993, you requested relief from the ASME Code requirements for inspection of containment electrical penetration welds. The relief request proposed substitution of the alternative requirements of Code case N-505, which has not been incorporated by reference in the appropriate Regulatory Guide. The staff concluded that the proposed alternative may be authorized pursuant to 10 CFR 50.55a(a)(3). This alternative will provide an acceptable level of quality and safety.

A copy of the related Safety Evaluation is enclosed. This completes the staff effort on this issue and closes TAC Nos. M84115 and M84116. If you have any questions regarding this matter, please contact Sheri Peterson at (301) 504-1325.

Sincerely,

Theodore R. Qauy, Director
Project Directorate V
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:
Safety Evaluation

cc w/enclosure:
See next page

DISTRIBUTION

Docket Files	NRC & LPDRs	PDV r/f	JRoe	TMurley/FMiraglia
MVirgilio	DFoster	SPeterson	TQuay	JPartlow
OGC	ERossi	JLieberman	EJordan	JMitchell
GHill (4)	ACRS (10)	OPA	OC/LFDCB	KPerkins, RV

OFC	LA/PDV	PM/PDV	OGC	D/PDV
NAME	DFoster	SPeterson:lh	M Young	TQuay
DATE	3/2/93	3/2/93	3/2/93	/ /93

OFFICIAL RECORD COPY DOCUMENT NAME:DC84115.REL