April 22, 2004

Mr. Gregory M. Rueger
Senior Vice President, Generation and
Chief Nuclear Officer
Pacific Gas and Electric Company
Diablo Canyon Power Plant
P. O. Box 3
Avila Beach, CA 93424

SUBJECT: DIABLO CANYON POWER PLANT, UNIT NO. 1 AND UNIT NO. 2 - ISSUANCE OF AMENDMENT RE: REVISION TO TECHNICAL SPECIFICATION 3.3.1 (TAC NOS. MB8079 AND MB8080)

Dear Mr. Rueger:

The Commission has issued the enclosed Amendment No. 167 to Facility Operating License No. DPR-80 and Amendment No. 168 to Facility Operating License No. DPR-82 for the Diablo Canyon Power Plant, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TS) in response to your application dated February 28, 2003, as supplemented by letters dated October 30, 2003, December 2, 2003, and January 23, 2004.

The amendments revise the TS to add a surveillance requirement to the Power Range Neutron Flux Rate - High Positive Rate Trip function. Additionally, the staff has concluded that use of the methodology of WCAP-14036-P-A, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," and WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," to eliminate certain periodic pressure sensor and protection channel response time testing, is acceptable.

A copy of the related Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's next regular biweekly *Federal Register* notice.

Sincerely,
/RA/

Girija S. Shukla, Project Manager, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-275
and 50-323

Enclosures:
1. Amendment No. 167 to DPR-80
2. Amendment No. 168 to DPR-82
3. Safety Evaluation

cc w/encls: See next page

April 22, 2004

Mr. Gregory M. Rueger
Senior Vice President, Generation and
Chief Nuclear Officer
Pacific Gas and Electric Company
Diablo Canyon Power Plant
P. O. Box 3
Avila Beach, CA 93424

SUBJECT: DIABLO CANYON POWER PLANT, UNIT NO. 1 AND UNIT NO. 2 - ISSUANCE OF AMENDMENT RE: REVISION TO TECHNICAL SPECIFICATION 3.3.1 (TAC NOS. MB8079 AND MB8080)

Dear Mr. Rueger:

The Commission has issued the enclosed Amendment No. 167 to Facility Operating License No. DPR-80 and Amendment No. 168 to Facility Operating License No. DPR-82 for the Diablo Canyon Power Plant, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TS) in response to your application dated February 28, 2003, as supplemented by letters dated October 30, 2003, December 2, 2003, and January 23, 2004.

The amendments revise the TS to add a surveillance requirement to the Power Range Neutron Flux Rate - High Positive Rate Trip function. Additionally, the staff has concluded that use of the methodology of WCAP-14036-P-A, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," and WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," to eliminate certain periodic pressure sensor and protection channel response time testing, is acceptable.

A copy of the related Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's next regular biweekly *Federal Register* notice.

Sincerely,
/RA/
Girija S. Shukla, Project Manager, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-275
and 50-323

Enclosures:
1. Amendment No. 167 to DPR-80
2. Amendment No. 168 to DPR-82
3. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION:
PUBLIC GHill (4)
PDIV-2 Reading TBoyce
RidsNrrDlpmPdiv (HBerkow)
RidsNrrPMGShukla
RidsNrrLAEPeyton RTaylor
RidsOgcRp PLoeser
RidsAcrsAcnwMailCenter
RidsRegion4MailCenter (BJones)

For previous concurrences see attached ORC **TS: ML041190215 NRR-100 **PKG: ML041180336**
ACCESSION NO.: ML041180285 NRR-058 ***SE input - no major changes.**

OFFICE	PDIV-2/PM	PDIV-2/LA	SRXB/SC*	EEIB/SC*	OGC**	PDIV-2/SC
NAME	GShukla	EPeyton	JUhle	EMarinos	RHoefling	SDembek
DATE	3/21/04	4/22/04	1/22/04	2/12/03	3/31/04	4/22/04

DOCUMENT NAME: C:\ORPCheckout\FileNET\ML041180285.wpd
OFFICIAL RECORD COPY

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

Sierra Club San Lucia Chapter
c/o Henriette Groot
1000 Montecito Road
Cayucos, CA 93430

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

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

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

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

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
Harris Tower & Pavillion
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Richard F. Locke, Esq.
Pacific Gas & Electric Company
P.O. Box 7442
San Francisco, CA 94120

Mr. David H. Oatley, Vice President
and General Manager
Diablo Canyon Power Plant
P.O. Box 56
Avila Beach, CA 93424

City Editor
The Tribune
3825 South Higuera Street
P.O. Box 112
San Luis Obispo, CA 93406-0112

Mr. Ed Bailey, Radiation Program Director
Radiologic Health Branch
State Department of Health Services
P.O. Box 942732 (MS 178)
Sacramento, CA 94234-7320

Mr. James D. Boyd, Commissioner
California Energy Commission
1516 Ninth Street (MS 31)
Sacramento, CA 95814

Mr. James R. Becker, Vice President
Diablo Canyon Operations
and Station Director
Diablo Canyon Power Plant
P.O. Box 3
Avila Beach, CA 93424

PACIFIC GAS AND ELECTRIC COMPANY

DOCKET NO. 50-275

DIABLO CANYON NUCLEAR POWER PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 167
License No. DPR-80

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Pacific Gas and Electric Company (the licensee) dated February 28, 2003, as supplemented by letters dated October 30, 2003, December 2, 2003, and January 23, 2004, 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 rules and 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-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. 167 are hereby incorporated in the license. Pacific Gas and 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 is effective as of its date of issuance and shall be implemented within 180 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Stephen Dembek, Chief, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: April 22, 2004

PACIFIC GAS AND ELECTRIC COMPANY

DOCKET NO. 50-323

DIABLO CANYON NUCLEAR POWER PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 168
License No. DPR-82

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Pacific Gas and Electric Company (the licensee) dated February 28, 2003, as supplemented by letters dated October 30, 2003, December 2, 2003, and January 23, 2004, 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 rules and 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.168 are hereby incorporated in the license. Pacific Gas and 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 is effective as of its date of issuance and shall be implemented within 180 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Stephen Dembek, Chief, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: April 22, 2004

ATTACHMENT TO LICENSE AMENDMENT NO. 167

TO FACILITY OPERATING LICENSE NO. DPR-80

AND AMENDMENT NO. 168 TO FACILITY OPERATING LICENSE NO. DPR-82

DOCKET NOS. 50-275 AND 50-323

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal line indicating the area of change.

REMOVE	INSERT
3.3-12	3.3-12

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 167 TO FACILITY OPERATING LICENSE NO. DPR-80

AND AMENDMENT NO. 168 TO FACILITY OPERATING LICENSE NO. DPR-82

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON POWER PLANT, UNITS 1 AND 2

DOCKET NOS. 50-275 AND 50-323

1.0 INTRODUCTION

By application dated February 28, 2003, as supplemented by letters dated October 30, 2003, December 2, 2003, and January 23, 2004, Pacific Gas and Electric Company (PG&E or the licensee) requested changes to the Technical Specifications (TSs) (Appendix A to Facility Operating License Nos. DPR-80 and DPR-82) for the Diablo Canyon Power Plant (DCPP), Units 1 and 2.

The proposed amendments would revise the TS to add a surveillance requirement to the power range neutron flux rate - high positive rate trip function (hereafter referred to as positive flux rate trip [PFRT] function), and revise the TS Bases to eliminate certain periodic pressure sensor and protection channel response time tests (RTT).

Specifically, the proposed changes would revise TS 3.3.1, "Reactor Trip System (RTS) Instrumentation," to add Surveillance Requirement (SR) 3.3.1.16 to function 3.a, "Power Range Neutron Flux Rate - High Positive Rate Trip," in Table 3.3.1-1. Westinghouse recently identified that the PFRT function is credited to provide protection against reactor coolant system (RCS) overpressurization during a rod withdrawal at power (RWAP) event.

Additionally, the licensee proposed to eliminate periodic pressure sensor response time testing in accordance with the methodology in WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensing Response Time Testing Requirements," and to eliminate periodic protection channel RTT in accordance with WCAP-14036-P-A, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests."

The October 30, 2003, December 2, 2003, and January 23, 2004, supplemental letters provided additional clarifying information, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination published in the *Federal Register* on April 15, 2003 (68 FR 18283).

2.0 REGULATORY EVALUATION

The NRC staff finds that the licensee in Section 5.0 of its submittal identified the applicable regulatory requirements. The regulatory requirements for which the NRC staff based its acceptance are given below:

The current standard TSs require nuclear power plants to periodically perform RTT for instrument channels in the RPS, emergency core cooling system (ECCS), and isolation actuation system (IAS). The intent of these tests is to ensure that changes in instrumentation response time beyond the limits assumed in the plants' safety analyses are detected and combined with instrument calibrations, to ensure that the instrumentation is operating correctly.

The Institute of Electrical and Electronics Engineers (IEEE) Standard 338-1977, which is endorsed in Regulatory Guide (RG) 1.118, Revision 2, "Periodic Testing of Electric Power and Protection Systems," defines a basis for eliminating RTT. Specifically, Section 6.3.4 of Standard 338-1977 states in part the following basis:

> Response time testing of all safety-related equipment, per se, is not required if, in lieu of response time testing, the response time of the safety system equipment is verified by functional testing, calibration check, or other tests, or both. This is acceptable if it can be demonstrated that changes in response time beyond acceptable limits are accompanied by changes in performance characteristics which are detectable during routine periodic tests.

The Westinghouse Owners Group (WOG) performed two analyses to assess the impact of the elimination of RTT for instruments and instrument loops. These analyses also discussed alternate test methodologies which would show that the instrumentation was functioning correctly. The first of these analyses was the WOG's Topical Report (TR) WCAP-13632, dated August 1995, which was approved by the NRC staff's safety evaluation report (SER) dated September 5, 1995 (ADAMS Accession No. 9509070073). The second TR, WCAP-14036-P, Revision 1, dated December 1995, was approved by the NRC staff's SER dated October 6, 1998 (ADAMS Accession No. 9811240252). Each of these SERs stipulated certain conditions that individual plant licensees must meet when implementing the guidelines in WCAP-13632 and WCAP-14036 on a plant-specific basis. The licensee has used these TRs to justify the proposed changes. The NRC staff's acceptance and the licensee's amendment request is based on these TRs.

Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50 Appendix A, "General Design Criteria (GDC) for Nuclear Power Plants," provides a list of the minimum design requirements for nuclear power plants. In the second part of the licensee's request, adding a SR to the PFRT function, the licensee stated that regulatory requirements for the additional SR are GDC 13 and 20. GDC 13, "Instrumentation and control," requires that instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated systems. GDC 20, "Protection system functions," requires that the protection system(s) be designed (1) to initiate automatically the operation of appropriate systems

including the reactivity control systems, to assure that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences, and (2) to sense accident conditions and to initiate the operation of systems and components important to safety.

Additionally, GDC 10, "Reactor Design," states that the core and its protection systems shall be designed with appropriate margin to assure that specified acceptable fuel design limits (SAFDLs) are not exceeded during normal operation or anticipated operational occurrences.

To identify the appropriate requirements for its review, the NRC staff used Standard Review Plan (SRP) Section 15.4.2, "Uncontrolled Control Rod Assembly Withdrawal at Power." The SRP section provided a detailed list of potentially affected GDC requirements. The NRC staff reviewed the acceptance criteria of this SRP to ensure the licensee's amendment request was reviewed against the appropriate GDCs. SRP Section 15.4.2 defines the acceptance criteria for a RWAP as GDCs 10, 17, 20, and 25, which cover margin to SAFDLs, onsite and offsite electric power systems, automatic reactor protection systems, and single failure requirements, respectively. Specifically, the referenced GDCs ensure that thermal margin limits, including departure from nucleate boiling ratio (DNBR) and fuel centerline temperature for pressurized water reactors, are met. The NRC staff's review concluded that the licensee would continue to satisfy GDCs 10, 17, 20, and 25 upon implementation of the proposed amendment.

3.0 TECHNICAL EVALUATION

The NRC staff has reviewed the licensee's regulatory and technical analyses in support of its proposed license amendments which are described in Section 4.0 of the licensee's submittal. The detailed evaluation below will support the conclusion that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

The changes contained in the licensee's request are of two types. The first is RTT elimination of periodic pressure sensor RTT in accordance with WCAP-13632-P-A, Revision 2, and elimination of periodic protection channel RTT in accordance with WCAP-14036-P-A, Revision 1. The second change is the addition of an RTT SR to the PFRT function by adding SR 3.3.1.16. This requires a verification that RTS response times are within their limits every 24 months on a staggered test basis, as defined in TS 3.3.1.

3.1 RTT Elimination

The definitions contained in TS Section 1.1, "Definitions" for engineered safety features (ESF) response time and reactor trip system (RTS) response time, require NRC review and approval of any methodology used to verify the response times in lieu of measuring them.

In accordance with WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," the licensee proposes to no longer perform RTT on the following sensors:

Rosemount Model 1153
Rosemount Model 1154
Barton Model 763

All of these sensor types are listed in the NRC staff's SER dated September 5, 1995, approving WCAP-13632-P. Since the NRC staff has already reviewed the generic analysis, no further review of these sensor types is required, and the licensee needs only to meet the SER conditions for plant-specific amendments, as verified by the NRC staff in Section 3.4.

In accordance with WCAP-14036-P-A, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," the licensee proposed elimination of RTT for components within the RTS and engineered safety feature (ESF) systems, and instead will depend upon calibration and other periodic testing as described in the TR in order to determine the proper operation and functioning of the above system instrumentation. The components are as follows:

Nuclear Instrumentation System (NIS)

- Detector Current Monitor Circuits
- Summing and Level Amplifier
- Level Trip Bistables
- Isolation Amplifiers

EAGLE 21 (E21)

- ERI - RTD Input Board
- EAI - Analog Input Board
- DFP - Digital Filter Processor
- LCP - Loop Calculation Processor
- DDC - Digital-Digital Converter
- EPT - Partial Trip Output Board

Solid State Protection Protection System (SSPS) Input and Master Relays

- G. P. Clare GP1 Series
- Midtex 156
- Potter and Brumfield KH Series

SSPS Slave Relays

- Potter and Brumfield MDR

All of these components are listed in the NRC staff's SER dated October 6, 1998, that approved WCAP-14036. Since the NRC staff has already reviewed the generic analysis, no further review of these components is required, and the licensee needs only to meet the SER conditions for plant-specific amendments, as verified by the NRC staff in Section 3.4.

TS Bases Changes for RTT Elimination

The application of the methodology to verify the response times for selected components does not require changes to the TS. However, the implementation of the methodology in WCAP-13632-P-A, Revision 2, and WCAP-14036-P-A, Revision 1, requires changes to the TS Bases for SR 3.3.1.16 and SR 3.3.2.10. For WCAP-13632-P-A, Revision 2, the Bases for SR 3.3.1.16 and SR 3.3.2.10 have been previously revised by License Amendment Nos. 135/135. Therefore, for WCAP-14036-P-A, Revision 1, the licensee is revising the Bases for SR 3.3.1.16 and SR 3.3.2.10 with this amendment.

The current paragraph from TS Bases SR 3.3.1.16 (on page B 3.3-59 of the TS) and TS Bases SR 3.3.2.10 (on page B 3.3-104 of the TS), states the following.

> The allocations for sensor response times must be verified prior to placing the component in initial operational service and re-verified following maintenance that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. One example where response time could be affected is replacing the sensing assembly of a transmitter.

This paragraph is being replaced with the following:

> [WCAP-14036-P-A, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time.]" The allocations for sensor, signal conditioning, and actuation logic response times must be verified prior to placing the component in operational service and reverified following maintenance work that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. Specific components identified in the WCAP may be replaced without verification testing. One example where response time could be affected is replacing the sensing assembly of a transmitter.

In addition, an additional reference will be added to the references at the end of SR 3.3.1.16 and SR 3.3.2.10. The new reference will state:

> WCAP-14036-P-A, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," October 1998.

The staff finds the TS Bases changes for RTT elimination acceptable.

3.2 Addition of RTT for PFRT Function

The second type of change is the addition of an RTT SR to the PFRT function by adding SR 3.3.1.16. This will require verification that the RTS response times are within their limits every 24 months on a staggered test basis, as defined in TS 3.3.1.

The licensee has stated that when Westinghouse originally performed the analysis for the licensing of DCPP, the PFRT function was not credited in any Final Safety Analysis Report (FSAR) Update Chapter 15 analysis. Since that time, the licensee determined that Westinghouse had performed a generic evaluation, which credited the PFRT to provide protection against certain RWAP accidents. The licensee also determined that a TS requirement to perform the RTT was needed.

The TS setpoint is shown as "5% RTP with time constant $\geq$ 2 sec." This is done with a differentiating circuit that senses when the neutron flux is increasing at the rate of 5 percent per 2 seconds. The licensee has stated that the accident analysis showed the required response time to be 3 seconds, however, the licensee has reduced the response time requirement to 0.5 seconds. As this value is more conservative than the accident analysis value, this is acceptable to the NRC staff. The NRC staff notes that the actual RTT associated with TS Table 3.3.1-1, function 3.a, SR 3.3.1.16, is one of the items for which the licensee has requested elimination of RTT as discussed in Section 3.1 of this safety evaluation. According to Enclosure 6, Table 1 of the February 28, 2003 submittal, the sensor for this function is exempt from RTT and the NIS circuitry and SSPS relays will no longer be tested. As the components within the function consist of a sensor, the NIS circuit, the SSPS relays, and the reactor trip breakers, and the reactor trip breakers are already tested for their response time, no new testing will be done as a result of this request and approval.

TS Change for addition of a RTT SR to the PFRT Function

In TS Table 3.3.1-1, SR 3.3.1.16 would be added to function 3.a, the PFRT function. SR 3.3.1.16 requires that RTS response times be verified to be within limits every 24 months on a staggered test. Section 3.a currently states:

		APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL [(a)] TRIP SET POINT
3.	Power Range Neutron Flux Rate						
a.	High Positive Rate	1,2	4	E	SR 3.3.1.7 SR 3.3.1.11	$\leq$ 5.6% RTP with time constant $\geq$ 2 sec	5% RTP with time constant $\geq$ 2 sec

Section 3.a will be revised to state:

		APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITION	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL [(a)] TRIP SET POINT
3.	Power Range Neutron Flux Rate						
a.	High Positive Rate	1,2	4	E	SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	$\leq$ 5.6% RTP with time constant $\geq$ 2 sec	5% RTP with time constant $\geq$ 2 sec

3.4 Verification of Plant-Specific Conditions

The NRC staff stipulated several conditions in the SER approving WCAP-13632-P that must be met by the individual licensees referencing the TR before the guidance could be implemented in plant-specific TS change proposals. From the licensee's submittal, the NRC staff verified that the licensee has met or will meet the applicable conditions as follows:

a. Condition: Perform a hydraulic RTT prior to installation of a new transmitter/switch or following refurbishment of the transmitter/switch (e.g., sensor cell or variable damping components) to determine an initial sensor-specific response time value.

Licensee Response: The licensee has stated that in all cases, PG&E will perform a hydraulic response test on new or refurbished transmitters/switches prior to installation.

Evaluation: This response fulfills the condition in the NRC staff's SER, and is therefore acceptable.

b. Condition: For transmitters and switches that use capillary tubes, perform an RTT after initial installation and after any maintenance or modification activity that could damage the capillary tubes.

Licensee Response: Plant procedures stipulate that pressure sensors (transmitters and switches) utilizing capillary tubes, e.g., containment pressure, must be subjected to RTT after initial installation and following any maintenance or modification activity which could damage the transmitter capillary tubes.

Evaluation: This response fulfills the condition in the NRC staff's SER, and is therefore acceptable.

c. Condition: If variable damping is used, implement a method to assure that the potentiometer is at the required setting and cannot be inadvertently changed or perform hydraulic RTT of the sensor following each calibration.

Licensee Response: DCPP has no pressure transmitters with variable damping installed in any RTS or ESF actuation system application for which RTT is required; therefore, no DCPP procedure changes or enhanced administrative controls are required. If any transmitters are replaced in the future with variable damping capability, then either a hydraulic RTT of the sensor will be performed following each calibration, or procedure changes will be implemented and/or appropriate administrative controls will be established to assure the variable damping potentiometer cannot be inadvertently changed. Examples of such administrative controls may include use of pressure transmitters that are factory set and hermetically sealed to prohibit tampering or in situ application of a tamper seal (or sealant) on the potentiometer to secure it and to give a visual indication of the potentiometer position.

Evaluation: Since DCPP does not use sensors that use variable damping, this condition is not applicable. The licensee's commitment to either perform hydraulic RTT, or implement procedure changes, and/or establish administrative controls, if, in the future,

the transmitters are replaced with transmitters with variable damping capability of the sensor is acceptable to the NRC staff.

d. Condition: Perform periodic drift monitoring of all Model 1151, 1152, 1153, and 1154 Rosemount pressure and differential pressure transmitters for which RTT elimination is proposed, in accordance with the guidance contained in Rosemount Technical Bulletin No. 4, and continue to remain in full compliance with any prior commitments to Bulletin 90-01, Supplement 1, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount." As an alternative to performing periodic drift monitoring of Rosemount transmitters, licensees may complete the following actions: (1) ensure that operators and technicians are aware of the Rosemount transmitter loss of fill-oil issue and make provisions to ensure that technicians monitor for sensor response time degradation during the performance of calibrations and functional tests of these transmitters, and (2) review and revise surveillance testing procedures, if necessary, to ensure that calibrations are being performed using equipment designed to provide a step function or fast ramp in the process variable and that calibrations and functional tests are being performed in a manner that allows simultaneous monitoring of both the input and output response of the transmitter under test, thus allowing, with reasonable assurance, the recognition of significant response time degradation.

   Licensee Response: DCPP has Rosemount Model 1153 Series B, 1153 Series D and 1154 transmitters for which RTT elimination is proposed. For Rosemount transmitters that do not meet the criteria for exclusion from the enhanced monitoring program as indicated in NRC Bulletin 90-01, Supplement 1, DCPP will continue to perform enhanced monitoring using the guidelines of Rosemount Technical Bulletin No. 4 and the requirements of NRC Bulletin 90-01, Supplement 1, until these transmitters are replaced.

   Evaluation: This response fulfills the condition in the NRC staff's SER, and is therefore acceptable.

The NRC staff confirmed that the licensee's responses satisfactorily addressed the above conditions in the NRC staff's SER, and are therefore acceptable.

The NRC staff's SER approving WCAP-14036-P also had a condition that must be met by the individual licensee referencing the TR before the guidance could be implemented in plant-specific TS change proposals.

   Condition: Since the performance of RTT is a TS requirement, licensees referencing WCAP-14036 must submit a TS amendment to eliminate that requirement for the identified equipment. In that amendment request, the licensee must verify that the failure modes and effects analysis (FMEA) performed by the WOG is applicable to the equipment actually installed in the licensee's facility, and that the analysis is valid for the versions of the boards used in the protection system.

   Licensee Response: In its February 28, 2003, submittal, the licensee provided a list of all equipment for which RTT elimination was requested. That list is shown in Section 3.1 of this safety evaluation.

Evaluation: As the equipment is of the same manufacturer and model identified in WCAP-14036-P-A, Revision 1, this equipment is acceptable to the NRC staff for elimination of the RTT.

3.5 Bounding Response Times

In addition to the above conditions, when a plant accident analysis determines that a mitigation system is required to actuate in a certain response time, the testing for that response time is generally required by TS. The license amendment request will eliminate some of the testing previously required. The two TRs mentioned above provide adequate justification that calibrations and other surveillance testing will prove that the instruments are functioning properly. When the testing is not done to a portion of the instrument loop, but the TS requires the verification of assumptions made in the accident analysis, some assumed or bounding value for the untested portion of the loop must be added to the tested portion to arrive at a total system response time. WCAP-14036-P included those maximum or bounding response times for the equipment that was analyzed in that report. WCAP-13632-P did not have similar bounding response times approved for the sensors that were addressed in that TR. The bounding sensor response time value tables and the notes to the tables shown in Attachments 1 and 2 of this safety evaluation below were included in Enclosure 6, Tables 1 and 2, in the February 28, 2003 submittal by the licensee.

The NRC staff reviewed the proposed bounding response times and determined they are either as approved in the SER on WCAP-14036-P, or are in accordance with the manufacturer's specifications, and are therefore acceptable.

3.6 Accident and Transient Analyses Review

Additionally, in determining the acceptability of PG&E's amendment request, the NRC staff reviewed the following aspects of the licensee's request: (1) the licensee's new low-power RWAP analysis, (2) the acceptability of crediting the PFRT to ensure an RCS overpressure does not occur, and (3) the effects of elimination of the RTT on accident and transient analyses. The NRC staff's review focused on the results the licensee obtained and used to demonstrate the acceptability of the proposed changes, and the effects that eliminating the RTT would have on accident and transient analyses.

As described in the Diablo Canyon FSAR Update, the RWAP event is currently analyzed from full power conditions to ensure the reactor will not violate its minimum DNBR safety limit. The licensee relies on the overtemperature delta-T ($OT\Delta T$) and power range high neutron flux reactor trips to ensure safety limits are not violated. Typically, the licensee considered the crediting of these trips as sufficient to ensure no plant safety limits would be violated during a RWAP. However, a generic Westinghouse evaluation determined that a RWAP could result in exceeding the 110 percent design limit (2750 psia) if only the typically credited UFSAR Chapter 15 trip functions (high pressurizer pressure, $OT\Delta T$, and power range high neutron flux) were credited and assuming that the pressurizer pressure control system malfunctions.

During a RWAP event initiated from low power levels, the heat generated by the fuel in response to the positive reactivity addition results in an RCS pressure increase. The potential

for RCS overpressure increases as the time between the reactivity insertion and the reactor trip increases. A delay in the reactor trip permits more power to be generated in the fuel and to be transferred to the coolant before the reactor trip reduces the power generation. The magnitude of the RCS pressure increase resulting from the RWAP event is a function of the initial power level, positive reactivity insertion rate, and the amount of negative reactivity feedback. The most limiting conditions for a potential RCS overpressure are the combination of low initial power level, high positive reactivity insertion rate, and minimum negative reactivity feedback. These conditions coupled with a failure of the pressurizer pressure control system can result in exceeding the RCS overpressure design limit.

The licensee determined that relying on the typically credited FSAR Update Chapter 15 reactor trips under these conditions for a RWAP would result in exceeding the 2750 psia safety limit at DCPP. Therefore, the licensee evaluated the effects on RCS pressure if the PFRT were credited with a setpoint of nine percent rated thermal power, a time constant on the nuclear instrumentation system rate circuit of two seconds, and a three second delay time on the rest of the PFRT function circuitry. The licensee determined that crediting the PFRT with this setpoint and conditions would ensure the RCS pressure remained below the 2750 psia safety limit. The NRC staff reviewed the assumptions and initial conditions used by the licensee in its analysis of the RWAP event from low power conditions.

To demonstrate that DCPP would continue to satisfy its TS safety limits, PG&E performed an analysis of the RWAP event initiated from low power conditions. The licensee stated that its analysis was performed using methodologies previously reviewed and approved by the NRC. For example, the licensee employed the LOFTRAN computer code. The NRC approved the LOFTRAN computer code in WCAP-7907-A, "LOFTRAN Code Description," for use in analyzing non-loss-of-coolant accidents. Additionally, the licensee's current RWAP analysis of record used the LOFTRAN code. The NRC staff reviewed the methodology used by the licensee in performing its current RWAP analysis of record as well as the proposed low-power RWAP analysis and determined that the code and methodology employed are acceptable.

The NRC staff determined that the licensee's low-power RWAP analysis used appropriately conservative assumptions which are bounded by actual plant conditions or technical specifications. At the NRC staff's request, the licensee provided a detailed list of the assumptions used in its low-power RWAP analysis in its letter dated December 2, 2003. The NRC staff reviewed each of the assumptions to determine if the licensee had used conservative values in its analysis. For example, the licensee assumed the PFRT had a setpoint of nine percent rated thermal power with a time constant of two seconds. In actuality, TS Table 3.3.1-1, "Reactor Trip System Instrumentation," requires that the allowable setpoint be less than or equal to 5.6 percent rated thermal power. This ensures that the reactor will trip earlier than assumed in the licensee's analysis, thereby, providing conservative margin to the overpressure condition. Likewise, the licensee assumed a three second delay time in the actuation of the PFRT. This delay time is considerably longer than the typical 0.5 second response time assumed in the reactor trip system. This added response time ensures a conservative response of the reactor trip system under these conditions. Based on these conservative assumptions and the NRC staff's review of the remainder of the analysis, the NRC staff concludes that credit for the PFRT at DCPP will ensure the RCS overpressure limit during a low-power RWAP event is not exceeded.

In order to ensure that the PFRT performs its intended safety function during a low-power RWAP event, the licensee proposed adding SR 3.3.1.16 to function 3a, PFRT, of TS Table 3.3.1-1. SR 3.3.1.16 requires the licensee verify that reactor trip system response times are within their limits every 24 months on a staggered test basis. After reviewing the licensee's low-power RWAP analysis, the NRC staff determined that adding the SR to function 3a will ensure that the RCS overpressure safety limit is not violated during a low-power RWAP event.

In addition to reviewing the licensee's new low-power RWAP analysis, the NRC staff reviewed the effects the elimination of RTT would have on other transient and accident analyses. As long as the elimination of the RTT does not inhibit the ability of the reactor trip system to initiate a required reactor trip within the time limits assumed in the licensee's current FSAR Update Chapter 15 accident and transient analyses, the change is acceptable. The NRC staff has determined that the proposed changes will not affect the ability of the reactor trip system to perform its intended safety function.

3.7 Conclusion

Therefore, based on the above review, the staff concludes that the licensee's proposed revision to the TS to add a surveillance requirement to the Power Range Neutron Flux Rate - High Positive Rate Trip function, and the use of the methodology of WCAP-14036-P-A, Revision 1, and WCAP-13632-P-A, Revision 2, to eliminate certain periodic pressure sensor and protection channel response time testing, and the associated TS Bases changes, are acceptable.

In the application, the licensee requested an implementation period of 60 days for these amendments. In a subsequent phone call, the licensee requested an implementation period of 180 days since DCPP Unit 1 is in a refueling outage. The staff finds this acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the California State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a surveillance requirement. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration and there has been no public comment on such finding (68 FR 18283). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Attachments: 1. Table 1 – Reactor Trip Function/Allocation Time
2. Table 2 – Engineered Safety Feature Function/Allocation Time

Principal Contributors: P. Loeser
R. Taylor

Date: April 22, 2004

Table 1
Reactor Trip Function / Allocation Time

FUNCTION	SENSOR	TIME (sec)	EAGLE/NIS STRING	TIME (sec)	SSPS RELAYS	TIME (sec)
Power Range Neutron Flux - High	EXEMPT	(Note 3)	NIS	0.065	Input + SSPS Logic	0.020
Power Range Neutron Flux - Low	EXEMPT	(Note 3)	NIS	0.065	Input + SSPS Logic	0.020
Power Range Neutron Flux Rate - High Positive Rate (Note 2)	EXEMPT	(Note 3)	NIS	0.2	Input + SSPS Logic	0.020
Power Range Neutron Flux Rate - High Negative Rate	EXEMPT	(Note 3)	NIS	0.2	Input + SSPS Logic	0.020
Source Range Neutron Flux	EXEMPT	(Note 3)	NIS	(Note 1)	Input + SSPS Logic	0.020
Overtemperature ΔT	RTDs not in scope	(Note 1)	E21	0.409	Input + SSPS Logic	0.020
Overpower ΔT	RTDs not in scope	(Note 1)	E21	0.409	Input + SSPS Logic	0.020
Pressurizer Pressure - Low	Rosemount 1154SH9RC	0.2	E21	0.409	Input + SSPS Logic	0.020
Pressurizer Pressure - High	Rosemount 1154SH9RC	0.2	E21	0.409	Input + SSPS Logic	0.020
Pressurizer Water Level - High (Note 2)	Rosemount 1153HD5RC Rosemount 1153HD5RA	0.2	E21	0.409	Input + SSPS Logic	0.020
Reactor Coolant Flow - Low	Rosemount 1153HD5RC	0.2	E21	0.409	Input + SSPS Logic	0.020
Undervoltage RCPs	Relays not in scope	(Note 1)	N/A	N/A	Input + SSPS Logic	0.020
Underfrequency RCPs	Relays not in scope	(Note 1)	N/A	N/A	Input + SSPS Logic	0.020
Steam Generator (SG) Water Level - Low Low	Rosemount 1154DP4RCN0033	0.5	E21	0.409	Input + SSPS Logic	0.020

(Note 1) Allocation times not used for these variables. These components will continue to be tested as required.

(Note 2) These variables are currently not required to be response time tested.

(Note 3) Neutron detectors are exempt from RTT [TS SR 3.3.1.16]

(Note 4) This function is triggered by an SI actuation. It is not driven by a specific sensor. It is currently not required to be response time tested. See Note 2.

(Note 5) Additional interposing slave relays are Potter and Brumfield MDR type relays.

Allocated sensor times are derived from method (3) section (9) WCAP-13632 rev.2 (Vendor Engineering Specifications). Barton times were provided in table 9-1. Rosemount times are from Rosemount manuals 00809-0100-4388, 00809-0100-4514 and 00809-0100-4631.

Table 2
Engineered Safety Feature Function / Allocation Time

FUNCTION	SENSOR	TIME (sec)	EAGLE/NIS STRING	TIME (sec)	SSPS RELAYS	TIME (sec)
Safety Injection - Actuation of Motor Driven Auxiliary Feedwater (Note 2)	N/A (Note 4)	N/A	E21	0.409	Input + SSPS Logic + Master + Slave Relays	0.088
Safety Injection - Containment Pressure - High	Rosemount 1154DP6RC	0.2	E21	0.409	Input + SSPS Logic + Master + Slave Relays	0.088
Safety Injection - Pressurizer Pressure - Low	Rosemount 1154SH9RC	0.2	E21	0.409	Input + SSPS Logic + Master + Slave Relays	0.088
Safety Injection - Steam Line Pressure - Low	Rosemount 1154SH9RC & BARTON 763	0.2	E21	0.409	Input + SSPS Logic + Master + Slave Relays	0.088
Containment Spray - Containment Pressure - High High	Rosemount 1154DP6RC	0.2	E21	0.409	Input + SSPS Logic + Master + Slave Relays	0.088
Steam Line Isolation - Containment Pressure - High High	Rosemount 1154DP6RC	0.2	E21	0.409	Input + SSPS Logic + Master + Slave Relays	0.088
Steam Line Isolation - Steam Line Pressure - Low	Rosemount 1154SH9RC & BARTON 763	0.2	E21	0.409	Input + SSPS Logic + Master + Slave Relays	0.088
Steam Line Isolation - Steam Line Pressure - Negative Rate High	Rosemount 1154SH9RC & BARTON 763	0.2	E21	0.409	Input + SSPS Logic + Master + Slave Relays	0.088
Turbine Trip and Feedwater Isolation - SG Water Level - High High	Rosemount 1154DP4RCN 0033	0.5	E21	0.409	Input + SSPS Logic + Master + Slave Relays	0.088
Auxiliary Feedwater - SG Water Level - Low Low	Rosemount 1154DP4RCN 0033	0.5	E21	0.409	Input + SSPS Logic + Master + Slave Relays	0.088
Auxiliary Feedwater - Undervoltage Reactor Coolant Pump	(Note 1)	N/A	*Relay Contact	N/A	Input + SSPS Logic + Master + Slave Relays (Note 5)	0.124

(Note 1) Allocation times not used for these variables. These components will continue to be tested as required.

(Note 2) These variables are currently not required to be response time tested.

(Note 3) Neutron detectors are exempt from RTT [TS SR 3.3.1.16]

(Note 4) This function is triggered by an SI actuation. It is not driven by a specific sensor. It is currently not required to be response time tested. See Note 2.

(Note 5) Additional interposing slave relays are Potter and Brumfield MDR type relays.

Allocated sensor times are derived from method (3) section (9) WCAP-13632 rev.2 (Vendor Engineering Specifications). Barton times were provided in table 9-1. Rosemount times are from Rosemount manuals 00809-0100-4388, 00809-0100-4514 and 00809-0100-4631.