

ENCLOSURE

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of PACIFIC GAS AND ELECTRIC COMPANY	) Docket No. 50-275 ) Facility Operating License ) No. DPR-80
Diablo Canyon Power Plant Units 1 and 2	) Docket No. 50-323 ) Facility Operating License ) No. DPR-82

License Amendment Request No. 94-12

Pursuant to 10 CFR 50.90, Pacific Gas and Electric Company hereby applies to amend its Diablo Canyon Power Plant Facility Operating License Nos. DPR-80 and DPR-82 (Licenses).

The proposed changes amend the Technical Specifications (TS) (Appendix A of the Licenses) regarding TS 2.2, 3/4 3.1, 3/4 3.2, 3/4.3.3, 3/4.4.4, 3/4.4.9, 3/4.5.2, 3/4.8.1, 3/4.8.2, 3/4.9.2, 3/4.9.9, 3/4.10.3, and associated Bases. Information on the proposed changes is provided in Attachments A, B, and C.

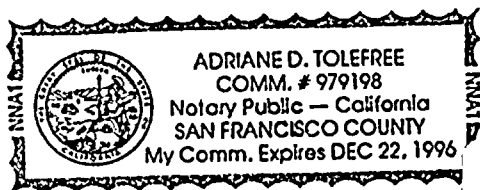
These changes have been reviewed and are considered not to involve a significant hazards consideration as defined in 10 CFR 50.92 and not to require an environmental assessment in accordance with 10 CFR 51.22(b). Further, there is reasonable assurance that the health and safety of the public will not be endangered by the proposed changes.

Sincerely,

Gregory M. Rueger

Subscribed and sworn to before me  
this 30th day of December 1994

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## ATTACHMENT A

### REVISION OF TECHNICAL SPECIFICATIONS

#### A. DESCRIPTION OF AMENDMENT REQUEST

This license amendment request (LAR) proposes to revise Technical Specification (TS) 2.2, 3/4 3.1, 3/4 3.2, 3/4.3.3, 3/4.4.4, 3/4.4.9, 3/4.5.2, 3/4.8.1, 3/4.8.2, 3/4.9.2, 3/4.9.9, and 3/4.10.3 as follows:

1. The TS issued in License Amendments (LA) 84/83 would be changed to:
  - a. Revise the value of the Overpower Delta-Temperature (OPDT) constant K6, TS 2.2.1, Table 2.2-1, Note 3.
  - b. Revise the Reactor Coolant System (RCS) Loop Delta-T function by:
    - (1) Incorporating the 0.99 multiplying factor listed in TS 2.2.1, Table 2.2-1, Note 5 and TS 3/4.3.2, Table 3.3-4, Note 2 into constants B1 through B4.
    - (2) Changing TS 3/4.3.2, Table 3.3-3 and Table 4.3-2, Functional Unit 6.c., Auxiliary Feedwater (AFW), Steam Generator (SG) water level low-low to:
      - (a) Delete the Mode 3 applicability of RCS Loop Delta-T function.
      - (b) Add a footnote to the Mode 3 applicability of the SG water level low-low function requiring that the trip time delay (TTD) associated with the SG water level low-low channel be less than or equal to 464.1 seconds.
    - (3) Changing TS 3/4.3.1, Table 3.3-1, Action 27 and TS 3/4.3.2, Table 3.3-3, Action 29 to:
      - (a) Allow up to four RCS Loop Delta-T channels to be inoperable with the TTD threshold power level for zero seconds time adjusted to 0% rated thermal power (RTP).
      - (b) Allow the affected SG water level low-low channels to be placed in the tripped condition, with one inoperable RCS Loop Delta-T channel.



- (4) Changing the Table 3.3-1 and Table 3.3-3 Channels to Trip and Minimum Channels Operable columns to not applicable (N.A.).
    - c. Make editorial corrections for clarification and consistency to TS 2.2.1 (and TS 2.2.1 Bases), TS 3/4.3.1, and TS 3/4.3.2.
2. The TS issued in LA 70/69 would be changed to:
  - a. Delete references to the plant vent noble gas activity monitors (RM-14A and RM-14B) and footnote references to applicability of the containment ventilation exhaust radiation monitors (RM-44A and RM-44B) in TS Tables 3.3-3, 3.3-4, 3.3-5, 3.3-6, 4.3-2, and 4.3-3 and TS 4.9.9.
  - b. Revise TS Table 3.3-4, Functional Unit 3.c.4), Trip Setpoint and Allowable Values column to reference the offsite dose calculation procedure (ODCP).
4. Cycle-specific information in TS 4.3.2.1, TS 3.3.3.6, TS 4.4.4.1, TS 4.5.2, TS 3.8.1.1, TS 3.8.1.2, TS 3.8.2.1, and TS 3.8.2.2 that is no longer necessary would be deleted.
5. The word "analog" would be deleted from TS 4.4.9.3.1, TS 4.9.2, and TS 4.10.3.2.

Changes to the TS and Bases are noted in the marked-up copy of the applicable TS pages provided in Attachment B.

## B. BACKGROUND

LAR 92-05, "Eagle 21 Process Protection System Upgrade and Resistance Temperature Detector Bypass Elimination," was submitted to the NRC on September 21, 1992. LAR 92-05 was approved by the NRC as LA 84/83, dated October 7, 1993. LA 84/83 became effective for Units 1 and 2, Cycle 7. Subsequent to receiving LA 84/83, PG&E and Westinghouse reviewed LA 84/83 and identified several discrepancies. Several of these discrepancies have been communicated to the NRC informally and resolved with the understanding that an additional LAR would be submitted to clarify the TS issued as LA 84/83. This LAR is being submitted, in part, to resolve these discrepancies. In addition, several improvements to the Diablo Canyon Power Plant (DCPP) TS are proposed to clarify the TS. Also included in this LAR are proposed changes to delete outdated and cycle-specific TS requirements.



## C. JUSTIFICATION

### OPDT K6 Value

LAR 92-05 included an insert in the proposed TS changes. The value of K6 on the insert was inadvertently changed from 0.00145 to 0.0014. LA 84/83 incorporated this change into the TS. However, it was subsequently identified that Westinghouse documentation submitted to support LAR 92-05 listed K6 as 0.00145. The proposed change to revise the value of K6 from 0.0014 to 0.00145 would resolve the discrepancy between the TS issued in LA 84/83 and the Westinghouse documentation that provides the basis for the changes.

### RCS Loop Delta-T

The motor-driven AFW pumps are designed to start if the level in any SG decreases below 7.2% of narrow range instrument span. The turbine-driven AFW pump is designed to start if the levels in any two SGs decrease below 7.2% of narrow range instrument span. The AFW pumps are designed to maintain the heat sink capability of the SGs. During low power operation, due to shrink/swell water level transients, the SG water level may drop below the low-low level setpoint. This would result in an unnecessary reactor trip and AFW pump start actuation.

As part of the Eagle 21 upgrade, the SG water level low-low function was revised to include a TTD feature for low power operation. The TTD provides a means to reduce the frequency of unnecessary feedwater-related reactor trips. The TTD function is designed for low power or startup operation and results in a delay in actuation of a SG water level low-low reactor trip and AFW pumps start when the power level is less than 50% RTP. Once the SG water level low-low trip setpoint is reached, the TTD acts to delay reactor trip and AFW pump start actuation to allow time for operator corrective action or for natural stabilization of shrink/swell water level transients.

The DCPP Eagle 21 process protection system includes four protection sets. Each protection set receives input from SG water level low-low channels. Protection Sets I and II receive input from two SG water level low-low channels. Protection Sets III and IV receive input from four SG water level low-low channels. Each protection set also receives an RCS Loop Delta-T channel input that is used to calculate equivalent power level for use in the TTD. If a SG water level low-low channel signal is still in when the TTD times out, a partial trip signal is output to the solid state protection system (SSPS).

An inoperable RCS Loop Delta-T channel affects the TTD calculation for its associated protection set (i.e., RCS Loop 1 Delta-T provides input to Protection Set I, RCS Loop 2 Delta-T provides input to Protection Set II, etc.).





Consequently, an inoperable RCS Loop Delta-T channel affects the SG water level low-low channels for the affected protection set. For Protection Sets I and II, two SG water level low-low channels would be affected. For Protection Sets III and IV, four SG water level low-low channels would be affected.

The TTD is based on continuous monitoring of primary side power through the use of RCS Loop Delta-T, which provides an equivalent to power level. The magnitude of the TTD decreases with increasing primary side power level, up to 50% RTP. Above 50% RTP, there is no TTD for the low-low level trips. The time delay (TD) equation, as currently listed in TS Table 2.2-1, Note 5 and TS Table 3.3-4, Note 2, is as follows:

$$TD = [B1(P)^3 + B2(P)^2 + B3(P) + B4][0.99]$$

where: P = RCS Loop Delta-T Equivalent to Power (%RTP),  
P ≤ 50% RTP

TD = Time Delay for Steam Generator Water Level Low-Low  
Reactor Trip (in seconds)

B1 = -0.0072

B2 = +0.8181

B3 = -31.72

B4 = +468.8

### 0.99 Multiplier

During implementation of the Eagle 21 upgrade, it was identified that the Eagle 21 software does not automatically reduce the coefficients by the 0.99 factor listed above in the TD equation. Therefore, the setpoints listed in TS Table 2.2-1, Note 5 and TS Table 3.3-4, Note 2 were required to be reduced by the 0.99 factor prior to being entered into the Eagle 21 software. Incorporating the 0.99 factor into the constants B1 through B4 would make the TS consistent with the Eagle 21 software.

### Mode 3 Applicability

While RCS Loop Delta-T is used in many reactor protection system (RPS) and engineered safety features (ESF) instrumentation, the AFW pumps start actuation signal on SG water level low-low is the only function that currently requires operability of the RCS Loop Delta-T function in Mode 3. The RCS Loop Delta-T is used in the calculation of TTD for start actuation of the AFW pumps. In Mode 3, there is no delta-T across the core; therefore, the resulting time delay would be equivalent to 0% RTP, or 464.1 seconds. However, with the TTD associated with the SG water level low-low channel less than or equal to 464.1 seconds, the longest time delay before start actuation of the AFW pumps is also 464.1 seconds.



Therefore, PG&E proposes the following changes to TS Table 3.3-3 and TS Table 4.3-2: the Mode 3 requirement for RCS Loop Delta-T operability would be deleted, and the Mode 3 requirement for SG water level low-low operability would be revised to add a footnote requiring that the TTD associated with the SG water level low-low channel be less than or equal to 464.1 seconds. Deleting Mode 3 applicability of the RCS Loop Delta-T function is consistent with the Proof and Review TS for Watts Bar Unit 1. The RCS Loop Delta-T function is not included in NUREG-1431.

#### **Table 3.3-1 Action 27 and Table 3.3-3 Action 29**

Currently, with the number of operable RCS Loop Delta-T channels one less than the total number of channels, Table 3.3-1, Action 27 and Table 3.3-3, Action 29 require that for startup and/or power operation to proceed, within 6 hours the TTD threshold power level for zero seconds time delay be adjusted to 0% RTP for the affected protection set.

Adjusting the TTD in this manner eliminates the time delay function for the SG water level low-low channels input to the affected protection set. Since eliminating the time delay function is conservative with respect to the time to reactor trip and start actuation of the AFW pumps, more than one RCS Loop Delta-T channel should be allowed to be inoperable, provided the TTD threshold power level for zero seconds time delay is adjusted to 0% RTP for the affected RCS Loop Delta-T channels (i.e., the affected protection set).

Also, for one RCS Loop Delta-T channel inoperable, the option to trip the affected SG water level low-low channels should be allowed so that in the unlikely event that the TTD threshold power level cannot be adjusted, startup and/or power operation may proceed with one RCS Loop Delta-T channel inoperable. Placing the affected SG water level low-low channels in the tripped condition is consistent with the action statement for a SG water level low-low channel inoperable.

#### **Channels to Trip and Minimum Channels Operable**

The RCS Loop Delta-T function listed in Table 3.3-1, Functional Unit 13.b., and Table 3.3-3, Functional Unit 6.c., provides input for equivalent power level to the TTD, which delays a reactor trip or AFW pump starts. The RCS Loop Delta-T function does not provide a reactor trip or ESFAS function. Furthermore, the proposed changes to Table 3.3-1, Action 27 and Table 3.3-3, Action 29 would allow up to four RCS Loop Delta-T channels to be inoperable. Therefore, the Channels to Trip and Minimum Channels Operable columns for RCS Loop Delta-T are proposed to be changed to N.A.



## Upgrade of Radiation Monitoring System

### **TS Applicability**

LAR 91-06, "Revision of Technical Specifications 3/4 3.2, 3/4 3.3.1, 3/4 3.3.10, 3/4.9.9, and 3/4.9.12 - Upgrade of Radiation Monitoring System," dated June 5, 1991, was submitted to the NRC to support a comprehensive program to upgrade the DCPD radiation monitoring system (RMS). LAR 91-06 was issued by the NRC as LA 70/69, dated April 20, 1992.

The TS changes issued as LA 70/69 were written such that the TS would apply both before and after the RMS upgrade, by specifying TS applicability in Table footnotes. RM-44A and RM-44B have been installed and replace the functions previously provided by RM-14A and RM 14B. Therefore, TS references to RM-14A and RM-14B and footnote references to TS applicability are no longer required and would be deleted.

### **Table 3.3-4 Functional Unit 3.c.4)**

LAR 91-04, "Revision of Technical Specification Programmatic Controls for Radiological Effluents (Generic Letter 89-01)," dated May 23, 1991 proposed to relocate several TS requirements to DCPD administrative controls. Included in the proposed changes was replacing TS Table 3.3-4, Functional Unit 3.c.2), "Plant Vent Noble Gas Activity - High (RM-14A and 14B)," Trip Setpoint and Allowable Values column from "Per Specification 3.3.3.10," to "Per the ODCP." LAR 91-04 was issued by the NRC as LA 67/66, dated January 22, 1992.

Following issuance of LA 67/66, LA 70/69, as described above, was issued by the NRC on April 20, 1992. Included in the changes was the addition of Functional Unit 3.c.4) to Table 3.3-4. The Trip Setpoint and Allowable Values column of Functional Unit 3.c.4) issued in LA 70/69 stated, "Per Specification 3.3.3.10," rather than "Per the ODCP." To be consistent with the changes issued in LA 67/66, PG&E proposes to change TS Table 3.3-4, Functional Unit 3.c.4), Trip Setpoint and Allowable Values column, to "Per the ODCP."

### Removal of Cycle-Specific TS

DCPD Units 1 and 2 have completed 6 cycles of operation. Cycle-specific TS that apply to Cycles 1 through 6 are outdated and should be deleted. These administrative changes delete cycle-specific TS that apply to previous cycles and are, therefore, no longer required.

LAR 92-02, "Technical Specifications Administrative Changes," was submitted on February 4, 1992 and included removal of cycle-specific information from the TS. Included in the marked-up TS was the deletion of TS 3/4.5.4, "Emergency



Core Cooling Systems - Boron Injection Tank," and associated bases. LAR 92-02 was issued by the NRC as LA 72/71, dated August 6, 1992. TS 3/4.5.4 were only applicable for Units 1 and 2, Cycle 4. However, the TS Index listing for TS Bases 3/4.5.4 was not deleted. Therefore, to be consistent with the changes approved as LA 72/71, the Index listing would be deleted.

#### Channel Operational Test

Definition 1.3, "ANALOG CHANNEL OPERATIONAL TEST," was revised in LA 84/83 to delete the word "analog" from the title and definition so that the definition would apply to both analog and digital channels. TS references to an analog channel operational test were also revised to delete the word "analog." However, TS 4.4.9.3.1, TS 4.9.2, and TS 4.10.3.2 were not revised to delete the reference to analog. Therefore, to be consistent with the Definition 1.3 and the other changes approved in LA 84 and 83, the word "analog" would be deleted from TS 4.4.9.3.1, TS 4.9.2, and TS 4.10.3.2.

### D. SAFETY EVALUATION

#### OPDT K6 Value

K6 is multiplied by the difference between Tave and indicated Tave at RTP to calculate a reduction in the OPDT trip setpoint as Tave increases. An increase in K6 decreases the OPDT setpoint at a higher rate as Tave increases above the indicated Tave at RTP. Therefore, an increase in the K6 factor is conservative. PG&E has been administratively controlling K6 to a value of 0.00145°F since discovery of this discrepancy during implementation of LA 84/83.

#### RCS Loop Delta-T

##### **0.99 Multiplier**

The proposed change to incorporate the 0.99 multiplier into the B1 through B4 constants would not affect the function of the TTD or the intended setpoint. Therefore, this change would not affect the ability of the RCS Loop Delta-T to perform its intended safety function.

##### **Mode 3 Applicability**

With the RCS Loop Delta-T function not required to be operable in Mode 3 and the proposed footnote for Mode 3 added to the SG water level low-low function, the longest time delay allowed before start actuation of the AFW pumps is 464.1 seconds, or the equivalent of 0% RTP. This time delay is consistent with the



1 2

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



RCS conditions for Mode 3 operation (i.e. no delta-T across the core). Therefore, these proposed changes have no effect on the ability of the AFW pumps to perform their safety function.

#### **Table 3.3-1 Action 27 and Table 3.3-3 Action 29**

Allowing more than one RCS Loop Delta-T channel to be inoperable with the TTD threshold power level for zero seconds time delay adjusted to 0% RTP eliminates the time delay function. This is conservative with respect to AFW pumps start and reactor trip actuation time.

Placing the affected SG water level low-low channels in the tripped condition reduces the number of SG water level low-low channels necessary for reactor trip and AFW pumps start from 2 of 3 to 1 of 2 for the affected SGs. This change is conservative with respect to reactor trip and AFW pumps start on SG water level low-low.

Therefore, these proposed changes provide continued assurance that proper actions are taken so that the safety function of the SG water level low-low function is maintained with inoperable RCS Loop Delta-T channels.

#### **Channels to Trip and Minimum Channels Operable**

Changing the Channels to Trip and Minimum Channels Operable requirements for the RCS Loop Delta-T function to N.A. is consistent with the proposed changes to Table 3.3-1, Action 27 and Table 3.3-3, Action 29.

#### **Upgrade of Radiation Monitoring System**

Correction of Table 3.3-4, Functional Unit 3.c.4), and deletion of references to RM-14A and RM-14B and footnote references to TS applicability are administrative changes that clarify the TS and remove outdated and extraneous information.

#### **Removal of Cycle-Specific TS**

The deletion of cycle-specific TS is an administrative change that has no effect on any plant system or the safe operation of DCCP. These proposed changes have no safety significance. Deletion of cycle-specific TS clarifies the TS by removing extraneous information.



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### Channel Operational Test

Deletion of the word "analog" from TS 4.4.9.3.1, TS 4.9.2, and TS 4.10.3.2 is an administrative change that has no effect on plant systems or the safe operation of DCCP. These changes clarify the TS by removing outdated information.

### Conclusion

In conclusion, PG&E believes there is reasonable assurance that the health and safety of the public will not be affected by the proposed TS changes.

## E. NO SIGNIFICANT HAZARDS EVALUATION

PG&E has evaluated the no significant hazards considerations involved with the proposed amendment, focusing on the three standards set forth in 10 CFR 50.92(c) as quoted below:

"The Commission may make a final determination, pursuant to the procedures in paragraph 50.91, that a proposed amendment to an operating license for a facility licensed under paragraph 50.22 or a testing facility involves no significant hazards consideration, if operation of the facility in accordance with the proposed amendment would not:

- (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or
- (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or
- (3) Involve a significant reduction in a margin of safety."

The following evaluation is provided for the no significant hazards considerations.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

The proposed change to the OPDT constant K6 is conservative and will not cause any design or analysis acceptance criteria to be exceeded. There is no effect on the structural and functional integrity of any plant system. The OPDT function is part of the accident mitigation response



and is not itself an initiator for any transient. This change does not affect the integrity of the fission product barriers for mitigation of radiological dose consequences as a result of an accident.

The proposed change to incorporate the 0.99 multiplier into the TTD constants is an administrative change and has no effect on plant operation. The proposed change to delete Mode 3 applicability of the RCS Loop Delta-T function does not affect any design or analysis results. Allowing up to 4 RCS Loop Delta-T channels to be inoperable with the TTD threshold power level for zero seconds time delay adjusted to 0% RTP is conservative with respect to ESFs and reactor trip actuation time. Allowing the SG water level low-low channels affected by the inoperable RCS Loop Delta-T channels to be placed in the tripped condition is also conservative with respect to reactor trip and AFW pumps start. The change to the Channels to Trip and Minimum Channels Operable columns is a clarifying change to reflect the proposed changes to the action statements and identifies that the RCS Loop Delta-T does not provide a reactor trip function. Therefore, the proposed changes to the RCS Loop Delta-T function do not affect any of the accident analysis results.

The proposed changes to revise Table 3.3-4, Functional Unit 3.c.4), and to delete cycle-specific TS, TS references to RM-14A and RM 14B, and the word "analog" from the analog channel operation test are administrative and have no effect on plant operation.

Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

The proposed change to the OPDT constant K6 does not affect the assumed accident initiation sequences. No new operating configuration is being imposed by the change to K6 that would create a new failure scenario. No new failure modes are being created for any plant equipment.

The proposed changes to the RCS Loop Delta-T function do not involve any physical modification to any plant system or change the methodology by which any safety-related system performs its function.

The proposed changes to revise Table 3.3-4, Functional Unit 3.c.4), and to delete cycle-specific TS, TS references to RM-14A and RM 14B, and the word "analog" from the analog channel operation test are



11

administrative, would not result in any physical alteration to any plant system, and would not be a change in the method by which any safety-related system performs its function.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the change involve a significant reduction in a margin of safety?

The proposed change to the OPDT constant K6 will not affect any accident analysis assumptions, initial conditions, or results.

The proposed changes to the RCS Loop Delta-T function do not affect any accident analysis assumptions, initial conditions, or results.

The proposed changes to revise Table 3.3-4, Functional Unit 3.c.4), and to delete cycle-specific TS, TS references to RM-14A and RM 14B, and the word "analog" from the analog channel operation test are administrative and clarify the TS. These proposed changes have no effect on current operating methodologies or actions that govern plant performance.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

F. NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Based on the above evaluation, PG&E concludes that the changes associated with this LAR satisfy the no significant hazards consideration standards of 10 CFR 50.92(c) and, accordingly, a no significant hazards finding is justified.

G. ENVIRONMENTAL EVALUATION

PG&E has evaluated the proposed changes and determined that the changes do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed changes meet the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed changes is not required.

