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. 94-04

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 to the Licenses would revise Technical Specification (Appendix A of the Licenses) 4.2.2 and 6.9.1.8.

Information on the proposed changes is provided in Attachments A and B.

These changes have been reviewed and do not involve a significant hazards consideration as defined in 10 CFR 50.92 or an unreviewed environmental question. 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 16th day of February 1994.

Amy Emiko Dong

Amy Emiko Dong, Notary Public

OFFICIAL SEAL
AMY EMIKO DONG
NOTARY PUBLIC - CALIFORNIA
CITY & COUNTY OF SAN FRANCISCO
My Commission Expires Dec. 23, 1994

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ATTACHMENT A

REVISION OF TECHNICAL SPECIFICATION 4.2.2 AND 6.9.1.8 - REVISE HEAT FLUX HOT CHANNEL FACTOR SURVEILLANCE REQUIREMENT AND CORE OPERATING LIMITS REPORT

A. DESCRIPTION OF AMENDMENT REQUEST

This license amendment request (LAR) proposes to revise Technical Specification (TS) 4.2.2, "Heat Flux Hot Channel Factor - $F_Q(z)$," and 6.9.1.8, "Core Operating Limits Report," as follows:

1. The 2 percent $F_Q(z)$ penalty listed in TS 4.2.2.2.e.1) would be deleted and the statement revised to indicate the use of an appropriate factor to be specified in the Core Operating Limits Report (COLR).

2. TS 6.9.1.8.b.1. would be changed to reference Revision 1 of WCAP 10216-P-A, "Relaxation of Constant Axial Offset Control $F_Q(z)$ Surveillance Technical Specification," dated February 1994.

Changes to the TS are noted in the marked-up copy of the applicable TS (Attachment B).

B. BACKGROUND

$F_Q(z)$ is the maximum local heat flux on the surface of a fuel rod at core elevation z, divided by the average fuel rod heat flux.

A full core flux map is taken under equilibrium conditions to determine a measured $F_Q(z)$. This $F_Q(z)$ is then increased to account for manufacturing tolerances and measurement uncertainties. The resulting equilibrium measured $F_Q(z)$ including uncertainties is called $F_Q^M(z)$. During normal operation, $F_Q^M(z)$ is shown to be within its limits by performing surveillances. $F_Q(z)$ surveillance must be performed when power has been increased by 20 percent of rated thermal power over the thermal power when $F_Q^M(z)$ was last determined, or at least every 31 effective full power days (EFPD), whichever occurs first.

To verify operation below the TS $F_Q(z)$ limit, $F_Q^M(z)$ is shown to be less than or equal to a more restrictive limit, which is the surveillance $F_Q(z)$ limit. The surveillance $F_Q(z)$ limit is the $F_Q(z)$ limit divided by the W(z) transient function. W(z) is a cycle-dependent function that accounts for power distribution transients encountered during normal operation. Cycle-specific W(z) is specified in the COLR, based on the Westinghouse Reload Safety Evaluation.

To account for the increases in $F_Q^M(z)$ that may occur between surveillances, TS 4.2.2.2.e requires that when performing the $F_Q(z)$ surveillance, the resulting maximum $F_Q^M(z)$ / K(z) value be compared to the maximum $F_Q^M(z)$ / K(z) determined from the previous flux map, where K(z) is the normalized $F_Q(z)$ as a function of core height. If the maximum $F_Q^M(z)$ / K(z) has increased since the previous determination of $F_Q(z)$, then TS 4.2.2.2.e allows two options: (1) either the current $F_Q^M(z)$ must be increased by an additional 2 percent to account for further increases in $F_Q(z)$ before the next surveillance, or (2) the surveillance must be performed every seven EFPD.

If it is then determined that $F_Q^M(z)$, with the 2 percent penalty applied, exceeds the surveillance $F_Q(z)$ limit, continued operation is acceptable provided operational restraints are applied. Either the Axial Flux Difference (AFD) limits of TS 3.2.1 are to be reduced 1 percent for each percent that $F_Q(z)$ exceeds its limit, or the requirements of TS 3.2.2 must be met, which include reducing thermal power at least 1 percent for each 1 percent $F_Q(z)$ exceeds the limit and reducing the Power Range Nuclear Flux - High, Trip Setpoints.

PG&E adopted the $F_Q(z)$ surveillance recommendation in WCAP-10216-P-A, "Relaxation of Constant Axial Offset Control F_Q Surveillance Technical Specification," dated June 1983, in the fourth operating cycle of Units 1 and 2. WCAP-10216-P-A includes the assumption that the $F_Q(z)$ margin will decrease by no more than 2 percent between monthly flux maps. This assumption was based on previous (pre-1983) core designs that pre-date low-low leakage loading patterns, high amounts of burnable poisons (such as integral fuel burnable absorbers), and 18-month fuel cycles.

A decrease in the $F_Q(z)$ margin of greater than 2 percent between monthly flux maps results in a non-conservative penalty being used to evaluate the $F_Q(z)$ margin for surveillances performed in accordance with TS 4.2.2.2.e. Therefore, $F_Q(z)$ could exceed the $F_Q(z)$ limit between monthly flux maps without implementing the operational restraints of TS 3.2.1 or 3.2.2.

Diablo Canyon Power Plant (DCPP) operating experience has shown that $F_Q^M(z)$ increases in the beginning of the fuel cycle, with a subsequent peak at a burnup of approximately 3000 megawatt days per metric ton uranium (MWD/MTU), and then exhibits a general decrease in $F_Q^M(z)$ throughout the remainder of the cycle.

PG&E submitted DCPP Licensee Event Report (LER) 1-93-004-00 on October 19, 1993 regarding the use of a nonconservative penalty for the $F_Q(z)$ surveillance.

C. JUSTIFICATION

Revision 1 to WCAP-10216-P-A was approved by the NRC on November 26, 1993. As an enhancement to the TS surveillance methodology, revision 1 to WCAP-10216 accounts for $F_Q(z)$ margin decreases of greater than 2 percent between monthly flux maps. DCPP Units 1 and 2 have experienced decreases in $F_Q(z)$ margin of more than 2 percent between monthly flux maps in the early portions of Unit 1 Cycle 6 and Unit 2 Cycles 4 and 5. For those DCPP core designs which are predicted to have margin decreases of greater than 2 percent in $F_Q(z)$ over certain burnup ranges, a larger penalty to $F_Q(z)$ will be provided by Westinghouse on a cycle-specific basis. Otherwise, a minimum $F_Q(z)$ penalty of 2 percent will be used.

D. SAFETY EVALUATION

The $F_Q(z)$ limits specified in TS 3.2.2 preclude core power distributions that violate the following fuel design criteria:

a. During a large break loss of coolant accident (LOCA), the peak cladding temperature must not exceed 2200°F;

b. During a loss of forced reactor coolant flow accident, there must be at least 95 percent probability at the 95 percent confidence level that the hot fuel rod in the core does not experience a departure from nucleate boiling (DNB) condition;

c. During an ejected rod accident, the fission energy input to the fuel must not exceed 280 cal/gm; and

d. The control rods must be capable of shutting down the reactor with a minimum required shut down margin with the highest worth control rod stuck fully withdrawn.

Limits on $F_Q(z)$ ensure that the value of the initial total peaking factor assumed in the accident analyses remains valid.

PG&E has implemented administrative controls to apply a more conservative $F_Q(z)$ penalty than the current TS. These administrative controls will ensure that the $F_Q(z)$ penalty adequately bounds predicted margin decreases between surveillances.

The proposed changes would require an $F_Q(z)$ penalty of at least 2 percent, which is currently listed in TS 4.2.2.2.e.1), to be included in the COLR. For a core design which predicts margin decreases larger than 2 percent, a larger

penalty would be included in the COLR on a cycle-specific basis. Thus, the proposed changes conservatively ensure that the $F_Q(z)$ penalty adequately bounds margin decreases of greater than 2 percent between surveillances.

Revisions to the COLR will be evaluated in accordance with 10 CFR 50.59. COLR revisions will assure conformance to 10 CFR 50.36. The NRC will be notified of all revisions to the COLR in accordance with TS 6.9.1.8. All COLR revisions will be based on NRC-approved methodologies. Revisions to the $F_Q(z)$ penalty will be based on the Westinghouse methodology previously reviewed and approved by the NRC in WCAP-10216-P-A, Revision 1. Calculating this cycle-specific parameter in accordance with an approved NRC methodology ensures that the parameters are consistent with the applicable safety analysis addressed in the DCPP FSAR Update.

Therefore, PG&E believes this evaluation provides reasonable assurance that the proposed TS change will not adversely affect the health and safety of the public.

E. NO SIGNIFICANT HAZARDS

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 50.21(b) or 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 consideration.

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

   The Heat Flux Hot Channel Factor, $F_Q(z)$, is not involved in the initiation of any accident. Verifying $F_Q(z)$ is below its limit ensures initial conditions for accident analyses are met. The proposed changes have been previously approved by the NRC and provide for application of a more conservative $F_Q(z)$ penalty which will ensure that possible $F_Q(z)$ margin decreases are adequately accounted for. Therefore, if the $F_Q(z)$ does exceed its limit, the appropriate actions in TS 3.2.1 and TS 3.2.2. will be taken and are adequate to ensure design basis accidents analyses assumptions are met.

   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?

   $F_Q(z)$ is not involved in the initiation of any accident. The $F_Q(z)$ surveillance provides assurance that the initial conditions for accident assumptions are met. $F_Q(z)$ is a measurement of a physical property and is not involved in the initiation of any accident.

   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 $F_Q(z)$ surveillance ensures that certain core parameters are maintained consistent with supporting assumptions regarding the core for postulated accidents. The methodology used in Revision 1 to WCAP-10216-P-A adequately accounts for $F_Q(z)$ increases between monthly flux maps. Using the methodology of Revision 1 to WCAP-10216-P-A results in a $F_Q(z)$ penalty which is more conservative than the current TS $F_Q(z)$ penalty of 2 percent. If the $F_Q(z)$ increases above the TS limit, appropriate actions in TS 3.2.1 and TS 3.2.2. are adequate to ensure design basis accidents analyses assumptions are met.

   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 safety evaluation, PG&E concludes that the activities associated with this LAR satisfy the no significant hazards consideration standards of 10 CFR 50.92(c) and, accordingly, a no significant hazards consideration 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 change meets the eligibility criteria 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 change is not required.