April 5, 2000

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

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - DIABLO CANYON METHODOLOGY FOR ESTABLISHING PRESSURE/TEMPERATURE AND LOW TEMPERATURE OVERPRESSURE PROTECTION LIMITS - DIABLO CANYON POWER PLANT, UNITS 1 AND 2 (TAC NOS. MA5614 AND MA5615)

Dear Mr. Rueger:

In a letter dated November 24, 1999, as supplemented by letter dated March 16, 2000, Pacific Gas and Electric Company (PGE), submitted its request for approval of the methodology for establishing pressure/temperature and low temperature overpressure protection limits using WCAP-14040-NP-A in accordance with Generic Letter 96-03, "Relocation of the Pressure Temperature Limit Curves and Low Temperature Overpressure Protection System Limits," for the Diablo Canyon Power Plant, Units 1 and 2. The NRC has reviewed your submittal and has identified the need to request additional information in order to determine the acceptability of your request. The enclosure describes the specific information requested by the NRC.

The enclosed request was discussed with Mr. Terry Grebel of your staff on March 24, 2000. A mutually agreeable target date of April 7, 2000, for your response was established. If circumstances result in the need to revise the target date, please call me at the earliest opportunity. If you have any questions regarding this matter, please contact me at (301) 415-1313.

Sincerely,

/***RA/***

Steven D. Bloom, Project Manager, Section 2
Project Directorate IV and Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-275
and 50-323

Enclosure: Request for Additional Information

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION

CONCERNING TECHNICAL SPECIFICATION CHANGES FOR

LOW TEMPERATURE OVERPRESSURE PROTECTION SETPOINTS

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON POWER PLANT, UNITS 1 AND 2

1. In your letter dated March 16, 2000, you stated that the methodology that you are using for your pressure and temperature limits report (PTLR) is that specified in WCAP-14040-NP-A. The methodology specified in WCAP-14040-NP-A requires that a minimum power operated relief valve (PORV) lift setpoint be established to ensure that reactor coolant pump (RCP) Number 1 seal performance criteria are not challenged. On Page 3-6 of WCAP-14040-NP-A, Westinghouse stated the following:

> The selection of the setpoints for the PORVs considers the use of nominal upper and lower pressure limits. ... The lower pressure extreme is specified by the reactor coolant pump #1 seal minimum differential pressure performance criteria.

In addition, WCAP-14040-NP-A recommends staggering the lift setpoints of the PORV in order to prevent excessive undershoot that may result in challenging the RCP Number 1 seal.

In the March 16 letter, in response to Question 11, you stated that your current determination of the low temperature overpressure protection (LTOP) setpoints differs from the WCAP-14040-NP-A in the way that RCP seal performance criteria are handled. You did not explain nor justify the difference between your methodology and WCAP-14040-NP-A. However, to address this difference in future revisions to the PTLR, you added the following statements to your proposed PTLR:

> Future revisions to the PTLR or its supporting analyses should include the following considerations to ensure that the assumptions are still valid. ... At LTOP conditions of 270°F and 435 psig, there is no credible way to challenge RCP number 1 seal operation.

In addition, in the March 16 letter, in response to Question 12, you stated that for temperature setpoints of 270°F and a pressure setpoint of 435 psig, there is no credible way to challenge RCP seal operation. You also stated that the maximum pressure undershoot has been estimated to be less than 70 psid. However you did not, as directed by WCAP-14040-NP-A, specify a minimum allowable PORV setpoint at which RCP seal operation would be affected. Furthermore, you did not provide any calculations showing how you have considered this effect in the past nor did you provide

a methodology for how you will consider this effect in the future. As a result, the staff is not able to evaluate your calculation methodology for undershoot.

In addition, in Westinghouse report, "LTOPS Setpoint Evaluation Final Report, PGE-88-642," which you provided as sample calculations using your methodology for the PTLR, Westinghouse stated, "One concern that developed as a result of the analysis had to do with the protection of the reactor coolant pump Number 1 seal if both PORVs were to open for a single LTOPS setpoint." Westinghouse further stated that, "Per PG&E, the protection of the reactor coolant pump number 1 seal was not considered in the LTOPS setpoint evaluation..."

Based on the above, the staff is not able to make a determination as to the adequacy of your proposed methodology with respect to how it addresses the effect of PORV setpoint selection on RCP seal performance. Therefore, if you do not provide your methodology and calculations for addressing this concern, the staff will not be able to approve your proposed PTLR methodology.

2. In your letter dated March 16, 2000, you stated that the methodology that you are using for your PTLR is that specified in WCAP-14040-NP-A. The methodology specified in WCAP-14040-NP-A requires that a heat addition analysis be performed for LTOP. In the March 16 letter, in response to Question 9, you agreed with the staff that as temperatures increase, heat addition scenarios become more severe. However, in response to Question 11, you stated that your current determination of the LTOP setpoints differs from WCAP-14040-NP-A in the way that heat addition is handled. You also stated that you have established that for 270°F and 435 psig (the current fluence period) the mass addition case is limiting. You did not explain nor justify the difference between your methodology and WCAP-14040-NP-A. To address this difference for future changes, you added the following statements to your proposed PTLR:

> Future revisions to the PTLR or its supporting analyses should include the following considerations to ensure that the assumptions are still valid. ... LTOP heat injection case is bounded by the mass injection case throughout the current range of operation.

However, you did not include the calculations that established that the mass addition case is limiting for the current fluence period, nor did you provide calculations to allow the staff to review the method by which you established that the mass addition case is more limiting for the current fluence period, nor did you provide the methodology that you will use in the future for considering the heat addition cases.

In addition, in Westinghouse report, "LTOPS Setpoint Evaluation Final Report, PGE-88-642," which you provided as sample calculations using your methodology for the PTLR, Westinghouse stated that a heat injection case was not even considered. This statement leaves the staff unclear as to how you established that the mass addition case is more limiting for the current fluence period.

> Based on the above, the staff is not able to make a determination as to the adequacy of your proposed methodology with respect to heat addition analyses. If you do not provide your calculations and methodology for addressing the heat addition case, the staff will not be able to approve your proposed PTLR methodology.

In conclusion, GL 96-03 establishes the provisions that must be addressed in methodologies proposed by licensees for creating PTLRs. GL 96-03 requires that NRC approval of PTLR methodologies be obtained by licensees prior to implementation of PTLRs. Consistent with Provision 3 of Attachment 1 to GL 96-03, the NRC staff reviews licensee proposed methodologies with respect to **how** the LTOP system limits are calculated. In order for the staff to make a determination about the adequacy of such a methodology, licensees must provide a description of **how** they will perform the calculations. In addition, the staff will generally review select actual calculations so that the staff can determine if licensees are applying the methodology in a manner consistent with the staff's understanding and approval of the methodology. It is very important that this be done prior to approval of a PTLR methodology in order to ensure that licensee staff and the NRC staff have the same understanding concerning how these calculations will be performed and because, once a licensee's methodology is approved, that licensee will not be required to submit any changes to the PTLR limits for staff approval prior to implementation. As a result, statements to the effect that certain aspects of the analyses had been considered during the development of the current setpoints do not suffice for a methodology review of how a licensee will do these calculations in the future. Such statements do not provide the necessary information on how these effects will be addressed when revisions are made to the PTLRs. Statements like the above, and those to the effect that such concerns will be addressed in the future leave the staff in a position of not being able of evaluate the methodology for future calculations and not being able to accept the proposed methodology.