Pacific Gas and Electric Company

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December 16, 2005

PG&E Letter DCL-05-146

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Docket No. 50-275, OL-DPR-80
Diablo Canyon Unit 1
License Amendment Request 05-07
Revision to Technical Specification 5.6.5, "Core Operating Limits Report (COLR)"

Dear Commissioners and Staff:

In accordance with 10 CFR 50.90, enclosed is an application for amendment to Facility Operating License No. DPR-80 for Unit 1 of the Diablo Canyon Power Plant (DCPP). The enclosed license amendment request (LAR) proposes to revise Technical Specification (TS) 5.6.5, "Core Operating Limits Report (COLR)," by adding WCAP-12945-P-A, Addendum 1-A, Revision 0, "Method for Satisfying 10 CFR 50.46 Reanalysis Requirements for Best Estimate LOCA Evaluation Models," dated December 2004, as an approved analytical method for determining core operating limits for Unit 1.

PG&E is performing a plant-specific best-estimate loss-of-coolant accident analysis for Unit 2 using a methodology different than the methodology presented in Addendum 1-A to WCAP-12945-P-A. Therefore, this license amendment applies only to Unit 1.

Enclosure 1 contains a description of the proposed changes, the supporting technical analyses, and the no significant hazards consideration determination. Enclosures 2 and 3 contain marked-up and retyped (clean) TS pages, respectively. Enclosure 4 contains the initial Unit 1 large-break loss-of-coolant accident reanalysis PCT results.

PG&E has determined that this LAR does not involve a significant hazard consideration as determined per 10 CFR 50.92. Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of this amendment.

The changes in this LAR are not required to address an immediate safety concern. PG&E requests approval of this LAR no later than December 16, 2006. PG&E requests the license amendment be made effective upon NRC issuance, to be implemented within 90 days from the date of issuance.

This communication contains no new or revised commitments.

If you have any questions or require additional information, please contact Mr. Stan Ketelsen at 805-545-4720.

Sincerely,

David H. Oatley
Vice President and General Manager

mjrm/4557
Enclosures
cc: Edgar Bailey, DHS
Terry W. Jackson
Bruce S. Mallett
Diablo Distribution
cc/enc: Alan B. Wang

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of PACIFIC GAS AND ELECTRIC COMPANY Diablo Canyon Power Plant Unit 1	Docket No. 50-275 Facility Operating License No. DPR-80

AFFIDAVIT

David H. Oatley, of lawful age, first being duly sworn upon oath states that he is Vice President and General Manager of Pacific Gas and Electric Company; that he has executed License Amendment Request 05-07 on behalf of said company with full power and authority to do so; that he is familiar with the content thereof; and that the facts stated therein are true and correct to the best of his knowledge, information, and belief.

David H. Oatley
Vice President and General Manager

Subscribed and sworn to before me this 16th day of December, 2005, by David H. Oatley, personally known to me or proved to me on the basis of satisfactory evidence to be the person who appeared before me.

Notary Public
County of San Luis Obispo
State of California

CHUCK MACKEY
Commission # 1397547
Notary Public - California
San Luis Obispo County
My Comm. Expires Feb 1, 2007

EVALUATION

1.0 DESCRIPTION

This letter is a request to amend Operating License DPR-80 for Unit 1 of the Diablo Canyon Power Plant (DCPP).

This license amendment request (LAR) proposes to revise Technical Specification (TS) 5.6.5, "Core Operating Limits Report (COLR)," by adding WCAP-12945-P-A, Addendum 1-A, Revision 0, "Method for Satisfying 10 CFR 50.46 Reanalysis Requirements for Best Estimate LOCA Evaluation Models," dated December 2004, as an approved analytical method for determining core operating limits for Unit 1.

2.0 PROPOSED CHANGES

TS 5.6.5 would be revised by adding the following referenced document to 5.6.5.b:

7. WCAP-12945-P-A, Addendum 1-A, Revision 0, "Method for Satisfying 10 CFR 50.46 Reanalysis Requirements for Best Estimate LOCA Evaluation Models," December 2004. (Westinghouse Proprietary) (Unit 1 Only).

TS 5.6.5.b.6 would also be revised to reflect the addition of TS 5.6.5.b.7. This change is editorial in nature only.

The proposed TS changes are noted on the marked-up TS page provided in Enclosure 2. The proposed retyped (clean) TS page is provided in Enclosure 3.

3.0 BACKGROUND

TS 5.6.5.a states that core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle. TS 5.6.5.a requires the core operating limits to be documented in the COLR for the items listed in TS 5.6.5.a.1 through TS 5.6.5.a.8.

TS 5.6.5.b states that the analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, and specifically lists the analytical methods that may be used, including "WCAP-12945-P-A, Westinghouse Code Qualification Document for Best-Estimate Loss of Coolant Analysis, June 1996."

The regulations specified in 10 CFR 50.46(a)(1) identify calculation methodology

requirements for nuclear power plant loss-of-coolant accident (LOCA) methodologies. Code of Federal Regulations 10 CFR 50.46(c) identifies the types of processes which are required to assure that LOCA analyses performed for a given plant actually represent the plant. Section 50.46(a)(3)(i and ii) specifies criteria to be applied and actions to be taken when significant changes or errors in parts of the plant-specific LOCA methodology, defined in accordance with 10 CFR 50.46(a)(1) and (c), are found to have accumulated. When the licensee makes changes to its plant input model, or finds significant errors in parts of the plant specific LOCA methodology covered by 10 CFR 50.46(a)(1) and (c), the licensee must reanalyze the plant's LOCA response. This is usually done by repeating the plant's LOCA analyses (reanalyzing) using a LOCA methodology approved for the plant, with changes and errors updated if the base LOCA methodology remains the same.

In PG&E Letter DCL-98-101, "10 CFR 50.46 Annual Report of Emergency Core Cooling System Evaluation Model Changes," dated July 24, 1998, PG&E provided new peak cladding temperature (PCT) reanalysis results for a large-break loss-of-coolant accident (LBLOCA). The new reanalysis included a 67 degree PCT penalty, which was incorporated into the reanalysis prior to implementation.

In PG&E Letter DCL-00-134, "Revised Schedule for Large Break Loss-of-Coolant Accident Reanalysis," dated October 19, 2000, PG&E committed to perform a new LBLOCA reanalysis due to the PCT penalty. In PG&E Letter DCL-03-091, "10 CFR 50.46 Annual Report of Emergency Core Cooling System Evaluation Model Changes," dated July 24, 2003, PG&E provided the LBLOCA reanalysis results as the "pending analysis of record." PG&E stated that the reanalysis would not be established as the analysis of record per 10 CFR 50.46 until after NRC acceptance of the methodology.

In PG&E Letter DCL-05-086, "10 CFR 50.46 Annual Report for 2004 of Emergency Core Cooling System Evaluation Model Changes," dated July 25, 2005, PG&E stated that it is currently in the process of developing a license amendment request to revise the TS to incorporate the Westinghouse superposition step methodology into the licensing basis and establish a new best-estimate loss-of-coolant accident (BELOCA) analysis of record for Unit 1.

4.0 TECHNICAL ANALYSIS

Reanalysis of the DCPP LOCA response using the BELOCA methodologies described in WCAP-12945-P-A requires several LOCA calculations.

The NRC approved Addendum 1-A, Revision 0, to WCAP-12945-P-A, by letter dated March 11, 2004, "Final Safety Evaluation for Westinghouse Topical Report, 'Addendum 1 to WCAP-12945-P-A and WCAP-14449-P-A, Method for Satisfying

10 CFR 50.46 Reanalysis Requirements for Best-Estimate LOCA Evaluation Models.'" (TAC NO. MB6803)

Addendum 1-A to WCAP-12945-P-A describes a reanalysis methodology that would implement an abbreviated calculation approach which will preserve the characteristic plant specific LBLOCA transient, while implementing changes or correcting errors in accordance with 10 CFR 50.46(a)(3).

The NRC staff found the topical report acceptable for referencing as an approved methodology in plant licensing applications and recognized that the abbreviated methodology would reduce unnecessary regulatory burden. The NRC safety evaluation for Addendum 1-A to WCAP-12945-P-A stated that the NRC did not intend to repeat the review of the acceptable material in the topical report for LARs that do not deviate from the topical report. However, the NRC did list certain criteria that should be included in a LAR to determine that material in the topical report applies to the specific plant involved.

The NRC stated that Addendum 1-A to WCAP-12945-P-A only applies to plants whose approved LBLOCA analyses were performed using methodologies described in WCAP-12945-P-A, and that licensees must include the following in individual plant license amendment requests:

- A statement that the licensee and its fuel vendor (Westinghouse) have ongoing processes which assure that the ranges and values of input parameters for the plant LOCA analysis bound the ranges and values of the as-operated plant values for those parameters.

- TS changes, COLR changes, and initial LBLOCA reanalysis results.

The PG&E Transient Analysis group maintained close communication with Westinghouse during the development and completion of the Unit 1 LBLOCA analysis, as documented the DCPP Unit 1 BELOCA Reanalysis Final Engineering Report. The Westinghouse Model Lead Engineer has reviewed and concurred with the analysis results documented therein. This review and the basis for concluding that the specific analysis for Unit 1 is within the limits of applicability per WCAP-12945-P-A Addendum 1-A, Revision 0, is summarized in Section 3-5 of the DCPP Unit 1 BELOCA Reanalysis Final Engineering Report, and is formally documented in the Westinghouse calculation file.

The PG&E and Westinghouse interactions include a formal documentation of the ranges and values of the input parameters used in the Unit 1 LBLOCA reanalysis which ensures that the analysis of record bounds the as-operated plant ranges and values for these parameters. Prior to performing the Unit 1 LBLOCA reanalysis, Westinghouse provided PG&E with the proposed ranges and values for the applicable input parameters, and PG&E confirmed the ranges and values

to be used for the reanalysis. In addition, those LBLOCA input parameters related to reactor kinetics are reviewed and verified to remain bounding for each new core reload per the approved methodology established in WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985.

The implementation of the approved LBLOCA methodology per this LAR will result in a change to T.S. 5.6.5.b, to add a reference for WCAP-12945-P-A, Addendum 1-A as an approved LBLOCA reanalysis methodology (for Unit 1 only) as shown in the marked-up and retyped (clean) TS pages in Enclosures 2 and 3. This LAR does not require a change to the COLR document, since using the methodology does not result in any new operating limits. The initial LBLOCA reanalysis PCT results are summarized in Enclosure 4. These initial LBLOCA reanalysis PCT results were previously provided to the NRC as the "Pending Analysis of Record" in PG&E Letter DCL-05-086, "10 CFR 50.46 Annual Report for 2004 of Emergency Core Cooling System Evaluation Model Changes," dated July 25, 2005.

Since the approved DCPP Unit 1 LBLOCA analyses were performed using WCAP-12945-P-A, it is appropriate to use the methodology in Addendum 1-A to WCAP-12945-P-A for DCPP Unit 1.

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Consideration

PG&E has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

Response: No.

The proposed change to allow the use of the abbreviated best estimate loss-of-coolant accident (LOCA) analysis methodology does not involve a physical alteration of any plant equipment or change operating practice at Unit 1 of Diablo Canyon Power Plant (DCPP). Therefore, there will be no increase in the probability of a LOCA. The consequences of a LOCA are not being increased.

The plant conditions assumed in the analysis are bounded by the design conditions for all equipment in Unit 1. That is, it is shown that the

emergency core cooling system is designed so that its calculated cooling performance conforms to the criteria contained in 10 CFR 50.46, paragraph b. No other accident is potentially affected by this change.

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

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

Response: No.

The proposed change would not result in any physical alteration to any Unit 1 system, and there would not be a change in the method by which any safety related system performs its function. The parameters assumed in the analysis are within the design limits of existing plant equipment.

Therefore, the proposed change does not create the possibility of a new or different accident from any accident previously evaluated.

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

Response: No.

It has been shown that the analytic technique used in the analysis realistically describes the expected behavior of the DCPP Unit 1 reactor system during a postulated LOCA. Uncertainties have been accounted for as required by 10 CFR 50.46. A sufficient number of LOCAs with different break sizes, different locations, and other variations in properties have been analyzed to provide assurance that the most severe postulated LOCAs were analyzed. It has been shown by the analysis that there is a high level of probability that all criteria contained in 10 CFR 50.46, paragraph b, are met.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above evaluation, PG&E concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

5.2 Applicable Regulatory Requirements/Criteria

Incorporation of the best estimate LOCA methodology, WCAP-12945-P-A, "Westinghouse Code Qualification Document for Best-Estimate Loss of Coolant Analysis," dated June 1996 was submitted by PG&E on May 14, 1997 by PG&E Letter DCL-97-030, "License Amendment Request 97-08, Revision of Technical Specifications to Apply Westinghouse generic Best Estimate Large Break LOCA Analysis methodology." The NRC approved incorporation and use of the methodology in WCAP-12945-P-A in NRC Letter dated February 13, 1998, "Issuance of Amendments for Diablo Canyon Nuclear Power Plant, Unit No. 1 (TAC No. M98827) and Unit No. 2 (TAC No. M98828).

The methodology in Addendum 1-A to WCAP-12945-P-A uses elements of the previous calculation used to perform the best estimate large break LOCA analyses, while making adjustments to elements as needed to suit the reanalysis, while not significantly changing their qualitative contribution to the overall calculation, and by exercising the corrective capabilities of the previous approach assure that the impact of the uncertainty analysis is not significant. The NRC staff found that the abbreviated methodology in Addendum 1-A to WCAP-12945-P-A satisfies the requirements of 10 CFR 50.46(a)(1) regarding the acceptability of the calculational methodology.

In conclusion, based on the considerations discussed above, (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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

PG&E has evaluated the proposed amendment and has determined that the proposed amendment does 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 amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 REFERENCES

1. WCAP-12945-P-A, Addendum 1-A, Revision 0, "Method for Satisfying 10 CFR 50.46 Reanalysis Requirements for Best Estimate LOCA Evaluation Models," dated December 2004.

2. NRC Letter, "Final Safety Evaluation for Westinghouse Topical Report, 'Addendum 1 to WCAP-12945-P-A and WCAP-14449-P-A, Method for Satisfying 10 CFR 50.46 Reanalysis Requirements for Best-Estimate LOCA Evaluation Models'" dated March 11, 2004.

Proposed Technical Specification Changes (mark-up)

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7. WCAP-12945-P-A, Addendum 1-A, Revision 0, "Method for Satisfying 10 CFR 50.46 Reanalysis Requirements for Best Estimate LOCA Evaluation Models," December 2004. (Westinghouse Proprietary) (Unit 1 Only).

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

1. WCAP-10216-P-A, Revision 1A, Relaxation of Constant Axial Offset Control F_Q Surveillance Technical Specification, February 1994 (Westinghouse Proprietary),

2. WCAP-9272-P-A, Westinghouse Reload Safety Evaluation Methodology, July 1985 (Westinghouse Proprietary),

3. WCAP-8385, Power Distribution Control and Load Following Procedures, September 1974 (Westinghouse Proprietary),

4. WCAP-10054-P-A, Westinghouse Small Break LOCA ECCS Evaluation Model Using the NOTRUMP Code, August 1985. (Westinghouse Proprietary), and

5. WCAP-10054-P-A, Addendum 2, Revision 1, "Addendum to the Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code: Safety Injection Into the Broken Loop and COSI Condensation Model," July 1997 (Westinghouse Proprietary), and

, and

6. WCAP-12945-P-A, Westinghouse Code Qualification Document for Best-Estimate Loss of Coolant Analysis, June 1996. (Westinghouse Proprietary).

INSERT 1

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

(continued)

Proposed Technical Specification Changes (retyped)

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5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

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5. WCAP-10054-P-A, Addendum 2, Revision 1, "Addendum to the Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code: Safety Injection Into the Broken Loop and COSI Condensation Model," July 1997 (Westinghouse Proprietary), and

6. WCAP-12945-P-A, Westinghouse Code Qualification Document for Best-Estimate Loss of Coolant Analysis, June 1996. (Westinghouse Proprietary), and

7. WCAP-12945-P-A, Addendum 1-A, Revision 0, "Method for Satisfying 10 CFR 50.46 Reanalysis Requirements for Best Estimate LOCA Evaluation Models," December 2004. (Westinghouse Proprietary) (Unit 1 Only).

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

(continued)

Enclosure 4
PG&E Letter DCL-05-146

**Initial Unit 1 Large-Break Loss-of-Coolant Accident (LBLOCA)
Reanalysis PCT Results**

Pending Analysis of Record
DCPP UNIT 1 PEAK CLADDING TEMPERATURE MARGIN UTILIZATION

BEST ESTIMATE LARGE-BREAK LOCA	Reflood 1	Reflood 2	
A. ANALYSIS OF RECORD	1900°F	1860°F	Reference 1
	ΔPCT	ΔPCT	
B. PERMANENT 10 CFR 50.46 ECCS MODEL ASSESSMENTS			
1. Revised blowdown heatup uncertainty distribution	5°F	5°F	DCL-05-086
C. 10 CFR 50.59 AND 10 CFR 50.92 SAFETY EVALUATIONS			
1. None	0°F	0°F	
D. OTHER MARGIN ALLOCATIONS			
1. None	0°F	0°F	
LICENSING BASIS PCT + MARGIN ALLOCATION PCT	1905°F	1865°F	

Reference 1: Westinghouse Letter PGE-03-33, "Diablo Canyon Unit 1 BELOCA Reanalysis Final Engineering Report," June 6, 2003

Only permanent assessments of peak cladding temperature (PCT) margin are included. Temporary PCT allocations that address current loss of coolant accident (LOCA) model issues are not considered with respect to 10 CFR 50.46 reporting requirements.