

December 20, 2006

Mr. John S. Keenan  
Senior Vice President and Chief Nuclear Officer  
Pacific Gas and Electric Company  
Diablo Canyon Power Plant  
P.O. Box 770000  
San Francisco, CA 94177-0001

SUBJECT: DIABLO CANYON POWER PLANT, UNIT NO. 2 - ISSUANCE OF AMENDMENT  
RE: TS 5.6.5, "CORE OPERATING LIMITS REPORT (COLR)," (TAC NO.  
MC9567)

Dear Mr. Keenan:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 192 to Facility Operating License No. DPR-82 for the Diablo Canyon Power Plant, Unit No. 2. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated January 13, 2006, as supplemented by letter dated September 29, 2006.

The amendment revises TS 5.6.5, "Core Operating Limits Report (COLR)," by adding Westinghouse Topical Report WCAP-16009-P-A, "Realistic Large-Break LOCA [Loss-of-Coolant Accident] Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM)," dated January 2005, as an approved analytical method for determining the core operating limits for Diablo Canyon Power Plant, Unit No. 2. The licensee performed the best-estimate LOCA analyses with an assumed core power level of 3,468 MWt in order to bound any future potential increase in the license maximum core power associated with a measurement uncertainty recapture power uprate. As stated in the Safety Evaluation, any future calorimetric power uprate for the Diablo Canyon Power Plant, Unit No. 2, will require a separate license amendment for NRC staff review.

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**

Alan Wang, Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-323

Enclosures: 1. Amendment No. 192 to DPR-82  
2. Safety Evaluation

cc w/encls: See next page

December 20, 2006

Mr. John S. Keenan  
Senior Vice President and Chief Nuclear Officer  
Pacific Gas and Electric Company  
Diablo Canyon Power Plant  
P.O. Box 770000  
San Francisco, CA 94177-0001

SUBJECT: DIABLO CANYON POWER PLANT, UNIT NO. 2 - ISSUANCE OF AMENDMENT  
RE: TS 5.6.5, "CORE OPERATING LIMITS REPORT (COLR)," (TAC NO.  
MC9567)

Dear Mr. Keenan:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 192 to Facility Operating License No. DPR-82 for the Diablo Canyon Power Plant, Unit No. 2. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated January 13, 2006, as supplemented by letter dated September 29, 2006.

The amendment revises TS 5.6.5, "Core Operating Limits Report (COLR)," by adding Westinghouse Topical Report WCAP-16009-P-A, "Realistic Large-Break LOCA [Loss-of-Coolant Accident] Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM)," dated January 2005, as an approved analytical method for determining the core operating limits for Diablo Canyon Power Plant, Unit No. 2. The licensee performed the best-estimate LOCA analyses with an assumed core power level of 3,468 MWt in order to bound any future potential increase in the license maximum core power associated with a measurement uncertainty recapture power uprate. As stated in the Safety Evaluation, any future calorimetric power uprate for the Diablo Canyon Power Plant, Unit No. 2, will require a separate license amendment for NRC staff review.

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/**  
Alan Wang, Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-323

Enclosures: 1. Amendment No. 192 to DPR-82  
2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION:

PUBLIC GHill  
LPLIV Reading RidsNrrDirsltsb  
RidsNrrDorl  
RidsNrrDorlLpl4 (DTerao) RidsOgcRp  
RidsNrrPMAWang  
RidsNrrLALFeizollahi  
RidsAcrsAcnwMailCenter  
RidsRegion4MailCenter  
RidsNrrDorlDpr  
KDesai, NRR

Package: ML063380018

ACCESSION NO.: ML063380020

TS: ML063550031

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	DSS/SPWB/BC	OGC NLO	NRR/LPL4/BC
NAME	AWang	LFeizollahi	JNakoski	BPoole	DTerao
DATE	12/18/06	12/18/06	11/30/06	12/13/06	12/18/06

OFFICIAL RECORD COPY

PACIFIC GAS AND ELECTRIC COMPANY

DOCKET NO. 50-323

DIABLO CANYON NUCLEAR POWER PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 192  
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 January 13, 2006, as supplemented by letter dated September 29, 2006, 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.
3. This license amendment is effective as of its date of issuance and shall be implemented within 90 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

David Terao, Chief  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Facility  
Operating License and  
Technical Specifications

Date of Issuance: December 20, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 192

TO FACILITY OPERATING LICENSE NO. DPR-82

DOCKET NO. 50-323

Replace the following pages of the Facility Operating License and Appendix A Technical Specifications (TSs) with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

License

- 3 -

TS

5.0-27

INSERT

License

- 3 -

TS

5.0-27

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 192 TO FACILITY OPERATING LICENSE NO. DPR-82

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON POWER PLANT, UNIT NO. 2

DOCKET NO. 50-323

1.0 INTRODUCTION

By application dated January 13, 2006, as supplemented by letter dated September 29, 2006 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML060230052 and ML062860065, respectively), Pacific Gas and Electric Company (or the licensee) requested changes to the Technical Specifications (Appendix A to Facility Operating License No. DPR-82) for the Diablo Canyon Power Plant (DCPP), Unit No. 2.

The proposed amendment would revise Technical Specification (TS) 5.6.5, "Core Operating Limits Report (COLR)." Specifically, the proposed change would add Westinghouse Topical Report (TR) WCAP-16009-P-A, "Realistic Large-Break LOCA [Loss-of-Coolant Accident] Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM)," dated January 2005, to the list of approved analytical methods in TS 5.6.5.b for determining the core operating limits for DCPP, Unit No. 2. The licensee used ASTRUM as an approved methodology to perform large-break LOCA analyses to comply with paragraphs 50.46(a)(3) and 50.46(b) of Title 10 of the *Code of Federal Regulations* (10 CFR) criteria.

The supplemental letter dated September 29, 2006, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on February 28, 2006 (71 FR 10076).

2.0 REGULATORY EVALUATION

Paragraph 50.36(c)(2)(ii)(B) of 10 CFR requires that a TS limiting condition for operation be established for a process variable, design feature, or operating restriction that is an initial condition of a design-basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. As such, a license amendment is generally required for each fuel cycle to update the values of cycle-specific parameter limits in the TSs. To eliminate the need for a license amendment to update the cycle-specific parameter limits for each fuel cycle while meeting 10 CFR 50.36(c)(2)(ii)(B) requirements, the NRC has allowed licensees to use an alternative to incorporate the cycle-specific parameter limits in a COLR, which is a licensee-controlled document. Generic Letter (GL) 88-16 provides the COLR implementation guidance that allows licensees to list in the TS the Nuclear Regulatory

Commission (NRC)-approved analytical methods used to determine the core operating limits. The analytical methods referenced in the TS identify the TRs by number, title, and date, or identify the staff's safety evaluation report for a plant-specific methodology by NRC letter and date.

The NRC staff used the guidance in GL 88-16 to review this license amendment request for the addition of TR WCAP-16009-P-A, "Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM)," dated January 2005, to TS 5.6.5.b.

### 3.0 TECHNICAL EVALUATION

Paragraph 50.46(a)(1) of 10 CFR specifies that the cooling performance of the emergency core cooling system (ECCS) of a reactor plant must be calculated in accordance with an acceptable evaluation model. Westinghouse TR WCAP-12945-P-A, "Westinghouse Code Qualification Document for Best-Estimate Loss of Coolant Accident Analysis," is an NRC-approved best-estimate (BE) large-break loss-of-coolant accident (LBLOCA) analysis methodology for Westinghouse-designed 3- and 4-loop plants with cold-leg ECCS injection. The licensee uses this BE methodology for the LBLOCA analyses of DCP, Unit Nos. 1 and 2, to demonstrate cooling performance of its ECCS, as well as certain LCOs, such as power peaking factor and axial power distribution that are specified in the DCP, Unit No. 2, COLR. Therefore, TR WCAP-12945-P-A is included in DCP, Unit No. 2, TS. 5.6.5.

Paragraph 50.46(a)(3) of 10 CFR specifies that when the licensee makes changes to its plant input model, or finds errors in the plant's acceptable evaluation model that are significant, the licensee is required to report to the NRC within 30 days, including a proposed schedule for providing a reanalysis of the plant's LOCA response or taking other actions as may be needed to show compliance with the requirements. The reanalysis is usually done by repeating the plant's LOCA analyses using a LOCA methodology approved for the plant, with changes and errors updated if the base LOCA methodology remains the same. With LOCA methodologies covered by 10 CFR Part 50, Appendix K, this reanalysis entails performing one LOCA calculation for each case analyzed. However, using the BE LOCA methodologies described in WCAP-12945-P-A, several LOCA calculations are required. The licensee has requested to add WCAP-16009-P-A as an approved code for determining core operating limits for DCP, Unit No. 2. WCAP-16009-P-A is a revised statistical approach for developing the peak clad temperature (PCT), maximum local oxidation (MLO), and core wide oxidation (CWO).

WCAP-16009-P-A describes the ASTRUM methodology, which requires the execution of 124 calculations to simultaneously bound the 95<sup>th</sup> percentile of the PCT, MLO, and CWO parameters with a 95 percent confidence level. The ASTRUM methodology would preserve the characteristic plant-specific LBLOCA transient while implementing changes or correcting errors in accordance with 10 CFR 50.46(a)(3). For future reanalyses, the ASTRUM methodology would reduce the number of LOCA calculations needed to perform the reanalysis, and therefore reduce unnecessary regulatory burden, while assuring plant safety. The ASTRUM evaluation model is documented in WCAP-16009-P-A. By letter dated November 5, 2004 (ADAMS Accession No. ML043100073), the NRC staff reviewed and approved WCAP-16009-P-A for referencing in license applications (Reference 3).

Accordingly, the licensee performed the plant-specific best-estimate LOCA (BELOCA) reanalysis using the ASTRUM methodology. Table 1 lists the results of the LOCA analyses.

TABLE 1  
LARGE BREAK LOCA RESULTS

PARAMETER	DCPP, Unit No. 2	10 CFR 50.46 LIMITS
Peak Cladding Temperature	1,872 °F	< 2,200 °F
Maximum Local Oxidation	1.64 %	< 17.0 %
Maximum Total Core-Wide Oxidation	0.17 %	< 1.00 %

The results of the LOCA reanalysis are in compliance with 10 CFR 50.46(b) criteria. The licensee has demonstrated that the ASTRUM methodology provides acceptable LOCA results. In addition, the NRC staff has concluded that the analysis was performed in compliance with all the conditions and limitations identified in the NRC safety evaluation. Therefore, the NRC staff concludes that the Westinghouse ASTRUM methodology, as described in WCAP-16009-P-A, is acceptable for use at the DCP, Unit No. 2. Since the licensee used the NRC-approved ASTRUM methodology to comply with 10 CFR 50.46(a)(3) and 10 CFR 50.46(b) criteria and demonstrated that the ASTRUM methodology provided acceptable results at DCP, Unit No. 2, the NRC staff has concluded that WCAP-16009-P-A can be added to TS 5.6.5.b for DCP, Unit No. 2.

In addition, the NRC staff finds that the proposed TS change to add the NRC-approved TR WCAP-16009-P-A to TS 5.6.5.b is consistent with the COLR implementation guidance of GL 88-16. The licensee performed BELOCA analyses with an assumed core power level of 3,468 MWt in order to bound any future potential increase in the license maximum core power associated with a measurement uncertainty recapture power uprate. This analyzed core power level represents a 1.7 percent increase with respect to the current DCP, Unit No. 2, license maximum power level of 3,411 MWt. However, the licensee has not requested, and therefore is not implementing, any core power level change as part of this COLR license amendment. Any such calorimetric power uprate for DCP, Unit No. 2, will require a separate license amendment request for staff review. Based on the evaluation described above, the NRC staff concludes that the proposed TS change is acceptable.

#### 4.0 STATE CONSULTATION

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

## 5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves 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 amendment involves no significant hazards consideration and there has been no public comment on such finding (71 FR 10076; published on February 28, 2006). Accordingly, the amendment meets 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 amendment.

## 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

## 7.0 REFERENCES

1. David H. Oatley (PG&E) letter to USNRC, "Diablo Canyon Unit 2 License Amendment Request 06-02 Revision to Technical Specification 5.6.5, "Core Operating Limits Report (COLR)," dated January 13, 2006.
2. WCAP-16009-P-A, Revision 0, Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM), January 2005. (Westinghouse Proprietary) (Unit 2 Only).
3. Letter from H. N. Berkow (U.S. Nuclear Regulatory Commission) to J. Gresham (Westinghouse Electric Company), "Final Safety Evaluation for WCAP-16009-P, Revision 0, 'Realistic Large Break LOCA Evaluation Methodology Using Automated Statistical Treatment of Uncertainty Method (ASTRUM),' (TAC No. MB9483)," November 5, 2004.

Principal Contributor: K. Desai

Date: December 20, 2006

Diablo Canyon Power Plant, Units 1 and 2

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  
ATTN: Andrew Christie  
P.O. Box 15755  
San Luis Obispo, CA 93406

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  
1055 Monterey Street, Suite D430  
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

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

Director, Radiologic Health Branch  
State Department of Health Services  
P.O. Box 997414, MS 7610  
Sacramento, CA 95899-7414

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 56  
Avila Beach, CA 93424

Jennifer Tang  
Field Representative  
United States Senator Barbara Boxer  
1700 Montgomery Street, Suite 240  
San Francisco, CA 94111