



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

May 19, 2016

Mr. Edward D. Halpin  
Senior Vice President, Generation  
and Chief Nuclear Officer  
Pacific Gas and Electric Company  
Diablo Canyon Power Plant  
P.O. Box 56, Mail Code 104/6  
Avila Beach, CA 93424

SUBJECT: DIABLO CANYON POWER PLANT, UNITS 1 AND 2 - ISSUANCE OF  
AMENDMENTS RE: REVISION OF REACTOR COOLANT SYSTEM (RCS)  
MINIMUM FLOW SPECIFIED IN TECHNICAL SPECIFICATION 3.4.1, "RCS  
PRESSURE, TEMPERATURE, AND FLOW DEPARTURE FROM NUCLEATE  
BOILING (DNB) LIMITS" (CAC NOS. MF6731 AND 6732)

Dear Mr. Halpin:

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 226 to Facility Operating License No. DPR-80 and Amendment No. 228 to Facility Operating License No. DPR-82 for the Diablo Canyon Power Plant (DCPP), Units 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated September 16, 2015.

The amendments revise TS 3.4.1, "RCS [Reactor Coolant System] Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits," to delete current Tables 3.4.1-1, "Reduction in Percent RATED THERMAL POWER for Reduced RCS Flow Rate, Unit 1," and 3.4.1-2, "Reduction in Percent RATED THERMAL POWER for Reduced RCS Flow Rate, Unit 2," and add RCS thermal design flow (TDF) values to the requirements of TS 3.4.1. The change also relocates the RCS minimum measured flow (MMF) values to the DCPP, Units 1 and 2, core operating limits reports (COLR) with a reference to the MMF values in TS 3.4.1 and Surveillance Requirements 3.4.1.3 and 3.4.1.4. Figure 2.1.1-1, "Reactor Core Safety Limit," has been revised to delete a footnote with references to Tables 3.4.1-1 and 3.4.1-2. The change is consistent with NUREG-1431, Volume 1, Revision 4.0, "Standard Technical Specifications, Westinghouse Plants," April 2012; NRC-approved Technical Specification Task Force (TSTF) Change Traveler 339-A, Revision 2, "Relocate TS Parameters to COLR," dated June 13, 2000; and NRC-approved WCAP-14483-A, "Generic Methodology for Expanded Core Operating Limits Report," January 1999.

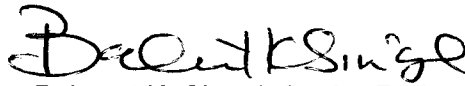
The change is necessary to correct a non-conservative TS 3.4.1 total RCS flow rate value for DCPP, Unit 1. The change also ensures that the TS stays conservative, if the cycle-specific minimum RCS flow is higher than the minimum TDF.

E. Halpin

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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,

A handwritten signature in black ink, appearing to read "Balwant K. Singal". The signature is fluid and cursive, with the first name "Balwant" being more prominent.

Balwant K. Singal, Senior Project Manager  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-275 and 50-323

Enclosures:

1. Amendment No. 226 to DPR-80
2. Amendment No. 228 to DPR-82
3. Safety Evaluation

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

PACIFIC GAS AND ELECTRIC COMPANY

DOCKET NO. 50-275

DIABLO CANYON NUCLEAR POWER PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 226  
License No. DPR-80

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Pacific Gas and Electric Company (the licensee), dated September 16, 2015, 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-80 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 226, are hereby incorporated in the license. Pacific Gas & Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment is effective as of its date of issuance and shall be implemented within 120 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert J. Pascarelli, Chief  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Facility  
Operating License No. DPR-80  
and Technical Specifications

Date of Issuance: May 19, 2016



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

PACIFIC GAS AND ELECTRIC COMPANY

DOCKET NO. 50-323

DIABLO CANYON NUCLEAR POWER PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 228  
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 September 16, 2015, 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 is hereby amended to read as follows:

(2) Technical Specifications (SSER 32, Section 8)\* and Environmental Protection Plan

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 228, are hereby incorporated in the license. Pacific Gas & Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment is effective as of its date of issuance and shall be implemented within 120 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert J. Pascarelli, Chief  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Facility  
Operating License No. DPR-82  
and Technical Specifications

Date of Issuance: May 19, 2016

ATTACHMENT TO LICENSE AMENDMENT NO. 226  
TO FACILITY OPERATING LICENSE NO. DPR-80  
AND AMENDMENT NO. 228 TO FACILITY OPERATING LICENSE NO. DPR-82  
DOCKET NOS. 50-275 AND 50-323

Replace the following pages of the Facility Operating License Nos. DPR-80 and DPR-82, and Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Facility Operating License No. DPR-80

REMOVE

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INSERT

3

Facility Operating License No. DPR-82

REMOVE

3

INSERT

3

Technical Specifications

REMOVE

2.0-2  
3.4.1  
3.4-1a  
3.4-2  
3.4-3

INSERT

2.0-2  
3.4-1  
3.4-1a  
3.4-2  
3.4-3

- (4) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
- (5) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This License shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The Pacific Gas and Electric Company is authorized to operate the facility at reactor core power levels not in excess of 3411 megawatts thermal (100% rated power) in accordance with the conditions specified herein.

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 226 are hereby incorporated in the license. Pacific Gas & Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

(3) Initial Test Program

The Pacific Gas and Electric Company shall conduct the post-fuel-loading initial test program (set forth in Section 14 of Pacific Gas and Electric Company's Final Safety Analysis Report, as amended), without making any major modifications of this program unless modifications have been identified and have received prior NRC approval. Major modifications are defined as:

- a. Elimination of any test identified in Section 14 of PG&E's Final Safety Analysis Report as amended as being essential;



- (4) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
  - (5) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
- C. This License shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:
- (1) Maximum Power Level  
  
The Pacific Gas and Electric Company is authorized to operate the facility at reactor core power levels not in excess of 3411 megawatts thermal (100% rated power) in accordance with the conditions specified herein.
  - (2) Technical Specifications (SSER 32, Section 8)\* and Environmental Protection Plan  
  
The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 228, are hereby incorporated in the license. Pacific Gas & Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.
  - (3) Initial Test Program (SSER 31, Section 4.4.1)  
  
Any changes to the Initial Test Program described in Section 14 of the FSAR made in accordance with the provisions of 10 CFR 50.59 shall be reported in accordance with 50.59(b) within one month of such change.

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\*The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

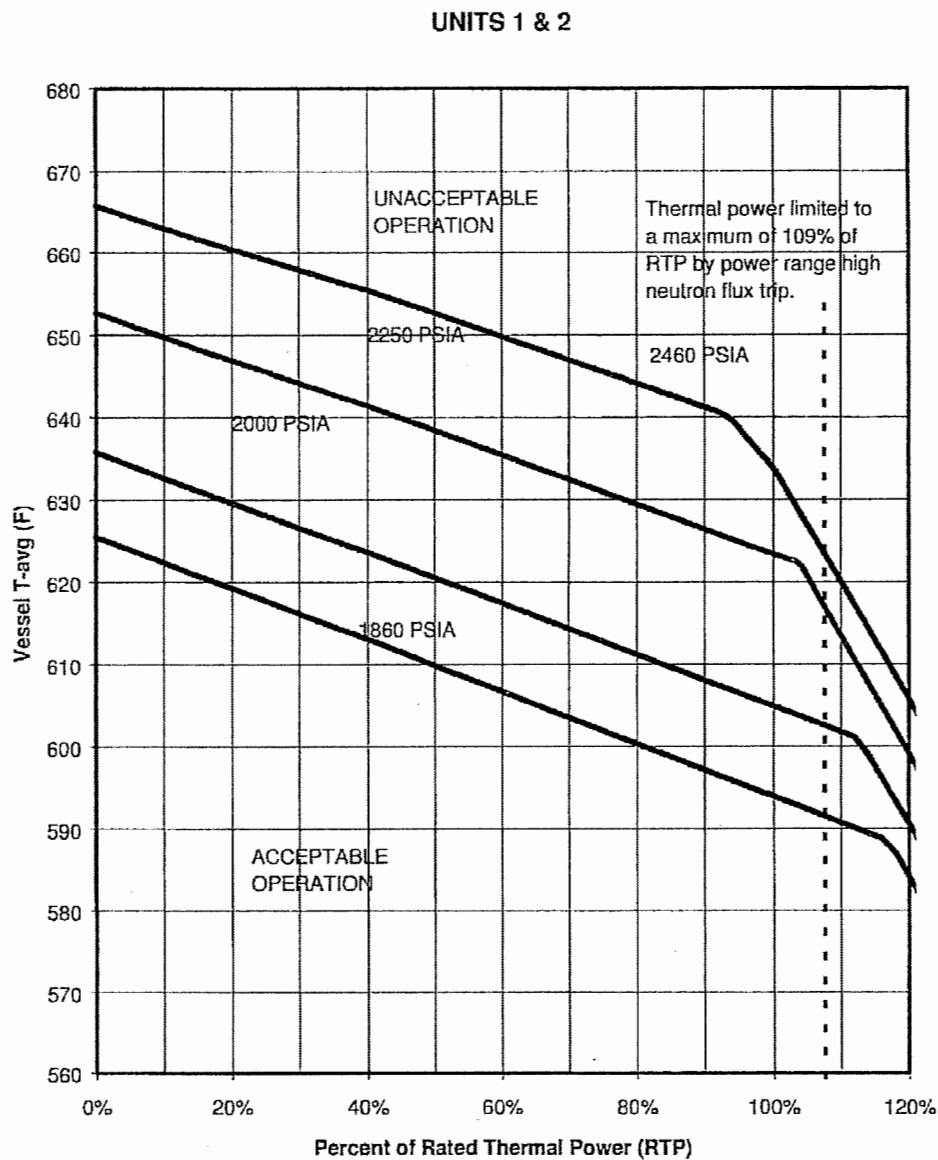


Figure 2.1.1-1  
REACTOR CORE SAFETY LIMIT

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.1 RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits

- LCO 3.4.1      RCS DNB parameters for pressurizer pressure, RCS average temperature, and RCS total flow rate shall be within the limits specified below:
- a. Pressurizer pressure is greater than or equal to the limit specified in the COLR;
  - b. RCS average temperature is less than or equal to the limit specified in the COLR; and
  - c. For Unit 1, RCS total flow rate  $\geq 350,800$  gpm and greater than or equal to the limit specified in the Unit 1 COLR, and for Unit 2, RCS total flow rate  $\geq 354,000$  gpm and greater than or equal to the limit specified in the Unit 2 COLR.

APPLICABILITY:    MODES 1.

-----NOTE-----  
Pressurizer pressure limit does not apply during:

- a.      THERMAL POWER ramp > 5% RTP per minute; or
- b.      THERMAL POWER step > 10% RTP.

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#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more RCS DNB parameters not within limits.	A.1 Restore RCS DNB parameter(s) to within limit.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	Verify pressurizer pressure is greater than or equal to the limit specified in the COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.2	Verify RCS average temperature is less than or equal to the limit specified in the COLR.	In accordance with the Surveillance Frequency Control Program

(continued)

RCS Pressure, Temperature, and Flow DNB Limits  
3.4.1

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.1.3	For Unit 1, verify RCS total flow rate $\geq 350,800$ gpm and greater than or equal to the limit specified in the Unit 1 COLR, and for Unit 2, verify RCS total flow rate $\geq 354,000$ gpm and greater than or equal to the limit specified in the Unit 2 COLR.	In accordance with the Surveillance Frequency Control Program
SR 3.4.1.4	For Unit 1, verify measured RCS total flow rate $\geq 350,800$ gpm and greater than or equal to the limit specified in the Unit 1 COLR, and for Unit 2, verify measured RCS total flow rate $\geq 354,000$ gpm and greater than or equal to the limit specified in the Unit 2 COLR.	In accordance with the Surveillance Frequency Control Program

RCS Pressure, Temperature, and Flow DNB Limits  
3.4.1

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RCS Pressure, Temperature, and Flow DNB Limits  
3.4.1

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 226 TO FACILITY OPERATING LICENSE NO. DPR-80  
AND AMENDMENT NO. 228 TO FACILITY OPERATING LICENSE NO. DPR-82  
PACIFIC GAS AND ELECTRIC COMPANY  
DIABLO CANYON POWER PLANT, UNITS 1 AND 2  
DOCKET NOS. 50-275 AND 50-323

1.0 INTRODUCTION

By application dated September 16, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15259A576), Pacific Gas and Electric Company (the licensee) requested changes to the Technical Specifications (TS, Appendix A to Facility Operating License Nos. DPR-80 and DPR-82) for the Diablo Canyon Power Plant (DCPP), Units 1 and 2.

The amendments revise TS 3.4.1, "RCS [Reactor Coolant System] Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits," to delete current Tables 3.4.1-1, "Reduction in Percent RATED THERMAL POWER for Reduced RCS Flow Rate, Unit 1," and 3.4.1-2, "Reduction in Percent RATED THERMAL POWER for Reduced RCS Flow Rate, Unit 2," and add RCS thermal design flow (TDF) values to the requirements of TS 3.4.1. The change also relocates the RCS minimum measured flow (MMF) values to the DCPP, Units 1 and 2, core operating limits reports (COLR) with a reference to the MMF values in TS 3.4.1 and Surveillance Requirements (SRs) 3.4.1.3 and 3.4.1.4. Figure 2.1.1-1, "Reactor Core Safety Limit," has been revised to delete a footnote with references to Tables 3.4.1-1 and 3.4.1-2. The change is consistent with NUREG-1431, Volume 1, Revision 4.0, "Standard Technical Specifications, Westinghouse Plants," April 2012 (ADAMS Accession No. ML12100A222); U.S. Nuclear Regulatory Commission (NRC)-approved Technical Specification Task Force (TSTF) Change Traveler 339-A, Revision 2, "Relocate TS Parameters to COLR," dated June 13, 2000 (ADAMS Accession No. ML003723269); and NRC-approved WCAP-14483-A, "Generic Methodology for Expanded Core Operating Limits Report," January 1999 (ADAMS Accession No. ML020430092).

The change is necessary to correct a non-conservative TS 3.4.1 total RCS flow rate value for DCPP, Unit 1. The change also ensures that the TS stays conservative, if the cycle-specific minimum RCS flow is higher than the minimum TDF.

## 2.0 REGULATORY EVALUATION

In Section 50.36, "Technical specifications," of Title 10 of the *Code of Federal Regulations* (10 CFR), the Commission established its regulatory requirements related to the content of TS. Pursuant to 10 CFR 50.36, TS are required to include items in the following five specific categories related to station operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) SRs; (4) design features; and (5) administrative controls.

The regulations under 10 CFR 50.36(c)(1) impose a regulatory requirement on licensees to include all safety limits in the TS. Safety limits are defined as limits upon important process variables that are found to be necessary to reasonably protect the integrity of certain of the physical barriers that guard against the uncontrolled release of radioactivity. The departure from nuclear boiling ratio (DNBR) is the ratio of the heat flux needed to cause departure from nucleate boiling (DNB) to the actual local heat flux of a fuel rod. If the heat flux for a rod increases to the point at which DNB occurs, then the surface of the fuel rod cladding will become insulated from the surrounding coolant by a layer of steam due to the rapid conversion of a significant quantity of liquid to vapor. The resulting loss of heat transfer will cause fuel rod heatup and probable failure of the fuel rod geometry, resulting in a loss of a primary fission product barrier. In order to prevent this from occurring, a DNBR limit is established.

The DNBR limit is evaluated using an analysis acceptance criterion consistent with Chapter 15, Revision 3, "Introduction – Transient and Accident Analyses," of NUREG-0800, "Standard Review Plan for Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light Water Reactor] Edition" (SRP), March 2007 (ADAMS Accession No. ML070710376). In the SRP, the fission product barrier represented by the fuel pellet and cladding is assumed to have failed if the DNBR falls below the 95/95 DNBR limit. Therefore, the DNBR limit established in the TS must be sufficiently high to ensure that DNB will not occur on the limiting fuel rods during Condition I and II events, to a 95 percent probability, with 95 percent confidence. In the DNB analyses performed by the licensees, operating parameters such as the RCS flow are assumed to be at a limiting value. Therefore, the RCS flow must remain within the bounds of the DNB analysis assumptions during normal operations to ensure that the DNBR acceptance criterion continues to be met.

Finally, 10 CFR 50.36(c)(5) describes a requirement to include any provisions relating to procedures, recordkeeping, and reporting necessary to assure operation of the facility in a safe manner. NRC Generic Letter 88-16, "Removal of Cycle-Specific Parameter Limits from Technical Specifications," dated October 4, 1988 (ADAMS Accession No. ML031150407), provides guidance on inclusion of a section under the administrative controls listed in the TS that addresses the use of the COLR to report data to the NRC that has been calculated using NRC-approved methodologies. For DCP, Units 1 and 2, this information is found in Section 5.6.5, "Core Operating Limits Report (COLR)," of the TS. In addition to the requirement to establish core operating limits and document them in the COLR, the DCP, Units 1 and 2, TS also includes a list of specific NRC-approved analytical methodologies that can be used to determine the core operating limits.



### 3.0 TECHNICAL EVALUATION

#### 3.1 Proposed TS Changes

The licensee is requesting the following changes to the DCPD TSs related to TS 3.4.1:

- Revise LCO 3.4.1.c and SRs 3.4.1.3 and 3.4.1.4, which provide the minimum RCS flow in order to ensure that the core operations remain within the bounds of the parameters assumed by the DNB analyses performed for DCPD. The LCO and SRs have been revised to reference DCPD, Units 1 and 2, analytical TDF values that were explicitly approved by the NRC, and the cycle-specific RCS MMF values provided in the COLR.
- Delete Tables 3.4.1-1 and 3.4.1-2, as well as a footnote referencing the aforementioned tables in Figure 2.1.1-1.

TS 3.4.1 (LCO 3.4.1.c; SRs 3.4.1.3 and 3.4.1.4; Tables 3.4.1-1 and 3.4.1-2, and Figure 2.1.1-1) will be revised as follows:

##### LCO 3.4.1.c

LCO 3.4.1.c currently states:

RCS total flow rate within limits shown on Table 3.4.1-1 for Unit 1 and Table 3.4.1-2 for Unit 2.

LCO 3.4.1.c would be revised to state:

For Unit 1, RCS total flow rate  $\geq 350,800$  gpm [gallons per minute] and greater than or equal to the limit specified in the Unit 1 COLR, and for Unit 2, RCS total flow rate  $\geq 354,000$  gpm and greater than or equal to the limit specified in the Unit 2 COLR.

##### SR 3.4.1.3

SR 3.4.1.3 currently states:

Verify RCS total flow rate is within limits.

SR 3.4.1.3 would be revised to state:

For Unit 1, verify RCS total flow rate  $\geq 350,800$  gpm and greater than or equal to the limit specified in the Unit 1 COLR, and for Unit 2, verify RCS total flow rate  $\geq 354,000$  gpm and greater than or equal to the limit specified in the Unit 2 COLR.

#### SR 3.4.1.4

SR 3.4.1.4 currently states:

Verify measured RCS total flow rate is within limits.

SR 3.4.1.4 would be revised to state:

For Unit 1, verify measured RCS total flow rate  $\geq 350,800$  gpm and greater than or equal to the limit specified in the Unit 1 COLR, and for Unit 2, verify measured RCS total flow rate  $\geq 354,000$  gpm and greater than or equal to the limit specified in the Unit 2 COLR.

#### Tables 3.4.1-1 and 3.4.1-2

Delete Tables 3.4.1-1 and 3.4.1-2 in their entirety.

#### Figure 2.1.1-1

Current Figure 2.1.1-1 has the following footnote:

When operating in the reduced RTP [rated thermal power] region of Technical Specification LCO 3.4.1 (Table 3.4.1-1 for Unit 1 and Table 3.4.1-2 for Unit 2) the restricted power level must be considered 100% for this Figure.

The footnote makes a reference to Tables 3.4.1-1 and 3.4.1-2, which are being deleted. Hence, the footnote is no longer applicable and is being deleted.

### 3.2 NRC Staff Evaluation

#### 3.2.1 Modification of TS 3.4.1 Minimum RCS Flow Values (LCO 3.4.1 and SRs 3.4.1-3 and 3.4.1-4)

The modification being proposed by the licensee to the minimum RCS flow values provided in LCO 3.4.1.c, SR 3.4.1.3, and SR 3.4.1.4: (1) provides an explicit minimum RCS flow equal to the TDF used in the licensing analyses that have previously been reviewed and approved by the NRC, and (2) references the COLR for the RCS MMF value used in cycle-specific DNB analyses using NRC-approved methodologies. The intent is to ensure that the RCS flow at full power will remain above the highest (most limiting) of the two possible values.

The DCPD, Unit 1 RCS flow specified by the existing TS Table 3.4.1-1 for 100 percent power is 359,000 gpm. However, the TS value is less than 359,200 gpm RCS MMF value specified in the DCPD Updated Final Safety Analysis Report (UFSAR). The licensee stated that the intent of this change is to correct a non-conservative TS for DCPD, Unit 1. The previous RCS minimum flow value provided in the TS was based on analyses performed in 1990. However, the licensee identified that the current Unit 1 RCS MMF value as stated in the UFSAR was higher. The MMF value is used to evaluate DNB-related events using the Improved Thermal Design Procedure (ITDP), and conservatively accounts for measurement uncertainty and bias in

the RCS core flow value. Therefore, an RCS flow that is less than the MMF value, even if above the value given in the TS, would invalidate the DNB-related event evaluations performed as part of the ITDP.

The licensee has already implemented administrative controls to make sure that the DCP, Unit 1, RCS flow would remain above the MMF value.

As part of the long-term corrective actions to address the non-conservative TS, the licensee is proposing a new TS that is consistent with the NRC staff position on relocating the RCS flow rate to the COLR from the Safety Evaluation Report for WCAP-14483-A, "Generic Methodology for Expanded Core Operating Limits Report," January 1999. In summary, the NRC staff envisioned that it would be acceptable for plants to relocate the RCS flow rate limit to the COLR, as described in TSTF-339-A, Revision 2, "Relocate TS Parameters to COLR," May 2000. However, for WCAP-14483-A, the NRC staff recommended that if the RCS flow rate limit is relocated to the COLR, the minimum limit based on analyses previously reviewed and approved by NRC staff (i.e., with a maximum steam generator tube plugging) should be retained in the TS to assure that a lower flow rate than reviewed by the NRC staff would not be used. The licensee accommodated this recommendation by including the TDF values in the TS from the UFSAR analyses that have previously been reviewed and approved by NRC staff. The TDF values are not explicitly provided in the UFSAR, but the staff performed hand calculations based on the UFSAR nominal operating parameters to verify that the TDF values in the proposed TS revision are about 2-3 percent lower than the current minimum RCS flow limits. As a result of these calculations, the NRC staff determined that the TDF values are consistent with the current TS minimum RCS flow limits combined with the 2.4 percent flow uncertainty allowance described in the DCP TS Bases.

In addition to the explicit TDF values in the TS, the revised TS 3.4.1 also references the COLR to ensure that the RCS flow during full-power operation would be bounded by both the TDF value and the MMF value in the COLR. In order to ensure that the appropriate limit will be established and documented in the COLR, the specific limit and NRC-approved methodology used to determine the value of the limit must be included in TS 5.6.5. A review of the DCP TS indicates that the licensee had already included the RCS flow DNB limit in TS 3.4.1 as part of TS 5.6.5.a.9. The NRC-approved methodology that is being used by the licensee to evaluate DNB events with the MMF value is proprietary technical report WCAP-8567-P-A, "Improved Thermal Design Procedure," February 1989, which is included as TS 5.6.5.b.9. Technical Specifications 3.4.1 and 5.6.5 ensure that the required minimum RCS flow rate is evaluated and documented in the COLR for all current and future operating cycles.

The proposed revision to the TS, along with other existing provisions of the TS, is sufficient to meet the NRC staff recommendations and positions with respect to relocation of the RCS flow DNB limit to the COLR. The NRC staff concludes that the proposed revision to resolve the prior non-conservative TS, because it ensures that the RCS flow at full power, is bounded by all supporting safety analyses, regardless of whether they use the TDF or MMF value.

### 3.2.2 Removal of TS Tables 3.4.1-1 and 3.4.1-2 and Deletion of Note on Figure 2.1.1-1

The licensee is proposing the removal of TS Tables 3.4.1-1 and 3.4.1-2, as well as a footnote in Figure 2.1.1-1 that references the aforementioned tables. The licensee explained that the tables were previously needed to implement a less-restrictive minimum RCS flow value at powers between 90 percent and 100 percent. This was due to deficiencies in the calorimetric method by which the licensee was determining the RCS flow under some conditions. The licensee indicated that DCP, Units 1 and 2, now solely relies on the elbow tap method to determine RCS flow, so the relaxed RCS minimum flow limits at lower powers are no longer necessary. The footnote in Figure 2.1.1-1 clarified that when operating in the power-flow region defined by Tables 3.4.1-1 and 3.4.1-2, then for purposes of determining the acceptable operating vessel T-avg for a given pressure based on this figure, the power level must be assumed to be at 100 percent. Since this power-flow region will no longer be available for use by DCP, Units 1 and 2, this footnote no longer applies.

The removal of Tables 3.4.1-1 and 3.4.1-2 is more conservative because it removes the option of relaxing the minimum RCS flow at powers between 90 percent and 100 percent. Therefore, the NRC staff concludes the proposed deletions to be acceptable.

### 3.2.3 Departures from NRC-Approved Methodology

No departures from NRC-approved methodologies were identified in the proposed DCP, Units 1 and 2, TS changes.

### 3.2.4 NRC Staff Conclusion

The NRC staff concludes that based on appropriate implementation of NRC guidance on relocation of RCS flow DNB limits to the COLR and the conservatism of the changes, the licensee's proposed changes to the DCP, Units 1 and 2, TS 3.4.1 (LCO 3.4.1.c, SRs 3.4.1-3 and 3.4.1-4, Tables 3.4.1-1 and 3.4.1-2, and Figure 2.1.1-1) are acceptable.

## 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the California State official was notified of the proposed issuance of the amendments. The State official had the following comment:

The California State Liaison Officer to the Nuclear Regulatory Commission, Robert B. Weisenmiller, agrees with the NRC staff's evaluation concerning the Issuance of a License Amendment for Diablo Canyon Power Plant, Units 1 and 2 to modify Technical Specification 3.4.1, Federal Register Notice dated November 10, 2015 (80 FR 69714). We support these necessary changes because in addition to correcting a minor discrepancy between the TS limits and the UFSAR, these changes would slightly improve the safety margins in the required minimum flow of the Reactor Coolant System (RCS) core operating limits for both units.

Hence, the California State official supported approval of the license amendment request.

## 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change 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 amendments involve 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 amendments involve no significant hazards consideration and there has been no public comment on such finding published in the *Federal Register* on November 10, 2015 (80 FR 69714). Accordingly, the amendments meet 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 amendments.

## 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) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Scott T. Krepel, NRR/DSS/SNPB

Date: May 19, 2016

E. Halpin

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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/

Balwant K. Singal, Senior Project Manager  
Plant Licensing Branch IV-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-275 and 50-323

Enclosures:

1. Amendment No. 226 to DPR-80
2. Amendment No. 228 to DPR-82
3. Safety Evaluation

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**Memo dated April 12, 2016**

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DATE	5/5/16	5/2/16	4/12/16	5/6/16
OFFICE	OGC – NLO w/comments	NRR/DORL/LPL4-1/BC	NRR/DORL/LPL4-1/PM	
NAME	JLindell	RPascarelli	BSingal	
DATE	5/13/16	5/17/16	5/19/16	

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