



**Pacific Gas and
Electric Company®**

James R. Becker
Site Vice President and
Station Director

Diablo Canyon Power Plant
Mail Code 104/5/502
P. O. Box 56
Avila Beach, CA 93424

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PG&E Letter DCL-08-061

805.545.3462
Internal: 691.3462
Fax: 805.545.4234

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

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
10 CFR 50.46 Annual Report of Emergency Core Cooling System Evaluation Model
Changes for 2007

Dear Commissioners and Staff:

Pursuant to 10 CFR 50.46, this letter provides an annual report of changes in the Westinghouse emergency core cooling system (ECCS) evaluation models that affect peak cladding temperature (PCT) calculations for Pacific Gas and Electric Company (PG&E) Diablo Canyon Power Plant (DCPP), Units 1 and 2.

There have been no changes in the Unit 1 small-break loss-of-coolant accident (SBLOCA) PCT results or the large break best estimate loss of coolant accident (BELOCA) PCT results since the last annual update. The last update was provided in PG&E Letter DCL-07-071, "10 CFR 50.46 Annual Report of Emergency Core Cooling System Evaluation Model Changes for 2006," dated July 23, 2007.

Replacement Steam Generators (RSGs) were recently installed during the Unit 2 fourteenth refueling outage which concluded in April of this year. In support of this design change, a new SBLOCA analysis was performed using the previously approved NOTRUMP methodology. This new analysis of record for Unit 2 has been implemented in accordance with 10 CFR 50.59.

As reported last year in DCL-07-071, a new BELOCA analysis of record was performed for Unit 2 using the ASTRUM methodology and implemented per License Amendment 192. This BELOCA analysis already conservatively bounds the RSGs and remains the analysis of record for Unit 2.

A summary of the updated PCT margin allocations and their bases are provided in the enclosure. The Unit 1 SBLOCA and BELOCA PCT Margin Utilization sheets are provided in Attachment A. The Unit 2 SBLOCA and BELOCA PCT Margin Utilization Sheets are provided in Attachment B. The ECCS evaluation model

A002
NRR

changes that have occurred since the last annual report are summarized in Attachment C.

The new PCT values remain within the 2200°F limit specified in 10 CFR 50.46. There are no new or revised regulatory commitments in this report.

If you have questions regarding this submittal please contact Mr. Nozar Jahangir at 805-545-4674.

Sincerely,

A handwritten signature in black ink, appearing to read 'JR Becker', with a large, stylized flourish at the end.

James R. Becker
Site Vice President and Station Director

ddm/2254/A0674893

Enclosure

cc/enc: Elmo E. Collins, NRC Region IV
Michael S. Peck, NRC Senior Resident Inspector
Alan B. Wang, NRR Project Manager
Diablo Distribution

**ANNUAL REPORT OF EMERGENCY CORE COOLING SYSTEM
EVALUATION MODEL CHANGES FOR PEAK CLADDING TEMPERATURE**

Pursuant to 10 CFR 50.46, this enclosure provides an annual report of changes in the Westinghouse emergency core cooling system (ECCS) evaluation models that affect peak cladding temperature (PCT) calculations for Pacific Gas and Electric Company (PG&E) Diablo Canyon Power Plant (DCPP), Units 1 and 2. This report is based on changes described in the following Westinghouse 10 CFR 50.46 notification letters:

Westinghouse Letter LTR-LIS-08-45, "10 CFR 50.46 Annual Notification and Reporting for 2007," dated January 31, 2008.

Attachment A to this enclosure provides DCP Unit 1 small-break loss-of-coolant accident (SBLOCA) and best estimate large-break loss of coolant accident (BELOCA) PCT Margin Utilization Sheets. Attachment B to this enclosure provides DCP Unit 2 SBLOCA and BELOCA PCT Margin Utilization Sheets. There have been no changes in the Unit 1 SBLOCA PCT results or the large break BELOCA since the last annual update. The last update was provided in PG&E Letter DCL-07-071, "10 CFR 50.46 Annual Report of Emergency Core Cooling System Evaluation Model Changes for 2006," dated July 23, 2007.

Replacement Steam Generators (RSGs) were recently installed during the Unit 2 fourteenth refueling outage which concluded in April of 2008. In support of this design change, a new SBLOCA analysis was performed using the previously approved NOTRUMP methodology. This new analysis of record for Unit 2 has been implemented in accordance with 10 CFR 50.59.

As reported last year in DCL-07-071, a new BELOCA analysis of record was performed for Unit 2 using the ASTRUM methodology and implemented per License Amendment LA 192. This BELOCA analysis already conservatively bounds the RSGs and remains the analysis of record for Unit 2.

The summary of the updated PCT margin allocations and their bases are provided in the attachments, and the final net PCT values are listed below for each unit. It should be noted that two PCT values are reported for the Unit 1 BELOCA consistent with the current Westinghouse PCT tracking methodology. The two BELOCA PCT values are labeled Reflood 1 and Reflood 2, as they represent the two distinctive PCT peaks that occur during the reflood phase for the Unit 1 BELOCA methodology, while the Unit 2 ASTRUM methodology reports only one PCT value.

Small-Break LOCA

Unit 1: 1352°F (no change)

Unit 2: 1288°F

Large-Break Best Estimate LOCA

Reflood 1

1915°F (no change)

Reflood 2

1865°F (no change)

1872°F (no change)

The new PCT values remain within the 2200°F limit specified in 10 CFR 50.46. The ECCS evaluation model changes that have occurred since the last annual report are summarized in Attachment C.

DCPP UNIT 1 PEAK CLADDING TEMPERATURE MARGIN UTILIZATION

SMALL-BREAK LOCA

PG&E Letter¹

A.	ANALYSIS OF RECORD	PCT =	1304°F	DCL-99-096
B.	PRIOR 10 CFR 50.46 ECCS MODEL ASSESSMENTS ²			
1.	NOTRUMP Mixture Level Tracking/Region Depletion Errors	Δ PCT =	13°F	DCL-00-107
2.	NOTRUMP Bubble Rise/Drift Flux Model Inconsistency Corrections	Δ PCT =	35°F	DCL-04-094
C.	10 CFR 50.46 ECCS MODEL ASSESSMENTS THIS YEAR			
1.	None	Δ PCT =	0°F	
D.	SUM OF 10 CFR 50.46 CHANGES			
1.	Net Sum of 10 CFR 50.46 PCT Changes	Δ PCT =	48°F	
2.	Absolute Sum of 10 CFR 50.46 PCT Changes	Δ PCT =	48°F	
E.	Analysis of Record PCT - Line A + Line D.1 Net Sum of 10 CFR 50.46 PCT Changes		<hr/> 1352°F	

The sum of the PCT from the most recent analysis of record using an acceptable evaluation model and the estimates of the net PCT effect for changes and errors identified since this analysis remain less than 2200°F.

¹ For those issues that have been previously reported under 10 CFR 50.46, a PG&E letter number is listed.

² Only permanent assessments of PCT margin are included. Temporary PCT allocations that address current LOCA model issues are not considered with respect to 10 CFR 50.46 reporting requirements.

DCPP UNIT 1 PEAK CLADDING TEMPERATURE MARGIN UTILIZATION

<u>BEST ESTIMATE LARGE-BREAK LOCA</u>		<u>PG&E Letter¹</u>	
	Reflood 1	Reflood 2	
A. ANALYSIS OF RECORD	1900°F	1860°F	DCL-05-146
	<u>ΔPCT</u>	<u>ΔPCT</u>	
B. PRIOR 10 CFR 50.46 ECCS MODEL ASSESSMENTS ²			
1. Revised blowdown heatup uncertainty distribution.	5°F	5°F	DCL-05-086
2. HOTSPOT Fuel Relocation Error.	10°F	0°F	DCL-07-071
C. 10 CFR 50.46 ECCS MODEL ASSESSMENTS THIS YEAR			
1. None	0°F	0°F	
D. SUM OF 10 CFR 50.46 CHANGES			
1. Net Sum of 10 CFR 50.46 PCT Changes	15°F	5°F	
2. Absolute Sum of 10 CFR 50.46 PCT Changes	15°F	5°F	
E. Analysis of Record PCT - Line A + Line D.1 Net Sum of 10 CFR 50.46 PCT Changes	1915°F	1865°F	

The sum of the PCT from the most recent analysis of record using an acceptable evaluation model and the estimates of the net PCT effect for changes and errors identified since this analysis remain less than 2200°F.

¹ For those issues that have been previously reported under 10 CFR 50.46, a PG&E letter number is listed.

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DCPP UNIT 2 PEAK CLADDING TEMPERATURE MARGIN UTILIZATION

SMALL-BREAK LOCA

PG&E Letter¹

A.	ANALYSIS OF RECORD	PCT =	1288°F	This letter in Attachment C
B.	PRIOR 10 CFR 50.46 ECCS MODEL ASSESSMENTS ²			
	1. None	Δ PCT =	0°F	
C.	10 CFR 50.46 ECCS MODEL ASSESSMENTS THIS YEAR			
	2. None	Δ PCT =	0°F	
D.	SUM OF 10 CFR 50.46 CHANGES			
	3. Net Sum of 10 CFR 50.46 PCT Changes	Δ PCT =	0°F	
	4. Absolute Sum of 10 CFR 50.46 PCT Changes	Δ PCT =	0°F	
E.	Analysis of Record PCT - Line A + Line D.1 Net Sum of 10 CFR 50.46 PCT Changes		<hr/> 1288°F	

The sum of the PCT from the most recent analysis of record using an acceptable evaluation model and the estimates of the net PCT effect for changes and errors identified since this analysis remain less than 2200°F.

¹ For those issues that have been previously reported under 10 CFR 50.46, a PG&E Letter number is listed.

² Only permanent assessments of PCT margin are included. Temporary PCT allocations that address current LOCA model issues are not considered with respect to 10 CFR 50.46 reporting requirements.

DCPP UNIT 2 PEAK CLADDING TEMPERATURE MARGIN UTILIZATION

<u>BEST ESTIMATE LARGE-BREAK LOCA</u>		<u>PG&E Letter¹</u>	
A.	ANALYSIS OF RECORD	PCT=	1872°F DCL-07-071
B.	PRIOR 10 CFR 50.46 ECCS MODEL ASSESSMENTS ²		
	1. HOTSPOT Fuel Relocation Error.	Δ PCT=	0°F DCL-07-071
C.	10 CFR 50.46 ECCS MODEL ASSESSMENTS THIS YEAR		
	1. None	Δ PCT=	0°F
D.	SUM OF 10 CFR 50.46 CHANGES		
	1. Net Sum of 10 CFR 50.46 PCT Changes	Δ PCT=	0°F
	2. Absolute Sum of 10 CFR 50.46 PCT Changes	Δ PCT=	0°F
E.	Analysis of Record PCT - Line A + Line D.1 Net Sum of 10 CFR 50.46 PCT Changes		<hr/> 1872°F

The sum of the PCT from the most recent analysis of record using an acceptable evaluation model and the estimates of the net PCT effect for changes and errors identified since this analysis remain less than 2200°F.

¹ For those issues that have been previously reported under 10 CFR 50.46, a PG&E letter number is listed.

² Only permanent assessments of PCT margin are included. Temporary PCT allocations that address current LOCA model issues are not considered with respect to 10 CFR 50.46 reporting requirements.

**CURRENT EMERGENCY CORE COOLING SYSTEM MODEL
CHANGES AND ERRORS**

Best Estimate Loss-of-Coolant Accident (BELOCA)

None.

Small-Break Loss-of-Coolant Accident (SBLOCA)

Unit 2 SBLOCA Analysis with Replacement Steam Generators (RSGs)

In support of the installation of RSGs during the recent Unit 2 fourteenth refueling outage, a new SBLOCA analysis was performed using the previously approved NOTRUMP methodology. This new SBLOCA analysis explicitly modeled the RSGs and incorporated the ECCS model changes previously reported in DCL-07-071 such that there are currently no outstanding PCT assessments for this new SBLOCA analysis of record for Unit 2 which has been implemented in accordance with 10 CFR 50.59.