



May 20, 2020

PG&E Letter DCL-20-043

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

10 CFR 50.46

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
Thirty-Day Notification Report of Significant Emergency Core Cooling System
Evaluation Model Changes That Affect Peak Cladding Temperature and
10 CFR 50.46 Annual Report of Emergency Core Cooling System Evaluation Model
Changes for Peak Cladding Temperature for 2019

- Reference:
1. NRC Letter “Diablo Canyon Nuclear Power Plant, Units 1 and 2 – Issuance of Amendment Nos. 234 and 236 to Revise Technical Specification 5.6.5b, ‘Core Operating Limits Report (COLR),’ for Full Spectrum Loss-of-Coolant Accident Methodology (EPID L-2018-LLA-0730),” dated January 9, 2020
 2. WCAP-16996-P-A, Revision 1, “Realistic LOCA Evaluation Methodology Applied to the Full Spectrum of Break Sizes (FULL SPECTRUM LOCA Methodology),” November 2016
 3. PG&E Letter DCL-18-100, “License Amendment Request 18-02, License Amendment Request to Revise Technical Specification 5.6.5b, ‘Core Operating Limits Report (COLR)’ for Full Spectrum Loss-of-Coolant Accident Methodology,” dated December 26, 2018 [ML19003A196]
 4. PG&E Letter DCL-19-071, “Supplement to License Amendment Request 18-02, License Amendment Request to Revise Technical Specification 5.6.5b, ‘Core Operating Limits Report (COLR)’ for Full Spectrum Loss-of-Coolant Accident Methodology,” dated September 23, 2019 [ML19266A657]
 5. PG&E Letter DCL-19-078, “10 CFR 50.46 Annual Report of Emergency Core Cooling System Evaluation Model Changes for Peak Cladding Temperature for 2018,” dated October 3, 2019 [ML19276H763]

Dear Commissioners and Staff:

Pursuant to 10 CFR 50.46(a)(3)(ii), Pacific Gas and Electric Company (PG&E) is providing a 30-day notification report of significant changes in the Westinghouse emergency core cooling system (ECCS) evaluation models that affect peak cladding temperature (PCT) calculations for Diablo Canyon Power Plant (DCPP), Units 1 and 2. The changes in PCT are due to the implementation of the Amendments 234 and 236 for Diablo Canyon Power Plant (DCPP) Unit 1 and 2, respectively (Reference 1). This report is for the Westinghouse Full Spectrum™ Loss-of-Coolant Accident (LOCA) Methodology Evaluation Model [FSLOCA™ EM] (Reference 2) that were requested by PG&E in References 3 and 4. In addition, PG&E is providing the annual report of changes in the Westinghouse ECCS evaluation models that affect PCT calculations for DCPP from the last report provided in October 2019 (Reference 5).

The changes included in the FSLOCA™ EM WCOBRA/TRAC-TF2 code Version 1.4 utilized in the DCPP analyses, from the original NRC-approved WCOBRA/TRAC-TF2 Version 1.3, were previously identified and provided to the staff in Reference 3. These changes were assessed by the staff in section 3.3 of Reference 1 as part of approval of the DCPP FSLOCA™ EM analyses. In addition, a WCOBRA/TRAC-TF2 code error in the gamma energy redistribution multiplier had been previously identified and provided to the staff in Reference 4. This code error was assessed by the staff in Section 3.3 of Reference 1 as part of the NRC approval of the DCPP analyses.

The enclosures provide a summary of the PCT values and their bases. Enclosure 1 contains the results of the FSLOCA™ EM for DCPP Unit 1, for the large-break and small-break regions. Enclosure 2 contains the results of the FSLOCA™ EM for DCPP Unit 2, for the large-break and small-break regions. The PCT results were previously evaluated by the NRC in Reference 1 based on Tables 4 and 5 of Attachment 1 in the Enclosure to Reference 4 for DCPP Units 1 and 2, respectively. For both DCPP units, the large-break region PCT is limiting, and substantial margin exists to the 10 CFR 50.46(b)(1) PCT limit of 2200 °F.

PG&E makes no new or revised regulatory commitments (as defined by NEI 99 04) in this letter.

If you have questions regarding this submittal please contact Mr. Mark Frauenheim at 805-545-3744.

Sincerely,

A handwritten signature in black ink, appearing to read "Paula Gerfen". The signature is fluid and cursive, with the first name "Paula" and last name "Gerfen" clearly distinguishable.

Paula Gerfen
Site Vice President

kjse/4328
Enclosures

cc: Diablo Distribution
cc/enc: Scott A. Morris, NRC Region IV Administrator
Christopher W. Newport, NRC Senior Resident Inspector
Balwant K. Singal, NRR Senior Project Manager

**FSLOCA™ Evaluation Model Peak Cladding Temperature
Results for Diablo Canyon Power Plant Unit 1
Large-break and Small-break Regions**

(2 pages)

LOCA Peak Cladding Temperature (PCT) Summary

Plant Name:	DIABLO CANYON 1
Utility Name:	Pacific Gas & Electric
EM:	FSLOCA
AOR Description:	FULL SPECTRUM LOCA EM Large Break
Summary Sheet Status:	Amendment 234 Implementation

	PCT (°F)	Reference #	Note #
ANALYSIS-OF-RECORD	1713	1,2	(a)

AOR + ASSESSMENTS	PCT = 1713.0 °F
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REFERENCES

- 1 WCAP-18375-P, "Engineering Summary Report of the Diablo Canyon Unit 1 Loss-of-Coolant Accident (LOCA) Analysis with the FULL SPECTRUM LOCA (FSLOCA) Methodology," September 2018.
- 2 PGE-19-16, "Pacific Gas & Electric Company, Supplemental LAR and FSAR Markups for the Diablo Canyon Unit 1 and 2 Analyses with the FULL SPECTRUM LOCA Evaluation Model," August 2019.

NOTES:

- (a) The analysis-of-record PCT reflects the uncertainty analysis that included the errors in gamma energy redistribution uncertainty and containment model inputs (1676°F) as well as the correction of the errors (31°F and 6°F, respectively).

LOCA Peak Cladding Temperature (PCT) Summary

Plant Name:	DIABLO CANYON 1
Utility Name:	Pacific Gas & Electric
EM:	FSLOCA
AOR Description:	FULL SPECTRUM LOCA EM Small Break
Summary Sheet Status:	Amendment 234 Implementation

	PCT (°F)	Reference #	Note #
ANALYSIS-OF-RECORD	1116	1,2	(a)

AOR + ASSESSMENTS	PCT = 1116.0 °F
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REFERENCES

- 1 WCAP-18375-P, "Engineering Summary Report of the Diablo Canyon Unit 1 Loss-of-Coolant Accident (LOCA) Analysis with the FULL SPECTRUM LOCA (FSLOCA) Methodology," September 2018.
- 2 PGE-19-16, "Pacific Gas & Electric Company, Supplemental LAR and FSAR Markups for the Diablo Canyon Unit 1 and 2 Analyses with the FULL SPECTRUM LOCA Evaluation Model," August 2019.

NOTES:

- (a) The analysis-of-record PCT reflects the uncertainty analysis that included the error in gamma energy redistribution uncertainty (1099°F) as well as the correction of the error (17°F).

**FSLOCA™ Evaluation Model Peak Cladding Temperature
Results for Diablo Canyon Power Plant Unit 2
Large-break and Small-break Regions**

(2 pages)

LOCA Peak Cladding Temperature (PCT) Summary

Plant Name:	DIABLO CANYON 2
Utility Name:	Pacific Gas & Electric
EM:	FSLOCA
AOR Description:	FULL SPECTRUM LOCA EM Large Break
Summary Sheet Status:	Amendment 236 Implementation

	PCT (°F)	Reference #	Note #
ANALYSIS-OF-RECORD	1605	1,2	(a)

AOR + ASSESSMENTS	PCT = 1605.0 °F
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REFERENCES

- 1 WCAP-18384-P, "Engineering Summary Report of the Diablo Canyon Unit 2 Loss-of-Coolant Accident (LOCA) Analysis with the FULL SPECTRUM LOCA (FSLOCA) Methodology," October 2018.
- 2 PGE-19-16, "Pacific Gas & Electric Company, Supplemental LAR and FSAR Markups for the Diablo Canyon Unit 1 and 2 Analyses with the FULL SPECTRUM LOCA Evaluation Model," August 2019.

NOTES:

- (a) The analysis-of-record PCT reflects the uncertainty analysis that included the error in gamma energy redistribution uncertainty (1574°F) as well as the correction of the error (31°F).

LOCA Peak Cladding Temperature (PCT) Summary

Plant Name:	DIABLO CANYON 2
Utility Name:	Pacific Gas & Electric
EM:	FSLOCA
AOR Description:	FULL SPECTRUM LOCA EM Small Break
Summary Sheet Status:	Amendment 236 Implementation

	PCT (°F)	Reference #	Note #
ANALYSIS-OF-RECORD	1021	1,2	(a)

AOR + ASSESSMENTS	PCT = 1021.0 °F
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REFERENCES

- 1 WCAP-18384-P, "Engineering Summary Report of the Diablo Canyon Unit 2 Loss-of-Coolant Accident (LOCA) Analysis with the FULL SPECTRUM LOCA (FSLOCA) Methodology," October 2018.
- 2 PGE-19-16, "Pacific Gas & Electric Company, Supplemental LAR and FSAR Markups for the Diablo Canyon Unit 1 and 2 Analyses with the FULL SPECTRUM LOCA Evaluation Model," August 2019.

NOTES:

- (a) The analysis-of-record PCT reflects the uncertainty analysis that included the error in gamma energy redistribution uncertainty (1012°F) as well as the correction of the error (9°F).