



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

October 11, 2019

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

**SUBJECT: DIABLO CANYON NUCLEAR POWER PLANT, UNITS 1 AND 2 –
REGULATORY AUDIT SUMMARY REGARDING LICENSE AMENDMENT
REQUEST TO REVISE TECHNICAL SPECIFICATION FOR USE OF FULL
SPECTRUM LOSS-OF-COOLANT ACCIDENT METHODOLOGY
(EPID L-2018-LLA-0730)**

Dear Mr. Welsch:

By letter dated December 26, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19003A196), as supplemented by letter dated September 23, 2019 (ADAMS Accession No. ML19266A657), Pacific Gas and Electric Company submitted a license amendment request (LAR) for Diablo Canyon Nuclear Power Plant, Units 1 and 2 (Diablo Canyon) proposing changes to Technical Specification 5.6.5b, "Core Operating Limits Report (COLR)," for use of Full Spectrum Loss-of-Coolant Accident Methodology.

To support its review of the LAR, the U.S. Nuclear Regulatory Commission staff conducted a regulatory audit via internet-based portal from April 29 to October 2, 2019 to verify information submitted by the licensee and the supporting documentation. The regulatory audit summary is enclosed with this letter.

If you have any questions, please contact me at 301-415-3016 or via e-mail at Balwant.Singal@nrc.gov.

Sincerely,

/RA/

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

Docket Nos. 50-275 and 50-323

Enclosure:
Regulatory Audit Summary

cc: Listserv

SUBJECT: DIABLO CANYON NUCLEAR POWER PLANT, UNITS 1 AND 2 –
REGULATORY AUDIT SUMMARY REGARDING LICENSE AMENDMENT
REQUEST TO REVISE TECHNICAL SPECIFICATION FOR USE OF FULL
SPECTRUM LOSS-OF-COOLANT ACCIDENT METHODOLOGY
(EPID L-2018-LLA-0730) DATED OCTOBER 11, 2019

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ADAMS Accession No.: ML19276F243

via email dated

OFFICE	NRR/DORL/LPL4/PM	NRR/DORL/LPL4/LA	NRR/DSS/SRXB/BC*
NAME	BSingal	PBlechman	JBorromeo
DATE	10/4/19	10/4/19	10/8/19
OFFICE	NRR/DORL/LPL4/BC	NRR/DORL/LPL4/PM	
NAME	RPascarelli	BSingal	
DATE	10/11/19	10/11/19	

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REGULATORY AUDIT SUMMARY FOR APRIL 29 – OCTOBER 2, 2019
AUDIT IN SUPPORT OF THE REVIEW OF LICENSE AMENDMENT REQUEST
FOR USE OF FULL SPECTRUM LOSS-OF-COOLANT ACCIDENT METHODOLOGY
PACIFIC GAS AND ELECTRIC COMPANY
DIABLO CANYON NUCLEAR POWER PLANT UNITS 1 AND 2
DOCKET NOS. 50-275 AND 50-323

1.0 BACKGROUND

By letter dated December 26, 2018 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19003A196), as supplemented by letter dated September 23, 2019 (ADAMS Accession No. ML19266A657), Pacific Gas and Electric Company (PG&E, the licensee) submitted a license amendment request (LAR) for Diablo Canyon Nuclear Power Plant, Units 1 and 2 (Diablo Canyon) regarding revision to Technical Specification (TS) 5.6.5b, "Core Operating Limits Report (COLR)." The requested change would replace the existing U.S. Nuclear Regulatory Commission (NRC)-approved loss-of-coolant accident (LOCA) methodologies with the NRC-approved LOCA methodology contained in Westinghouse Electric Company LLC's topical report WCAP-16996-P-A, Revision 1, "Realistic LOCA Evaluation Methodology Applied to the Full Spectrum of Break Sizes (FULL SPECTRUM LOCA Methodology)," dated November 2016 (ADAMS Accession Package No. ML17277A130), that was used for LOCA reanalysis for Diablo Canyon.

The NRC staff reviewed all the calculations associated with the full spectrum LOCA (FSLOCA) analysis in support of this amendment via an internet-based portal. The scope of the audit was primarily focused on the review of the licensee's calculations related to its FSLOCA methodology to determine if the licensee needs to submit any additional information contained in the analyses performed in support of the requested change to support or develop conclusions for the staff's safety evaluation. The proposed amendment would revise the Diablo Canyon TS 5.6.5b for use of FSLOCA methodology. An audit plan was issued by the NRC staff by letter dated April 23, 2019 (ADAMS Accession No. ML19106A390).

2.0 AUDIT DATES AND LOCATION

The regulatory audit was conducted via internet portal from April 29 to October 2, 2019.

3.0 AUDIT TEAM MEMBERS

The NRC audit team members consisted of:

- Mr. Robert Beaton, Reactor System Engineer, Office of Nuclear Reactor Regulation (NRR)
- Mr. Benjamin Parks, Senior Reactor Engineer, NRR
- Mr. Reed Anzalone, Reactor Engineer, NRR
- Mr. Matthew Hamm, Reactor Systems Engineer, NRR
- Mr. Shawn Marshall, Reactor Systems Engineer, Office of Nuclear Regulatory Research (RES)

Enclosure

4.0 DOCUMENTS AUDITED

The calculation notes prepared in support of the calculation for the proposed TS change, based on the list provided by the licensee, were reviewed as part of the audit. A list of the documents reviewed during the audit are provided as an Attachment to this Enclosure.

5.0 AUDIT ACTIVITIES

The audit was conducted by review of the calculations, listed in the Attachment to this Enclosure, via internet-based portal. On May 26, 2019, the NRC staff held a teleconference with the licensee to discuss the details of the documents made available on the portal. The focus of the audit was to review the licensee's thermal-hydraulic analyses performed in support of the requested change.

The initial part of the audit was concluded on July 12, 2019. However, the audit was kept open in wake of the expected supplement. The licensee supplemented the application by letter dated September 23, 2019. Based on the review of the supplemental information, on October 2, 2019, the NRC staff concluded the audit.

6.0 AUDIT SUMMARY

Based on the review of the calculations performed in support of the proposed change and provided for the NRC staff review via the internet portal, the NRC staff did not identify the need for the licensee to submit any additional information on the docket.

7.0 EXIT BRIEFING

The audit was performed via internet-based portal. Therefore, there was no need of a formal exit briefing.

Attachment:

List of Documents Reviewed as Part of the Regulatory Audit

LIST OF DOCUMENTS REVIEWED AS PART OF THE REGULATORY AUDIT

Diablo Canyon Nuclear Power Plant (Diablo Canyon), Units 1 and 2, Full Spectrum Loss-of-Coolant Accident (FSLOCA) Calculation Notes – LOCA Integrated Services (Westinghouse Electric Company LLC (Westinghouse))

- CN-LIS-15-6 R0, "Diablo Canyon Unit 2 (PEG) WCOBRA/TRAC-TF2 Model Development for FULL SPECTRUM LOCA (FSLOCA) Analysis," May 2015. (Including CN-LIS-15-6-R0-ASMT-1, -ASMT-2, ASMT-3, ASMT-4, ASMT-5*)
- CN-LIS-15-13 R0, "Diablo Canyon Units 1 & 2 (PGE/PEG) WCOBRA/TRAC-TF2 Loop Model Development for FSLOCA Analysis," April 2015. (Including CN-LIS-15-13-R0-ASMT-1, -ASMT-2, ASMT-3*)
- CN-LIS-15-35 R0, "Diablo Canyon Unit 1 (PGE) WCOBRA/TRAC-TF2 Model Development for FULL SPECTRUM LOCA (FSLOCA) Analysis," November 2015. (Including CN-LIS-15-35-R0-ASMT-1, -ASMT-2, ASMT-3, ASMT-4*)
- CN-LIS-16-24 R0, "Diablo Canyon Unit 1 (PGE) Region I and Region II Development of Input Files and Steady-State Tuning for Analysis with the FULL SPECTRUM Loss-of-Coolant Accident (FSLOCA) Evaluation Model," December 2016. (Including CN-LIS-16-24-R0-ASMT-1, -ASMT-2*)
- CN-LIS-16-32 R0, "Diablo Canyon Unit 2 (PEG) Region I and Region II Development of Updated Input Files and Steady-State Tuning for the FSLOCA Analysis," November 2016. (Including CN-LIS-16-32-R0-ASMT-1*)
- CN-LIS-17-59 R0, "Diablo Canyon Unit 1 (PGE) Input File Finalization for Phase 2 of the FULL SPECTRUM LOCA (FSLOCA) EM [Evaluation Model] Analysis," January 2018. (Including CN-LIS-17-59-R0-ASMT-1*)
- CN-LIS-17-62 R0, "Diablo Canyon Unit 2 (PEG) Input File Finalization for Phase 2 of the FULL SPECTRUM LOCA (FSLOCA) EM Analysis," January 2018. (Including CN-LIS-17-62-R0-ASMT-1*)
- CN-LIS-18-6 R0, "Uncertainty Analysis for Diablo Canyon Unit 2 (PEG) with FULL SPECTRUM LOCA (FSLOCA) Evaluation Model," March 2018. (Including CN-LIS-18-6-R0-ASMT-1, -ASMT-2*)
- CN-LIS-18-7 R0, "Uncertainty Analysis for Diablo Canyon Unit 1 (PGE) with FULL SPECTRUM LOCA (FSLOCA) Evaluation Model," May 2018.

*ASMT = Calculation Note Assessment Record

Diablo Canyon, Units 1 and 2, FSLOCA Calculation Notes – Fuel Engineering (Westinghouse)

- CN-PGE-049 R0, "Diablo Canyon Pre-Transient Oxidation and Hydrogen Data for PAD5 FSLOCA," July 2016.
- CN-PGE-050 R0, "Diablo Canyon FSLOCA Evaluation Methodology: High Peaking Factor Reference Code Models Generation," July 2016.
- CN-PGE-051 R0, "Diablo Canyon Fuel Temperatures and Rod Internal Pressures for PAD5 FSLOCA," July 2016.
- CN-PGE-051 R1, "Revision 1 ** Diablo Canyon Fuel Temperatures and Rod Internal Pressures for PAD5 FSLOCA – Short Form Revision," December 2017.
- CN-PGE-052 R0, "Diablo Canyon FSLOCA Evaluation Methodology: Reference Power Shape Library Generation – Deliverable Attachment," August 2016.
- CN-PGE-053 R0, "Diablo Canyon FSLOCA Evaluation Methodology: Peaking Factor and Burnup Analysis – Deliverable Attachment," September 2016.
- CN-PGE-GEN-001 R0, "PAD5 Data Confirmation for Diablo Canyon FSLOCA Evaluation Model," November 2017.
- CN-PGE-GEN-001 R1, "Revision 1** PAD5 Data Confirmation for Diablo Canyon FSLOCA Evaluation Model," August 2018.