
DIABLO CANYON POWER PLANT

Pre-Submittal Meeting to Discuss a License Amendment Request to Implement WCAP-16996-A

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Agenda

- Purpose of the Meeting
- Background
- Content of the LAR
- Schedule
- Open Discussion and Staff Feedback

Purpose of the Meeting

- To discuss a forthcoming License Amendment Request for Diablo Canyon Units 1 and 2 to implement WCAP-16996-A, Rev. 1, “Realistic LOCA Evaluation Methodology Applied to the Full Spectrum of Break Sizes (FULL SPECTRUM LOCA Methodology)”

Background

- PG&E has a regulatory commitment to address Thermal Conductivity Degradation (TCD) by a Large Break Loss-of-coolant accident (LOCA) reanalysis to be submitted in 2018.
- The current Diablo Canyon LOCA methods are:
 - Small Break – NOTRUMP (WCAP-10054-P-A, WCAP-10054-P-A, Addendum 2, Revision 1)
 - Large Break – BELOCA (WCAP-12945-P-A)
 - Unit 1 - WCAP-12945-P-A, Addendum 1-A, Revision 0
 - Unit 2 – Automated Statistical Treatment of Uncertainty Method (ASTRUM), WCAP-16009-P-A, Revision 0

Background

- PG&E is addressing the regulatory commitment to address TCD by applying the FULL SPECTRUM LOCA Evaluation Model (FSLOCA EM) methodology, which requires NRC approval.
 - The recently NRC approved PAD 5 fuel data is used in analysis
 - There are no plant fuel changes that need bounded as part of the FSLOCA EM (i.e, no new fuel types, no fuel transitions, no changes to current TS peaking factors).
 - The only changes to TS required are to TS Section 5.6.5, “Core Operating Limits Report,” to replace the references to NOTRUMP and BELOCA methods with FSLOCA EM.
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Background

- The NRC issued the revised Final Safety Evaluation (FSE) for WCAP-16996-A on September 12, 2017
- The cover letter for the revised FSE states:
 - “The NRC staff has found that TR WCAP-16996-P/WCAP-16996-NP, Volumes I, II, and III, Revision 1, is acceptable for referencing in licensing applications for use of the FSLOCATM evaluation methodology described in WCAP-16996-P/WCAP-16996-NP, Volumes I, II, and III, Revision 1, for performing best-estimate analyses for the entire spectrum of LOCAs including small break LOCA, intermediate break LOCA, and large break LOCA scenarios in Westinghouse designed three- and four-loop pressurized-water reactor plants with cold leg injection only provided that the limitations and conditions stipulated in the Section 5.0 and applicability defined in Sections 1.3.3, 6.0, and Appendix A of the enclosed NRC revised final SE are met along with the proper documentation.”
- The revised FSE contains 15 Limitations and Conditions

Content of the LAR

- Technical Specification (TS) change
 - The following NRC approved LOCA methodologies contained in TS 5.6.5, “Core Operating Limits Report,” will be deleted:
 - 4. WCAP-10054-P-A, Westinghouse Small Break LOCA ECCS Evaluation Model Using the NOTRUMP Code, August 1985 (Westinghouse Proprietary),
 - 5. WCAP-10054-P-A, Addendum 2, Revision 1, Addendum to the Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code: Safety Injection Into the Broken Loop and COSI Condensation Model, July 1997 (Westinghouse Proprietary),
 - 6. WCAP-12945-P-A, Westinghouse Code Qualification Document for Best-Estimate Loss of Coolant Analysis, June 1996 (Westinghouse Proprietary),
 - 7. WCAP-12945-P-A, Addendum 1-A, Revision 0, "Method for Satisfying 10 CFR 50.46 Reanalysis Requirements for Best Estimate LOCA Evaluation Models," December 2004. (Westinghouse Proprietary) (Unit 1 Only),
 - 8. 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),

Content of the LAR

- Technical Specification (TS) change (cont.)
 - The following NRC approved LOCA methodology will be added to TS 5.6.5, “Core Operating Limits Report,” :
 - 4. WCAP-16996-A, Rev. 1, “Realistic LOCA Evaluation Methodology Applied to the Full Spectrum of Break Sizes (FULL SPECTRUM LOCA Methodology)”

Content of the LAR

■ Technical Evaluation

- Section 3.1- Compliance with the Limitations and Conditions in the Revised NRC Final Safety Evaluation for WCAP-16996-A, Rev. 1:
 - This Section of the LAR will summarize each of the 15 Limitations and Conditions in the revised FSE and how they are met.
- Section 3.2- Changes and Corrections to the FSLOCA EM in WCAP-16996-A, Rev. 1 as Identified in Westinghouse Letter, LTR-NRC-18-30:
 - This Section of the LAR will identify the changes and corrections that have been made to the FSLOCA EM in WCAP-16996-A, Rev. 1 after the NRC issued the revised FSE.
 - PG&E is voluntarily including the changes in Westinghouse Letter LTR-NRC-18-30 in the LAR so they do not need to be included separately in a future 10 CFR 50.46 annual report letter.

Content of the LAR

■ Technical Evaluation (cont.)

□ Section 3.3- Compliance with 10 CFR 50.46:

- This Section of the LAR will discuss how each of the criterion of 10 CFR 50.46, as applicable to the FSLOCA EM, is met, as summarized in a Unit specific table

- 10 CFR 50.46 acceptance criterion (b)(5) requires that long-term core cooling be provided following the successful initial operation of the emergency core cooling system (ECCS).
- Long-term cooling is dependent on the demonstration of the continued delivery of cooling water to the core.
- The actions that are currently in place to maintain long-term cooling are not impacted by the application of the NRC-approved FSLOCA EM.
 - e.g., fuel structural analysis, hot-leg switchover

Content of the LAR

- The following Tables will be included in the LAR:
 - Unit specific Decay Heat Uncertainty Multipliers for Analysis Results
 - Sampled Parameters Analyzed for DCPD Unit 1 and Unit 2
 - Unit Specific Analysis Results with the FSLOCA EM
 - 95/95 Peak Clad Temperatures
 - 95/95 Maximum Local Oxidation
 - 95/95 Core Wide Oxidation
- FSAR Update Changes

Schedule

- The LAR will be submitted in December 2018
- The LAR will be implemented in 120 days

Staff Feedback

- Open Discussion and Staff Feedback