



FEB 14 2005

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Mail Stop OP1-17  
Washington, DC 20555

**SUSQUEHANNA STEAM ELECTRIC STATION  
REVISION TO PROPOSED AMENDMENT NO. 233  
TO UNIT 2 LICENSE NPF-22: MCPR SAFETY LIMITS  
AND REFERENCE CHANGES  
PLA-5865**

**Docket No. 50-388**

- References: 1) PLA-5793, B. T. McKinney (PPL) to USNRC, "Proposed Amendment No. 233 to Unit 2 License NPF-22: MCPR Safety Limits and Reference Changes," dated September 08, 2004.*
- 2) USNRC to B. L. Shriver, "Request for Additional Information (RAI) - Regarding SSES 2 Minimum Critical Power Ratio Safety Limits and Reference Changes (TAC No. MC4431)," dated January 24, 2005.*
- 3) PLA-5860, B. T. McKinney (PPL) to USNRC, "Request for Additional Information Regarding Proposed Amendment No. 233 to Unit 2 License NPF-22: MCPR Safety Limits and Reference Changes," dated February 1, 2005.*

The purpose of this letter is to revise the PPL Susquehanna, LLC (PPL) amendment request submitted on September 8, 2004 in Reference 1. This revision to the amendment request is necessary to delete one of the references provided in Technical Specification (TS) Section 5.6.5 "Core Operating Limits Report (COLR)" as delineated in Reference 1. It was recently identified that one of the references expected to be used to develop the core operating limits when Reference 1 was issued was not used.

The reference not used that is deleted by this revision is:

ANF-91-048(P)(A), "Advanced Nuclear Fuels Corporation Methodology for Boiling Water Reactors EXEM BWR Evaluation Model," Advanced Nuclear Fuels Corporation.

This methodology describes an evaluation model methodology for licensing analyses of postulated LOCA's. The methodology was developed to comply with 10 CFR 50.46 and Appendix K criteria and is used to confirm NRC acceptance criteria are met. This methodology is not used to determine the Minimum Critical Power Ratio (MCPR).

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Instead, the following was used to perform the same analyses:

EMF-2361(P)(A), "EXEM BWR-2000 ECCS Evaluation Model," Framatome ANP.

This methodology is listed in the proposed TS Section 5.6.5b as delineated in Reference 1.

The "No Significant Hazards Consideration" provided in Reference 1 has been reviewed. This revision does not impact the evaluation contained therein.

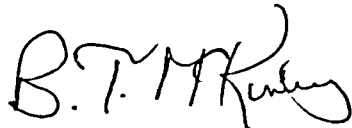
Attachment 1 to this letter contains markups of the pages provided in reference 1 reflecting the deletion of the ANF-91-048 (P)(A) methodology.

Attachment 2 provides updated camera ready pages reflecting the elimination of the ANF-91-048 (P)(A) document. Note that the camera ready pages provided includes the reference added by Amendment 192, which was approved subsequent to issuance of Reference 1.

Any questions regarding this request should be directed to Mr. Duane Filchner at (610) 774-7819.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: 2-14-05



B. T. McKinney

Attachments:

Attachment 1 - Revised Reference 1 Pages  
Attachment 2 - Revised Camera Ready Pages

cc: NRC Region I  
Mr. A. J. Blamey, NRC Sr. Resident Inspector  
Mr. R. V. Guzman, NRC Project Manager  
Mr. R. Janati, DEP/BRP

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**Attachment 1 to PLA-5865**

**PLA-5793**  
**Markup Reflecting Revision**

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**PLA-5793**

**Attachment 1 Markup of Insert Pages  
Reflecting the Revision**

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**INSERT 1:**

1. XN-NF-81-58(P)(A), "RODEX2 Fuel Rod Thermal-Mechanical Response Evaluation Model," Exxon Nuclear Company.
2. XN-NF-85-67(P)(A), "Generic Mechanical Design for Exxon Nuclear Jet pump BWR Reload Fuel," Exxon Nuclear Company.
3. EMF-85-74(P)(A), "RODEX2A (BWR) Fuel Rod Thermal-Mechanical Evaluation Model," Siemens Power Corporation.
4. ANF-89-98(P)(A), "Generic Mechanical Design Criteria for BWR Fuel Designs," Advanced Nuclear Fuels Corporation.
5. XN-NF-80-19(P)(A), "Exxon Nuclear Methodology for Boiling Water Reactors," Exxon Nuclear Company.
6. EMF-2158(P)(A), "Siemens Power Corporation Methodology for Boiling Water Reactors: Evaluation and Validation of CASMO-4/MICROBURN-B2," Siemens Power Corporation.

7. ANF-91-048(P)(A), "Advanced Nuclear Fuels Corporation Methodology for Boiling Water Reactors EXEM BWR Evaluation Model," Advanced Nuclear Fuels Corporation.

- 7 8. EMF-2361(P)(A), "EXEM BWR-2000 ECCS Evaluation Model," Framatome ANP.
- 8 9. EMF-2292(P)(A), "ATRIUM™-10: Appendix K Spray Heat Transfer Coefficients," Siemens Power Corporation.
- 9 10. XN-NF-84-105(P)(A), "XCOBRA-T: A Computer Code for BWR Transient Thermal-Hydraulic Core Analysis," Exxon Nuclear Company.
- 10 11. ANF-524(P)(A), "ANF Critical Power Methodology for Boiling Water Reactors," Advanced Nuclear Fuels Corporation.
- 11 12. ANF-913(P)(A), "COTRANSA2: A Computer Program for Boiling Water Reactor Transient Analyses," Advanced Nuclear Fuels Corporation.
- 12 13. ANF-1358(P)(A), "The Loss of Feedwater Heating Transient in Boiling Water Reactors," Advanced Nuclear Fuels Corporation.
- 13 14. EMF-2209(P)(A), "SPCB Critical Power Correlation," Siemens Power Corporation.
- 14 15. EMF-1997(P)(A), "ANFB-10 Critical Power Correlation", Siemens Power Corporation.
- 15 16. EMF-CC-074(P)(A), "BWR Stability Analysis - Assessment of STAIF with Input from MICROBURN-B2," Siemens Power Corporation.

- 16 17. NE-092-001A, "Licensing Topical Report for Power Uprate With Increased Core Flow," Pennsylvania Power & Light Company.
- 17 18. Caldon, Inc., "TOPICAL REPORT: Improving Thermal Power Accuracy and Plant Safety while Increasing Operating Power Level Using the LEFTM<sup>TM</sup> System," Engineering Report - 80P.
- 18 19. Caldon, Inc., "Supplement to Topical Report ER-80P: Basis for a Power Uprate with the LEFM<sup>TM</sup> or LEFM CheckPlus<sup>TM</sup> System," Engineering Report ER-160P.

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**PLA-5793**

**Attachment 2 Camera Ready Pages  
Reflecting the Revision**

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## 5.6 Reporting Requirements

core thermal power level may not exceed the originally approved RTP of 3441 MWt, but the value of 3510 MWt (102% of 3441 MWt) remains the initial power level for the bounding licensing analysis.

Future revisions of approved analytical methods listed in this Technical Specification that are currently referenced to 102% of rated thermal power (3510 MWt) shall include reference that the licensed RTP is actually 3489 MWt. The revisions shall document that the licensing analysis performed at 3510 MWt bounds operation at the RTP of 3489 MWt so long as the LEFM<sup>TM</sup> system is used as the feedwater flow measurement input into the core thermal power calculation.

The approved analytical methods are described in the following documents, the approved version(s) of which are specified in the COLR.

1. XN-NF-81-58(P)(A), "RODEX2 Fuel Rod Thermal-Mechanical Response Evaluation Model," Exxon Nuclear Company.
2. XN-NF-85-67(P)(A), "Generic Mechanical Design for Exxon Nuclear Jet pump BWR Reload Fuel," Exxon Nuclear Company.
3. EMF-85-74(P)(A), "RODEX2A (BWR) Fuel Rod Thermal-Mechanical Evaluation Model," Siemens Power Corporation.
4. ANF-89-98(P)(A), "Generic Mechanical Design Criteria for BWR Fuel Designs," Advanced Nuclear Fuels Corporation.
5. XN-NF-80-19(P)(A), "Exxon Nuclear Methodology for Boiling Water Reactors," Exxon Nuclear Company.
6. EMF-2158(P)(A), "Siemens Power Corporation Methodology for Boiling Water Reactors: Evaluation and Validation of CASMO-4/MICROBURN-B2," Siemens Power Corporation.
7. ANF-91-048(P)(A), "Advanced Nuclear Fuels Corporation Methodology for Boiling Water Reactors EXEM BWR Evaluation Model," Advanced Nuclear Fuels Corporation.
- 7.8. EMF-2361(P)(A), "EXEM BWR-2000 ECCS Evaluation Model," Framatome ANP.
- 8.8. EMF-2292(P)(A), "ATRIUM<sup>TM</sup>-10: Appendix K Spray Heat Transfer Coefficients," Siemens Power Corporation.

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5.6 Reporting Requirements

- 9 10. XN-NF-84-105(P)(A), "XCOBRA-T: A Computer Code for BWR Transient Thermal-Hydraulic Core Analysis," Exxon Nuclear Company.
- 10 11. ANF-524(P)(A), "ANF Critical Power Methodology for Boiling Water Reactors," Advanced Nuclear Fuels Corporation.
- 11 12. ANF-913(P)(A), "COTRANSA2: A Computer Program for Boiling Water Reactor Transient Analyses," Advanced Nuclear Fuels Corporation.
- 12 13. ANF-1358(P)(A), "The Loss of Feedwater Heating Transient in Boiling Water Reactors," Advanced Nuclear Fuels Corporation.
- 13 14. EMF-2209(P)(A), "SPCB Critical Power Correlation," Siemens Power Corporation.
- 14 15. EMF-1997(P)(A), "ANFB-10 Critical Power Correlation", Siemens Power Corporation.
- 15 16. EMF-CC-074(P)(A), "BWR Stability Analysis - Assessment of STAIF with Input from MICROBURN-B2," Siemens Power Corporation.
- 16 17. NE-092-001A, "Licensing Topical Report for Power Uprate With Increased Core Flow," Pennsylvania Power & Light Company.
- 17 18. Caldon, Inc., "TOPICAL REPORT: Improving Thermal Power Accuracy and Plant Safety while Increasing Operating Power Level Using the LEFTM<sup>TM</sup> System," Engineering Report - 80P.
- 18 19. Caldon, Inc., "Supplement to Topical Report ER-80P: Basis for a Power Uprate with the LEFM<sup>TM</sup> or LEFM CheckPlus<sup>TM</sup> System," Engineering Report ER-160P.

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**PLA-5793**

**Attachment 7 List of References  
Reflecting the Revision**

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Report	Applicable LCO	Methodology / Justification
XN-NF-80-19(P)(A) Volumes 2, 2A, 2B and 2C, <i>Exxon Nuclear Methodology for Boiling Water Reactors: EXEM BWR ECCS Evaluation Model</i> , Exxon Nuclear Company, September 1982.	3.2.1	Describes an evaluation model methodology for licensing analyses of postulated LOCAs in jet pump BWRs. The methodology was developed to comply with 10 CFR 50.46 and Appendix K criteria to 10 CFR 50.
<del>ANF-91-048(P)(A), <i>Advanced Nuclear Fuels Corporation Methodology for Boiling Water Reactors EXEM BWR Evaluation Model</i>, Advanced Nuclear Fuels Corporation, January 1993.</del>	<del>3.2.1</del>	<del>Describes an upgraded evaluation model methodology for licensing analyses of postulated LOCAs in jet pump BWRs. The methodology was developed to comply with 10 CFR 50.46 and Appendix K criteria to 10 CFR 50.</del>
EMF-2361(P)(A) Revision 0, <i>EXEM BWR-2000 ECCS Evaluation Model</i> , Framatome ANP, May 2001.	3.2.1	Describes an upgraded evaluation model methodology for licensing analyses of postulated LOCAs in jet pump BWRs. The methodology was developed to comply with 10 CFR 50.46 and Appendix K criteria to 10 CFR 50.
EMF-2292(P)(A) Revision 0, <i>ATRIUM™-10: Appendix K Spray Heat Transfer Coefficients</i> , Siemens Power Corporation, September 2000.	3.2.1	Provides measured cladding temperatures from spray heat transfer tests to justify the use of Appendix K coefficients for ATRIUM-10 fuel LOCA analyses.
XN-NF-80-19(P)(A) Volume 3 Revision 2, <i>Exxon Nuclear Methodology for Boiling Water Reactors, THERMEX: Thermal Limits Methodology Summary Description</i> , Exxon Nuclear Company, January 1987.	3.2.2	Provides overall methodology for determining a MCPR operating limit.
XN-NF-84-105(P)(A) Volume 1 and Volume 1 Supplements 1 and 2, <i>XCOBRA-T: A Computer Code for BWR Transient Thermal-Hydraulic Core Analysis</i> , Exxon Nuclear Company, February 1987.	3.2.2	Provides a capability to perform analyses of transient heat transfer behavior in BWR assemblies.
ANF-524(P)(A) Revision 2 and Supplements 1 and 2, <i>ANF Critical Power Methodology for Boiling Water Reactors</i> , Advanced Nuclear Fuels Corporation, November 1990.	3.2.2	Provides a methodology for the determination of thermal margins, specifically the MCPR safety limit.
ANF-913(P)(A) Volume 1 Revision 1 and Volume 1 Supplements 2, 3 and 4, <i>COTRANSA2: A Computer Program for Boiling Water Reactor Transient Analyses</i> , Advanced Nuclear Fuels Corporation, August 1990.	3.2.2	Provides a computer program for analyzing BWR system transients.

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**Attachment 2 to PLA-5865**

**Revised Unit 2 Technical Specification Changes  
(Camera Ready)**

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## 5.6 Reporting Requirements

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### 5.6.5 COLR (continued)

core thermal power level may not exceed the originally approved RTP of 3441 MWt, but the value of 3510 MWt (102% of 3441 MWt) remains the initial power level for the bounding licensing analysis.

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3. EMF-85-74(P)(A), "RODEX2A (BWR) Fuel Rod Thermal-Mechanical Evaluation Model," Siemens Power Corporation.
4. ANF-89-98(P)(A), "Generic Mechanical Design Criteria for BWR Fuel Designs," Advanced Nuclear Fuels Corporation.
5. XN-NF-80-19(P)(A), "Exxon Nuclear Methodology for Boiling Water Reactors," Exxon Nuclear Company.
6. EMF-2158(P)(A), "Siemens Power Corporation Methodology for Boiling Water Reactors: Evaluation and Validation of CASMO-4/MICROBURN-B2," Siemens Power Corporation.
7. EMF-2361(P)(A), "EXEM BWR-2000 ECCS Evaluation Model," Framatome ANP.
8. EMF-2292(P)(A), "ATRIUM<sup>TM</sup>-10: Appendix K Spray Heat Transfer Coefficients," Siemens Power Corporation.
9. XN-NF-84-105(P)(A), "XCOBRA-T: A Computer Code for BWR Transient Thermal-Hydraulic Core Analysis," Exxon Nuclear Company.

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## 5.6 Reporting Requirements

### 5.6.5 COLR (continued)

10. ANF-524(P)(A), "ANF Critical Power Methodology for Boiling Water Reactors," Advanced Nuclear Fuels Corporation.
  11. ANF-913(P)(A), "COTRANSA2: A Computer Program for Boiling Water Reactor Transient Analyses," Advanced Nuclear Fuels Corporation.
  12. ANF-1358(P)(A), "The Loss of Feedwater Heating Transient in Boiling Water Reactors," Advanced Nuclear Fuels Corporation.
  13. EMF-2209(P)(A), "SPCB Critical Power Correlation," Siemens Power Corporation.
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  16. NE-092-001A, "Licensing Topical Report for Power Uprate With Increased Core Flow," Pennsylvania Power & Light Company.
  17. Caldon, Inc., "TOPICAL REPORT: Improving Thermal Power Accuracy and Plant Safety while Increasing Operating Power Level Using the LEFTM<sup>TM</sup> System," Engineering Report - 80P.
  18. Caldon, Inc., "Supplement to Topical Report ER-80P: Basis for a Power Uprate with the LEFM<sup>TM</sup> or LEFM CheckPlus<sup>TM</sup> System," Engineering Report ER-160P.
  19. NEDO-32465-A, "BWROG Reactor Core Stability Detect and Suppress Solutions Licensing Basis Methodology for Reload Applications."
- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.
  - d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

## 5.6 Reporting Requirements

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### 5.6.6 EDG Failures Report

If an individual emergency diesel generator (EDG) experiences four or more valid failures in the last 25 demands, these failures and any nonvalid failures experienced by that EDG in that time period shall be reported within 30 days. Reports on EDG failures shall include the information recommended in Regulatory Guide 1.9, Revision 3, Regulatory Position C.4.

### 5.6.7 PAM Report

When a report is required by Condition B or F of LCO 3.3.3.1, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.