

March 4, 2003

Mr. Bryce L. Shriver
Senior Vice President
and Chief Nuclear Officer
PPL Susquehanna, LLC
769 Salem Boulevard
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SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2 - ISSUANCE OF
AMENDMENT REGARDING MINIMUM CRITICAL POWER RATIO SAFETY
LIMITS AND REFERENCE CHANGES (TAC NO. MB5610)

Dear Mr. Shriver:

The Commission has issued the enclosed Amendment No. 184 to Facility Operating License No. NPF-22 for the Susquehanna Steam Electric Station, Unit 2. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated July 17, 2002, as supplemented by letters dated October 30, 2002, December 18, 2002, and January 28, 2003.

This amendment revises the values of the Safety Limit for Minimum Critical Power Ratio in TS 2.1.1.2, clarifies fuel design features in TS 4.2.1, and updates the references used to determine the core operating limits.

A copy of our safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's Biweekly *Federal Register* Notice.

Sincerely,

/RA/

Richard V. Guzman, Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-388

Enclosures: 1. Amendment No. 184 to
License No. NPF-22
2. Safety Evaluation

cc w/encls: See next page

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DISTRIBUTION

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* SE provided. No major changes made.

Accession No.: ML030630184

Package No.: ML

TSs: ML

OFFICE	PDI-1/PM	PDI-2/LA	SRXB *	OGC	PDI-1/SC
NAME	RGuzman	SLittle for MO'Brien	RCaruso	RWeisman	RLaufer
DATE	2/20/03	2/20/03	02/04/03 SE DTD	3 March 2003	3/03/03

OFFICIAL RECORD COPY

Susquehanna Steam Electric Station,
Unit 2

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Unit 2

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PPL SUSQUEHANNA, LLC

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-388

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 184
License No. NPF-22

1. The Nuclear Regulatory Commission (the Commission or the NRC) having found that:
 - A. The application for the amendment filed by PPL Susquehanna, LLC, dated July 17, 2002, as supplemented by letters dated October 30, 2002, December 18, 2002, and January 28, 2003, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of the Facility Operating License No. NPF-22 is hereby amended to read as follows:

- (2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 184 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. PPL Susquehanna, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented upon startup following the Unit 2 eleventh refueling and inspection outage.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Richard J. Laufer, Chief, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: March 4, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 184

FACILITY OPERATING LICENSE NO. NPF-22

DOCKET NO. 50-388

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

2.0-1
4.0-1
5.0-22
5.0-23
5.0-24
5.0-25
5.0-26
5.0-27
5.0-28
5.0-29
5.0-30

INSERT

2.0-1
4.0-1
5.0-22
5.0-23
5.0-24
5.0-25
5.0-26
5.0-27
-
-
-

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 184 TO FACILITY OPERATING LICENSE NO. NPF-22

PPL SUSQUEHANNA, LLC

ALLEGHENY ELECTRIC COOPERATIVE, INC.

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

DOCKET NO. 50-388

1.0 INTRODUCTION

By application dated July 17, 2002, as supplemented by letters dated October 30, 2002, December 18, 2002, and January 28, 2003, PPL Susquehanna, LLC, (PPL, the licensee), requested changes to the Technical Specifications (TSs) for Susquehanna Steam Electric Station, Unit 2 (SSES-2). The proposed change revises the values of the Safety Limit for Minimum Critical Power Ratio (SLMCPR) in TS 2.1.1.2, clarifies fuel design features in TS 4.2.1, and updates the references used to determine the core operating limits in TS 5.6.5.b. The supplements dated October 30, 2002, December 18, 2002, and January 28, 2003, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the Nuclear Regulatory Commission (NRC) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on August 20, 2002 (67 FR 53988).

2.0 REGULATORY EVALUATION

The NRC staff finds that PPL in its July 17, 2002, submittal identified the applicable regulatory requirements. The regulatory requirements and guidance which the NRC staff considered in its review of the application are as follows:

1. Title 10 of the *Code of Federal Regulations* (10 CFR) establishes the fundamental regulatory requirements with respect to the reactivity control systems. Specifically, General Design Criteria 10 (GDC-10), "Reactor design," in Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50 states, in part, that the reactor core and associated coolant, control, and protection systems shall be designed with appropriate margin to assure that specified acceptable fuel design limits are not exceeded.
2. NRC Generic Letter 88-16 (GL 88-16), "Removal of Cycle-Specific Parameter Limits from Technical Specifications," provides guidance on modifying cycle-specific parameter limits in TSs.

3.0 TECHNICAL EVALUATION

3.1 TS 2.1.1 Reactor Core Safety Limits (SLs)

PPL proposed to change the SLMCPR values in TS 2.1.1.2 for U2C12 operation from 1.12 to 1.10 for two recirculation loop operation and from 1.14 to 1.11 for single recirculation loop operation with the reactor steam dome pressure greater than or equal to 785 psig and core flow greater than or equal to 10 million lbm/hr.

PPL described the approved methodologies used to calculate the SLMCPR value for the proposed TS change in its July 17, 2002, submittal. The U2C12 SLMCPR analysis was performed by Framatome ANP, Inc. using Framatome-ANP (FRA-ANP) NRC-approved licensing methods with the computer code ANFB-10 critical power correlation for ATRIUM-10 fuel. PPL justified in their submittals (References 1 and 3), the decrease in SLMCPR values from Unit 2 Cycles 10 and 11 (U2C10 and U2C11) to U2C12 calculations. The previously used ANFB critical power correlation applied a multiplier of 2 to the number of pins calculated to be in boiling transition for the U2C10 and U2C11 SL calculation. This multiplier was used as a result of the NRC staff review of the mean bias (1.003) in the predicted-to-measured ratio of critical power for the ANFB critical power correlation, which is slightly greater than 1.0. The mean bias of the ANFB-10 correlation (0.9985) is slightly less than 1.0; therefore, there is no technical basis for applying the multiplier to the ANFB-10 correlation.

The NRC staff has reviewed PPL's submittals (References 1, 2, and 3) to determine whether the proposed changes to the SLMCPR values were justified. Based on the results of the review, the staff finds that the SLMCPR analysis for U2C12 operation using the plant and cycle-specific parameters in conjunction with the approved method is acceptable. The proposed U2C12 SLMCPR values will ensure that 99.9% of the fuel rods in the core will not experience boiling transition. This satisfies the requirements of GDC-10 regarding acceptable fuel design limits. The staff also concludes that the justification for analyzing and determining the SLMCPR value of 1.10 for two recirculation loop operation and 1.11 for single recirculation loop operation is acceptable since approved methodologies and appropriate cycle-specific values of input parameters have been used by PPL.

3.2 TS 4.2.1 Fuel Assemblies

PPL proposed a change to TS 4.2.1 to indicate the use of a small amount of depleted uranium ("tails") in the fuel rods, in addition to natural and slightly enriched uranium dioxide (UO₂).

The NRC staff has reviewed the proposed change and finds it acceptable since there is no change to the composition of the fuel pellets containing "tails" material, (i.e., UO₂) except a slight decrease in the amount of U₂₃₅. Therefore, the use of depleted uranium ("tails") in the fuel rods does not affect the mechanical performance of the fuel rods. In a conference call conducted on January 31, 2003, PPL clarified that the impact of the use of tails on core performance was included in the reload licensing analysis, which is documented in PPL's proprietary fuel design record file, "EC-Fuel-1512 Unit 2 Cycle 12 Reload Design."

3.3 TS 5.6.5 Core Operating Limits Report (COLR)

PPL proposed to delete TS 5.6.5.b.5, TS 5.6.5.b.7, and TS 5.6.5.b.10 which are no longer required for U2C12 analysis. In addition, PPL proposed to add an additional document EMF-2158(P)(A), "Siemens Power Corporation Methodology for Boiling Water Reactors: Evaluation and Validation of CASMO-4/Microburn-B2," to the list of approved analytical methods in TS 5.6.5.b. which enables its use in core physics analyses for U2C12 and future reloads.

The NRC staff has reviewed the justification for the proposed revision (References 1 and 2) and the response to the NRC staff's request for additional information (References 3 and 4). Based on results of the review, the NRC staff concludes that the proposed TS revision is acceptable since the references that are removed pertain to the analysis methodologies used to analyze FRA-ANP 9x9-2 fuel which is no longer used in Unit 2. Furthermore, the addition of the reference document which contains FRA-ANP analysis methodology to TS 5.6.5.b is acceptable since it has already been approved by the NRC for the uses requested by PPL (namely, to support calculations of the cycle-specific parameters specified in TS 5.6.5). The proposed changes are in compliance with the guidance specified in GL 88-16.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (67 FR 53988). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

7.0 REFERENCES

1. B.L. Shriver to U.S. NRC, "Susquehanna Steam Electric Station Proposed Amendment No. 211 to Unit 2 License NPF-22: MCPR Safety Limits and Reference Changes PLA-5467," July 17, 2002.
2. B.L. Shriver to U.S. NRC, "Susquehanna Steam Electric Station Supplement to Proposed Amendment No. 211 to Unit License NFP-22: MCPR Safety Limits and Reference Changes PLA-5520," October 30, 2002.
3. B.L. Shriver to U.S. NRC, "Susquehanna Steam Electric Station Request for Additional Information for Proposed Amendment No. 211 to Unit 2 License NPF-22: MCPR Safety Limits and Reference Changes PLA-5563," December 18, 2002.
4. B.L. Shriver to U.S. NRC, "Susquehanna Steam Electric Station Supplemental Information for Proposed Amendment No. 211 to Unit 2 License NPF-22: MCPR Safety Limits and Reference Changes PLA-5586," January 28, 2003.

Principal Contributor: T. Huang

Date: March 4, 2003