

October 3, 2003

Mr. John L. Skolds, President
and Chief Nuclear Officer
Exelon Nuclear
Exelon Generation Company, LLC
200 Exelon Way, KSA 3-E
Kennett Square, PA 19348

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION, UNIT 3 - ISSUANCE OF
AMENDMENT RE: REVISION TO TECHNICAL SPECIFICATIONS SAFETY
LIMIT MINIMUM CRITICAL POWER RATIO FOR CYCLE 15 OPERATION
(TAC NO. MB9715)

Dear Mr. Skolds:

The Commission has issued the enclosed Amendment No. 252 to Renewed Facility Operating License No. DPR-56 for the Peach Bottom Atomic Power Station, Unit 3. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated June 23, 2003, as supplemented by letter dated September 4, 2003.

This amendment revises the TSs for the safety limit for the minimum critical power ratio from its current value of 1.09 to 1.07 for two recirculation-loop operation, and from 1.11 to 1.09 for single recirculation-loop operation.

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

Sincerely,

/RA/

George F. Wunder, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-278

Enclosures: 1. Amendment No. 252 to Renewed DPR-56
2. Safety Evaluation

cc w/encls: See next page

Peach Bottom Atomic Power Station, Units 2 and 3

cc:

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George F. Wunder, Project Manager, Section 2
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DISTRIBUTION:

PUBLIC	PDI-2 R/F	JClifford	GWunder	MO'Brien	OGC
GHill (2)	FAkstulewicz	THuang	TBoyce	BPlatchek, RGN-I	
ACRS	RDennig				

ADAMS Accession Numbers: Amendment: ML032591119,
TSs: ML , Package: ML
SE input provided - no major changes made.

OFFICE	PD1-2/PM	PD1-2/LA	SRXB/BC*	OGC	PDI-2/SC
NAME	GWunder	SLittle for MO'Brien	FAkstulewicz	RWeisman	JClifford
DATE	9/25/03	9/25/03	SE dated 9/16/03	10/2/03	10/2/03

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EXELON GENERATION COMPANY, LLC

PSEG NUCLEAR LLC

DOCKET NO. 50-278

PEACH BOTTOM ATOMIC POWER STATION, UNIT 3

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 252
Renewed License No. DPR-56

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (Exelon Generation Company), and PSEG Nuclear LLC (the licensees), dated June 23, 2003, as supplemented by letter dated September 4, 2003, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and 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 rules and 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;
 - 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 Renewed Facility Operating License No. DPR-56 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 252, are hereby incorporated in the license. Exelon Generation Company shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented prior to startup for Cycle 15 operations, scheduled for October 2003.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: October 3, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 252

RENEWED FACILITY OPERATING LICENSE NO. DPR-56

DOCKET NO. 50-278

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove

2.0-1

Insert

2.0-1

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 252 TO RENEWED FACILITY OPERATING

LICENSE NO. DPR-56

EXELON GENERATION COMPANY, LLC

PSEG NUCLEAR LLC

PEACH BOTTOM ATOMIC POWER STATION, UNIT 3

DOCKET NO. 50-278

1.0 INTRODUCTION

By letter dated June 23, 2003 (Reference 1), as supplemented by letter dated September 4, 2003 (Reference 2), Exelon Generation Company, LLC (the licensees) submitted a request for changes to the Peach Bottom Atomic Power Station, Unit 3 (PBAPS Unit 3), Technical Specifications (TSs) for Cycle 15 operation. The requested change would incorporate revised safety limit minimum critical power ratios (SLMCPRs) in TS 2.1.1.2 due to the cycle-specific analysis performed by Global Nuclear Fuel - Americas (GNF-A). The September 4, 2003, letter provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on August 5, 2003 (68 FR 46243).

2.0 REGULATORY EVALUATION

Section 50.36 of Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR 50.36) provides that nuclear plant TSs will be derived from the analyses and evaluations included in the safety analysis report, and amendments thereto, submitted pursuant to 10 CFR 50.34 (which addresses, among other things, contents of the Final Safety Analysis Report). The existing TS requirements, as well as the licensee's proposed amendment, are based on such analyses and evaluations.

Criterion 6 of Appendix H to the PBAPS Updated Final Safety Analysis Report provides that the reactor core be designed to operate without exceeding specified acceptable fuel damage limits during normal operation with appropriate margins for uncertainties and transient conditions. The SLMCPR is developed to assure fuel cladding integrity. The SLMCPR ensures sufficient conservatism exists in the operating MCPR such that, during normal operation and in the event of an anticipated operational occurrence, at least 99.9 percent of the fuel rods in the core do not experience transition boiling. At every refueling, the SLMCPR is recalculated due to fuel replacement.

3.0 TECHNICAL EVALUATION

The licensee requested a change to the PBAPS Unit 3 TSs for Cycle 15 in accordance with 10 CFR 50.90. Specifically, the licensee proposed to change the SLMCPR values in TS 2.1.1.2 from 1.09 to 1.07 for two recirculation-loop operation and from 1.11 to 1.09 for single recirculation-loop operation with the reactor vessel steam dome pressure greater than 785 psig and core flow greater than 10 percent of rated core flow.

The licensee described the approved methodologies used to calculate the SLMCPR value for the proposed TS change in the submittal. The Cycle 15 SLMCPR analysis was performed by GNF-A using plant- and cycle-specific fuel and core parameters, and Nuclear Regulatory Commission (NRC)-approved methodologies including NEDC-32505P, Revision 1, "R-Factor Calculation Method for GE11, GE12 and GE13 Fuel"; NEDE-10958-A, "General Electric Boiling Water Reactor Thermal Analysis Basis" (GETAB); NEDC-32601P, "Methodology and Uncertainties for Safety Limit MCPR Evaluations"; NEDC-32694P, "Power Distribution Uncertainties for Safety Limit MCPR Evaluation"; and Amendment 25 to NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel" (GESTAR II).

The NRC staff has reviewed the licensee's justification for the changes to the SLMCPR from 1.09 to 1.07 for two recirculation-loop operation and from 1.11 to 1.09 for single recirculation-loop operation using the approach stated in Amendment 25 to GESTAR II. The staff has also reviewed the adequacy of the SLMCPR calculation with respect to end-of-cycle (EOC) penalty of top-peaked power shape.

When using the GETAB power distribution uncertainties as in previous submittals, there is an increase of the SLMCPR values for Cycle 15 operation over Cycle 14 operations due to the differences in the core and bundle designs between the two cycles. This design difference is highlighted by two characteristics - flatness of the core bundle-by-bundle MCPR distribution and flatness of bundle pin-by-pin power/R-factor distribution as described in the licensee's June 23, 2003, submittal. Because the licensee used the power distribution model and its associated reduced uncertainties as described in the approved methodology in NEDC-32694P-A, however, there was an overall reduction in the SLMCPR.

In Reference 2, the licensee provided results of a Monte Carlo calculation to further explain the SLMCPR values. To address the EOC SLMCPR penalty due to a top-peaked power shape, five calculations were performed by GNF-A at different exposures through the cycle to determine that the largest calculated SLMCPR would occur near the EOC. The axial power shapes were assessed at each of these points and there was no outlet or double-humped axial power shape identified. The licensee stated that PBAPS Unit 3, Cycle 15, has been designed and loaded to reduce the hot excess reactivity, and thus minimizes the use of control blades to extend control blade life. For this design, the axial skewing of the power to the top of the core was controlled more by axial gadolinia distribution in the fresh bundles than by control blades. The result was a middle-to-bottom peaked axial power shape throughout the cycle. The NRC staff finds the justification for the proposed Cycle 15 SLMCPR values acceptable because: (1) NRC-approved methodologies were used with appropriate cycle-specific inputs to perform the calculation for the SLMCPR values; (2) the calculation results indicate that the proposed SLMCPR values are conservative; and (3) there was no top-peaked axial power profile of these bundles at any point in the cycle.

The NRC staff has followed the licensee's calculation procedures to verify the accuracy of the results. The proposed PBAPS Unit 3, Cycle 15, SLMCPR values will ensure that 99.9 percent of the fuel rods in the core will not experience boiling transition. The NRC staff concludes that the justification for analyzing and determining the SLMCPR value of 1.07 for two recirculation-loop operation and 1.09 for single recirculation-loop operation is acceptable for PBAPS Unit 3, Cycle 15, operation since the approved methodologies listed above were used with appropriate cycle-specific inputs.

4.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes 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 amendment involves 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 amendment involves no significant hazards consideration, and there has been no public comment on such finding (68 FR 46243). Accordingly, the amendment meets 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 amendment.

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. Letter from Michael P. Gallagher, Exelon, to NRC, "License Amendment Request: AR A1418692 Safety Limit Minimum Critical Power Ratio (SLMCPR) Change," dated June 23, 2003.
2. Letter from Michael P. Gallagher, Exelon, to NRC, "License Amendment Request: AR A1418692 Safety Limit Minimum Critical Power Ratio (SLMCPR) Change," dated September 4, 2003.

Principal Contributor: T. Huang

Date: October 3, 2003