

August 1, 2000

Mr. James A. Hutton
Director-Licensing, MC 62A-1
PECO Energy Company
Nuclear Group Headquarters
Correspondence Control Desk
P.O. Box No. 195
Wayne, PA 19087-0195

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION, UNIT 2 - ISSUANCE OF
AMENDMENT RE: GE NUMAC-PRNMS UPGRADE (TAC NO. MA9135)

Dear Mr. Hutton:

The Commission has issued the enclosed Amendment No. 232 to Facility Operating License No. DPR-44 for the Peach Bottom Atomic Power Station (PBAPS), Unit No. 2. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated March 1, 1999, as supplemented October 1 and October 6, 1999, and June 6, 2000.

These changes will support PBAPS Modification P00507, which will install a digital Power Range Neutron Monitoring (PRNM) system and incorporate long-term thermal-hydraulic stability solution hardware.

Your March 1, 1999, letter proposed issuing amendments for both Units 2 and 3. Modification P00507 was installed on Unit 3 during the Fall 1999 refueling outage, and the TS amendment for Unit 3 was issued on October 14, 1999. Modification P00507 will be installed on Unit 2 during the Fall 2000 refueling outage. This document approves your application for amendment for PBAPS, Unit 2.

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

Sincerely,

/RA/

Bartholomew C. Buckley, Sr. Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-277

Enclosures: 1. Amendment No. 232 to DPR-44
2. Safety Evaluation

cc w/encls: See next page

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Units 1, 2, and 3

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PECO ENERGY COMPANY
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
DELMARVA POWER AND LIGHT COMPANY
ATLANTIC CITY ELECTRIC COMPANY
DOCKET NO. 50-277
PEACH BOTTOM ATOMIC POWER STATION, UNIT NO. 2
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 232
License No. DPR-44

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by PECO Energy Company, et al. (the licensee) dated March 1, 1999, as supplemented October 1, and October 6, 1999, and June 6, 2000, 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 Facility Operating License No. DPR-44 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 232, are hereby incorporated in the license. PECO 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 restart from the Peach Bottom Atomic Power Station, Unit 2, Fall 2000 refueling outage.

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: August 1, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 232

FACILITY OPERATING LICENSE NO. DPR-44

DOCKET NO. 50-277

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.

<u>Remove</u>	<u>Insert</u>
3.3-1	3.3-1
3.3-4	3.3-4
3.3-5	3.3-5
3.3-6	3.3-6
3.3-7	3.3-7
3.3-18	3.3-18
3.3-19	3.3-19
3.3-20	3.3-20
3.3-21	3.3-21
3.4-1	3.4-1
3.10-20	3.10-20
3.10-22	3.10-22
B 3.3-7	B 3.3-7
B 3.3-8	B 3.3-8
B 3.3-9	B 3.3-9
B 3.3-10	B 3.3-10
B 3.3-11	B 3.3-11
B 3.3-12	B 3.3-12
B 3.3-23	B 3.3-23
B 3.3-24	B 3.3-24
B 3.3-25	B 3.3-25
B 3.3-26	B 3.3-26
B 3.3-27	B 3.3-27
B 3.3-28	B 3.3-28
B 3.3-29	B 3.3-29
B 3.3-30	B 3.3-30
B 3.3-31	B 3.3-31
B 3.3-32	B 3.3-32
B 3.3-33	B 3.3-33
B 3.3-34	B 3.3-34
B 3.3-35	B 3.3-35
B 3.3-36	B 3.3-36
B 3.3-46	B 3.3-46

ATTACHMENT TO LICENSE AMENDMENT NO. 232

FACILITY OPERATING LICENSE NO. DPR-44
DOCKET NO. 50-277

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

B 3.3-47
B 3.3-53
B 3.3-54
B 3.3-55
B 3.3-56
B 3.3-58
B 3.4-3
B 3.4-5
B 3.4-6
B 3.10-32
B 3.10-35

Insert

B 3.3-47
B 3.3-53
B 3.3-54
B 3.3-55
B 3.3-56
B 3.3-58
B 3.4-3
B 3.4-5
B 3.4-6
B 3.10.32
B 3.10-35

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 232 TO FACILITY OPERATING
LICENSE NO. DPR-44
PECO ENERGY COMPANY
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
DELMARVA POWER AND LIGHT COMPANY
ATLANTIC CITY ELECTRIC COMPANY
PEACH BOTTOM ATOMIC POWER STATION, UNIT NO. 2
DOCKET NO. 50-277

1.0 INTRODUCTION

By letter dated March 2, 1998 (Reference 1), in response to Generic Letter 94-02, "Long-term Solutions and Upgrade of Interim Operating Recommendations for Thermal Hydraulic Instabilities in Boiling Water Reactors (BWR)," PECO Energy Company (PECO Energy, the licensee) proposed design modifications to the Power Range Neutron Monitoring (PRNM) system in the Peach Bottom Atomic Power Station, Units 2 and 3. Subsequently, by letters dated March 1, 1999 (Reference 2), as supplemented October 1 (Reference 3), and October 6, 1999 (Reference 4), the licensee proposed license amendments to revise the Technical Specifications (TSs) for both Peach Bottom Units. Amendment 234 to License DPR-56 (Peach Bottom Unit 3) was issued on October 14, 1999 (Reference 6), to change the TSs for Unit 3, since the plant modification was first installed on Unit 3. By letter dated June 6, 2000, the licensee transmitted a supplement for TS changes for Unit 2. The proposed TS changes will enable the licensee to install the proposed design modification on Unit 2. This modification will upgrade the existing analog PRNM, excluding the associated detectors and cables, with a General Electric (GE) Company digital PRNM called "Nuclear Measurement Analysis and Control (NUMAC)." This NUMAC PRNM will also include an Oscillating Power Range Monitor (OPRM) to detect and suppress reactor power instabilities and provide an automatic trip function. The OPRM is called "Option III stability trip function" in the staff-approved licensing Topical Report NEDO-31960, "BWR Owner's Group Long-Term Stability Solution Licensing Methodology," dated July 1993.

By letter dated September 5, 1995 (Reference 5), the staff approved GE licensing Topical Report NEDC-32410P, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC-PRNM) Retrofit Plus Option III Stability Trip Function." This Topical Report

addressed the full scope of the modification to replace the Power Range Monitoring portion of an analog Neutron Monitoring System in GE BWRs with GE NUMAC-PRNM including OPRM. In this Topical Report, the staff approved proposed TS changes for Average Power Range Monitor (APRM) reactor trip and rod block protective functions. By letter dated August 15, 1997, the staff approved Supplement 1 to NEDC-32410P which includes TS requirements for OPRM and provides clarification of issues related to the APRM.

The licensee's proposed TS changes reflect only the PRNM portion of the modification affecting the Reactor Protection System (RPS) and Rod Block Monitoring (RBM) functions of the APRM instrumentation and will be implemented following installation of NUMAC-PRNM. The licensee will submit a separate license amendment request for the proposed TS changes to reflect the OPRM portion of the modification after the first operating cycle following installation of NUMAC-PRNM in each Peach Bottom unit. During this period, the OPRM trip function will not be connected to plant RPS in order to evaluate the performance of the OPRM algorithms. Until implementation of the TS requirements for the OPRM operability, PECO Energy will continue to implement the Interim Corrective Actions specified in the NRC Bulletin 88-7, Supplement 1, "Power Oscillations in Boiling Water Reactors (BWRs)", to detect and suppress power oscillations.

The October 1, and October 6, 1999, and June 6, 2000, letters provided clarifying information that did not expand the scope of the original Federal Register notice or change the initial proposed no significant hazards consideration determination.

2.0 EVALUATION

The staff's safety evaluation report (SER) in Reference 5 states that those licensees who reference Topical Report NEDC-32410P for the installation of NUMAC-PRNM, should provide plant-specific revised TSs for the PRNM functions consistent with Appendix H of the Topical Report. The staff's SER also asked the licensees to provide clarification and reconcile differences between the specific plant design and the Topical Report design descriptions. In Reference 2, the licensee stated that the proposed TS changes are consistent with the NRC-approved GE Topical Report NEDC-32410P with some minor deviations. The licensee also provided plant-specific responses for the Required Utility Actions specified in the Topical Report. The staff's review of the plant-specific responses and the licensee's justification for various deviations resulted in a request for additional information. The licensee responded to the staff's request in References 3 and 4 which included Control Rod Block Instrumentation (CRBI) revised Limiting Condition for Operation (LCO) TS Table 3.3.2.1-1.

The proposed TS changes revise the RPS and RBM function LCOs of the APRM instrumentation. Additionally, the TS Bases associated with the RPS and the RBM LCOs are updated to reflect these revisions. Also, editorial changes are incorporated in Reactor Coolant System LCO 3.4.1 and Special Operations LCO 3.10.8. The staff finds all changes to be consistent with the Topical Report except for two changes in the RBM LCO and one change in the RPS LCO. The staff finds these three changes to be acceptable as described below:

2.1 RBM LCO

In the revised CRBI LCO table, the licensee changed thermal power limits on specified conditions for the operability of the RBM trip functions from the current "two-sided" to a "one-

sided" configuration to reduce the risk of non-compliance with the TS required surveillance of the RBM instrumentation. The proposed changes to thermal power limits are conservative with respect to the current TS requirements and, therefore, are acceptable.

The licensee also deleted the RBM "Downscale" trip function from the CRBI LCO table which is neither addressed nor proposed to be deleted in the Topical Report. The licensee stated that this trip fails to meet any of the four criteria of 10 CFR 50.36(c)(2)(ii) for an LCO to be included in the plant TS for safe operation of the facility. Also, no credit was taken for the downscale function in any ARPM-RBM TS (ARTS) analyses by GE. With the current analog neutron monitoring system, inclusion of the RBM "Downscale" function in the plant TS, in addition to RBM Inop function, has some merit because there are some failure modes that could result in a reduction of signal (downscale RBM signal), but not a full failure (Inop RBM signal). The NUMAC RBM has a built-in self-test capability to detect abnormal operating conditions, and provides an RBM Inop alarm and the associated rod block signal. No failure modes have been identified which would result in the RBM flux value being reduced to near zero without other alarms. This feature reduces the value of the RBM "Downscale" function to that of a "diagnostic aid" in troubleshooting certain Inop conditions which have already been indicated by self-test. As such, the RBM "Downscale" function becomes part of the overall RBM Inop function, which is retained in the plant TSs. Therefore, the staff finds the licensee's proposed deletion of RBM "Downscale" function from the plant TSs to be acceptable.

2.2 RPS LCO

In the proposed changes to the RPS instrumentation LCO TS Table 3.3.1.1-1, the licensee changed the instrument setpoint allowable values (AVs) for Simulated Thermal Power-High and Neutron Flux-High reactor trip functions of the APRM instrumentation. These changes are non-conservative with respect to the current TS AVs because the Neutron Flux-High instrument setpoint Analytical Limit (not included in the plant TSs and defined as the measured or calculated limit established by the safety analysis to ensure that the safety limit is not exceeded) was not changed (increased) as stated in Reference 2. In response to the staff's request for additional information dated September 27, 1999, the licensee stated in Reference 4 that the revised AV for Neutron Flux-High instrument setpoint was calculated based on an analytical limit of 122 percent RTP instead of 120 percent RTP value used for the current TS Setpoint AV. This change of analytical limit is based on the analysis performed by GE. The licensee stated that the proposed changes to the AVs were calculated using the staff-approved instrumentation setpoint methodology documented in NEDC-31336, "General Electric Instrumentation Setpoint Methodology," and the 122 percent RTP analytical limit. The staff finds the licensee's justification for the proposed setpoint AV changes to be acceptable since the changes were derived using staff-approved methodology and are based on analytical limits established using the current analysis.

2.3 Summary

Based on the above review and justifications for TS changes, the staff concludes that the licensee's proposed TS changes are acceptable.

3.0 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.

4.0 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 and changes surveillance requirements. 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 (64 FR 29711). 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.

5.0 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

6.0 REFERENCES

1. Letter from Garret D. Edwards (PECO Energy) to NRC dated March 2, 1998, "Selection of Option III for Long-Term Solution"
2. Letter from Garret D. Edwards (PECO Energy) to NRC dated March 1, 1999, "Proposed Changes To Peach Bottom Units 2&3 Technical Specifications"
3. Letter from James A. Hutton, Jr. (PECO Energy) to NRC dated October 1, 1999, "Response to Request for Additional Information"
4. Letter from James A. Hutton, Jr. (PECO Energy) dated October 6, 1999, "Supplemental Information"
5. Letter from NRC to David W. Reigel (GE NUMAC Project) dated September 5, 1995, "Acceptance of Licensing Topical Report NEDC-32410P"
6. Letter from NRC to James A. Hutton, Jr. (PECO Energy) dated October 14, 1999, "Peach Bottom Atomic Power Station, Unit 3 - Issuance of Amendment Re: GE NUMAC-PRNMS Upgrade (TAC No. MA4978)"

Principal Contributor: J. Boska

Date: August 1, 2000