



# NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 233 TO FACILITY OPERATING LICENSE NO. DPR-56

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. 3

DOCKET NO. 50-278

## 1.0 INTRODUCTION

By letter dated July 12, 1999, as supplemented by a letter dated August 30, 1999, PECO Energy Company (licensee) proposed changes to the technical specifications (TS) for the Peach Bottom Atomic Power Station (PBAPS), Unit No. 3 Cycle 13 operation. The proposed TS changes include the safety limit minimum critical power ratio (SLMCPR) and references to the approved methodologies in the core operating limits report (COLR). The PBAPS Unit No. 3 Cycle 13 core has 764 fuel assemblies, of which there are 276 fresh GE13 bundles, 292 once-burned GE13 bundles, and 196 twice-burned GE11 bundles. The August 30, 1999, letter provided additional information but did not change the initial proposed no significant hazards consideration determination or expand the amendment beyond the scope of the initial Federal Register notice published August 11, 1999.

## 2.0 BACKGROUND

Criterion 10 of Appendix A of 10 CFR Part 50, "Reactor Design," (GDC-10) requires, and safety limits ensure, that specified acceptable fuel design limits are not exceeded during steady state operation, normal operational transients, and anticipated operational occurrences. Safety limits are required to be included in the technical specifications by 10 CFR 50.36. Safety limits are established to protect the integrity of the fuel cladding, reactor pressure vessel, and primary system piping during normal plant operations and anticipated transients. The fuel cladding integrity safety limit is the SLMCPR. The basis for the SLMCPR is to ensure that greater than 99.9 percent of all fuel rods in the core avoid transition boiling. The margin between calculated boiling transition and the SLMCPR is based on a detailed statistical methodology. Every refueling cycle the SLMCPR is recalculated due to fuel replacement.

### 3.0 EVALUATION

The licensee requested a change to the PBAPS Unit No. 3 TS in accordance with 10 CFR 50.90. The licensee proposed the following revisions:

- Revise TS 2.1.1.2 to reflect changes in SLMCPR due to use of fuel-cycle specific analysis.
- Delete the cycle-specific footnote associated with TS 5.6.5.b.1.
- Update the reference contained in TS 5.6.5.b.2 which documents the analytical method used to determine core operating limits.

#### TS 2.1.1.2 With the Reactor Steam Dome Pressure $\geq$ 785 psig and Core Flow $\geq$ 10 Percent Rated Core Flow

The proposed change to TS 2.1.1.2 includes the following: (1) changing the SLMCPR values from 1.11 to 1.09 for two recirculation loop operation and from 1.12 to 1.11 for single recirculation loop operation; and (2) deleting the cycle-specific footnote "MCPR values in TS 2.1.1.2 are applicable only for Cycle 12 operation."

In their submittal, the licensee described the methodology used to calculate the cycle-specific SLMCPR value for PBAPS Unit No. 3 Cycle 13 operation. The Cycle 13 SLMCPR analysis was performed by GE Nuclear Energy (GENE) using the plant- and cycle-specific fuel and core parameters and NRC approved methodologies described in GESTAR-II (NEDE-24011-P-A-13), and the Amendment 25 to GESTAR-II, NEDE-24011. The analysis includes the impact of the differences in the core and bundle designs between Cycle 12 and Cycle 13.

The staff has reviewed the justification for the SLMCPR value of 1.09 for two recirculation loop operation and 1.11 for single loop operation for Cycle 13 using the approach stated in the Amendment 25 to GESTAR-II, NEDE-24011.

Based on our review of the submittal and the detailed summary results of the analysis for the Cycle 12 and 13 operation, the staff has concluded that the Cycle 13 SLMCPR analysis for PBAPS, Unit No. 3 using the plant- and cycle-specific calculation in conjunction with the approved method is acceptable for PBAPS, Unit No. 3. The Cycle 13 SLMCPR will ensure that 99.9 percent of the fuel rods in the core will not experience boiling transition which satisfies the requirements of General Design Criterion 10 of Appendix A to 10 CFR Part 50 regarding acceptable fuel design limits. The staff has concluded that the justification for the SLMCPR value of 1.09 for two loop and 1.11 for single loop for PBAPS, Unit No.3 Cycle 13 operation is acceptable since approved methodologies were used.

The proposed removal of cycle-specific footnote is also acceptable since it is applicable to Cycle 12 only.

#### TS 5.6.5 Core Operating Limits Report

The proposed change to TS 5.6.5 includes the following: (1) removing the cycle-specific

footnote, "For Cycle 12, specific documents were approved in the safety evaluation dated (10/9/97) to support License Amendment No. (225)," which is associated with TS 5.6.5.b.1; and (2) updating a reference contained in TS 5.6.5.b.2 which documents an analytical method used to determine the core operating limits. The update will reflect changes that were previously approved by the Nuclear Regulatory Commission (NRC) in safety evaluation (SE) report dated August 10, 1994 (Amendment No.192 for PBAPS Unit No. 2). Specifically, the licensee will update to "Maximum Extended Load Line Limit and Arts Improvement Program, Analysis for Peach Bottom Atomic Power Station Units 2 and 3," Revision 2 March 1995 (ARTS/MELLA), which documents an analytical method used to determine the core operating limits.

The staff has reviewed the proposed changes and found them acceptable since (1) the analysis was in accordance with the approaches stated in Amendment 25 to GESTAR-II, NEDE-24011-P-A, and the cycle-specific footnote in TS 5.6.5.b.1 is no longer applicable; (2) the approved topical report was updated to Revision 2 and the revision is administrative and will ensure that the TSs are accurate and consistent with other licensing documents.

#### 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 (64 FR 43777). The amendment also relates to changes in recordkeeping, reporting, or administrative procedures or requirements. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and (10). 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.

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Date: October 5, 1999