



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 226 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 July 10, 1998, as supplemented by two letters dated September 11, 1998, PECO Energy Company (PECO Energy, the licensee) proposed changes to the Technical Specifications (TSs) for the Peach Bottom Atomic Power Station (PBAPS), Unit 2. The requested changes would revise: (1) the safety limit Minimum Critical Power Ratio (MCPR) from 1.11 to 1.10 for two recirculation loop operation and from 1.13 to 1.12 for single recirculation loop operation to support use of GE-13 fuel for the PBAPS, Unit 2, Cycle 13 reload application; and (2) the reference in Core Operating Limits Report. The Cycle 13 is a mixed core of 764 fuel assemblies, of which there are 292 fresh GE-13, 284 once-burn GE-13 and 188 twice-burn GE-11 fuel assemblies. The supplemental letters provided clarifying information but did not change the original no significant hazards consideration determination. The second change to add a footnote to TS 5.6.5.b.1 is determined not to be required. Therefore, that change request is denied. A Notice of Partial Denial is enclosed.

2.0 EVALUATION

The licensee requested a change to the PBAPS, Unit 2, Facility Operating License in accordance with the 10 CFR 50.90. The revised TSs were proposed as follows:

2.1 Specification 2.1.1 - Reactor Core Safety Limits (SLs)

The safety limit MCPR is proposed to change from 1.11 to 1.10 for two recirculation loop operation and to change from 1.13 to 1.12 for single loop operation. These MCPR values are for the reactor steam dome pressure greater than 785 psig and core flow greater than 10% of rated flow. The applicable cycle number in the footnote to TS 2.1.1.2 would be changed from Cycle 12 to Cycle 13 operation only.

The licensee described the methodology used to calculate the new safety limit MCPR values for the TSs in its submittal. The Cycle 13 safety limit MCPR analysis was performed by General Electric (GE) using the plant- and cycle-specific fuel and core parameters, NRC-approved methodologies including GESTAR-II (NEDE-24011-P-A-13, Sections 1.15 and 1.25), a revised R-factor methodology described in NEDE-32505P, "R-Factor Calculation Method for GE-11, GE-12 and GE-13 Fuel," November 1995, and in proposed Amendment 25 to GESTAR-II. The revised R-factor calculation method uses the same NRC-approved equation stated in GESTAR (Topical

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Report NEDE-24011-P-A) except for adding the correction factors and substituting rod-integrated powers for the lattice peaking factors to account for the effects of the part-length-rod design. The proposed Amendment 25 to GESTAR-II provides cycle-specific Safety Limit MCPRs that replace the former generic, bounding safety limit MCPR.

The staff has reviewed the following: (1) the R-factor calculation method for GE-11 and GE-13 fuel; (2) the clarification of the 0.01 decrease of the proposed safety limit MCPR for the Cycle 13 operation; and (3) the relevant information provided in the proposed Amendment 25 to GESTAR-II, NEDE-24011.

Based on our review, the staff has found that the Cycle 13 safety limit MCPR analysis for PBAPS, Unit 2, using a revised R-factor calculation method in Amendment 25 to GESTAR-II is acceptable for PBAPS, Unit 2. The Cycle 13 safety limit MCPR will ensure that 99.9% 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. Therefore, the staff has concluded that the justification for analyzing and determining the safety limit MCPR values of 1.10 for two recirculation loop operation and 1.12 for single loop operation for PBAPS, Unit 2, Cycle 13 operation is acceptable since the approved methodologies were used. The proposed change from Cycle 12 to Cycle 13 is also acceptable to reflect the applicability of the proposed TS changes to the upcoming Cycle 13 operation for PBAPS, Unit 2.

2.2 Specification 5.6.5 - Core Operating Limits Report

The proposed change to TS 5.6.5.b.1 includes a note marked with an asterisk to identify that analytical methods other than those listed in the TSs may be used to determine values for cycle-specific parameters. The TSs currently state that the latest approved revision of NEDE-24011 may be used. The staff has reviewed the methodology proposed in Amendment 25 to GESTAR-II, NEDE-24011, which includes the R-factor calculations method. That analytical method for determining cycle-specific limits will ensure that applicable MCPR safety limits of the safety analysis for PBAPS, Unit 2, Cycle 13 operation are met and is hereby approved. Therefore, the proposed footnote is not needed.

3.0 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.

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. 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 (63 FR 48261). 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.

5.0 CONCLUSION

Based on our review, the staff concludes that: (1) the above described TS changes involving the safety limit MCPRs for both two loop and single loop operation, and applicable cycle number in the footnote for the safety limit MCPR values in TS 2.1.1.2 are acceptable for PBAPS, Unit 2, Cycle 13 operation because the changes were analyzed based on the NRC-approved methods using PBAPS, Unit 2, cycle-specific inputs and the fuel bundles in the core for Cycle 13 operation; and (2) the asterisk note to TS 5.6.5 should be deleted since the Topical Reports under the staff review will soon be approved.

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.

Principal Contributor: T. Huang

Date: October 26, 1998