10CFR50.90

PHILADELPHIA ELECTRIC COMPANY

NUCLEAR GROUP HEADQUARTERS

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September 15, 1993

STATION SUPPORT DEPARTMENT

Docket No. 50-277

License No. DPR-44

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: Peach Bottom Atomic Power Station, Unit 2
Technical Specifications Change Request (TSCR 93-20)

Dear Sir:

Philadelphia Electric Company hereby submits Technical Specifications Change Request No. 93-20, in accordance with 10CFR50.90, requesting an amendment to the Technical Specifications (Appendix A) of the Peach Bottom Facility Operating License. This change is necessary to maintain consistency between the operating station and the Technical Specifications.

Attachment 1 to this letter describes the proposed change, and provides justification for the change. The fuel related changes were developed in accordance with NRC-approved methods. Attachment 2 contains the revised Technical Specifications page.

If you have any questions, please do not hesitate to contact Mr. George Siefert of my staff at (215) 640-6768.

Very truly yours,

G. A. Hunger, Jr.

G. A. Hunger, Jr., Director
Licensing Section

Enclosure: Affidavit

Attachments 1, 2

cc: T. T. Martin, Administrator, Region I, USNRC
USNRC Senior Resident Inspector
W. P. Dornsife, Commonwealth of Pennsylvania

COMMONWEALTH OF PENNSYLVANIA :

: ss.

COUNTY OF CHESTER :

G. R. Rainey, being first duly sworn, deposes and says:

That he is Vice President of Philadelphia Electric Company; the Applicant herein; that he has read the attached Technical Specifications Change Request (Number 93-20) for Peach Bottom Facility Operating License DPR-44, and knows the contents thereof; and that the statements and matters set forth therein are true and correct to the best of his knowledge, information and belief.

G R Rainey

Vice President

Subscribed and sworn to

before me this 15th day

of September 1993.

Erica A Santori

Notary Public

Notarial Seal
Erica A. Santori, Notary Public
Tredyffrin Twp., Chester County
My Commission Expires July 10, 1995

ATTACHMENT 1

PEACH BOTTOM ATOMIC POWER STATION

UNIT 2

Docket No. 50-277

License No. DPR-44

TECHNICAL SPECIFICATIONS CHANGE REQUEST
No. 93-20

"Minimum Critical Power Ratio Safety Limits"

Docket No. 277

License No. DPR-44

INTRODUCTION

Philadelphia Electric Company (PECo) hereby requests that, once approved, these changes be effective immediately for Unit 2. This date is required to maintain consistency between the operating station and the Technical Specifications (TS).

This TS change request corrects an administrative oversight. When performing the Cycle 10 reload analyses, the proper Operating Limit Mimimum Critical Power Ratios (OLMCPR) were developed and are being used; however, the TS listed Safety Limit MCPR (SLMCPR) was not changed. The OLMCPR is a more conservative parameter than the SLMCPR. All OLMCPRs were calculated based on NRC-approved reload licensing analyses in conjunction with the correct SLMCPR. The process computer continually monitors the MCPR during power operation. A review of the process computer data for Cycle 10 was performed, and it was determined that the OLMCPR has not been violated at any time. This TSCR is only an administrative change to revise the Safety Limit Minimum Critical Power Ratio (SLMCPR) documented in the TS.

DESCRIPTION OF CHANGES:

The Licensee proposes that the Safety Limit, Section 1.1.A; "Reactor Pressure ≥ 800 psia and Core Flow ≥ 10% of Rated," be revised to reflect the limits for GE11 fuel. The present wording would remain the same except 1.07 and 1.08 would replace the present values of 1.06 and 1.07 for two loop and single loop operation, respectively. The proposed words would read: "The existence of a minimum critical power ratio (MCPR) less than 1.07 for two loop operation, or 1.08 for single loop operation, shall constitute violation of the fuel cladding integrity safety limit."

SAFETY DISCUSSION

The current Unit 2 TS MCPR Safety Limits are 1.06 for two-recirculation loop operation and 1.07 for single recirculation loop operation (page 9 of TS). However, use of GE11 fuel in Unit 2 during Cycle 10 requires MCPR Safety Limits not less than 1.07 for two-loop operation and 1.08 for single loop operation.

The fuel cladding integrity safety limit is set such that no fuel damage is calculated to occur if the limit is not violated. Since the parameters which result in fuel damage are not directly observable during reactor operation, the thermal hydraulic conditions resulting in a departure from nucleate boiling have been

used to mark the beginning of the region where fuel damage could occur. Although it is recognized that a departure from nucleate boiling would not necessarily result in damage to BWR fuel rod, the critical power at which boiling transition is calculated to occur has been adopted as a convenient limit. However, the uncertainties in monitoring the core operating state and in the procedure used to calculate the critical power result in an uncertainty in the value of critical power. Therefore, the fuel cladding integrity safety limit is defined as the critical power ratio in the limiting fuel assembly for which more than 99.9% of the fuel rods in the core are expected to avoid boiling transition considering the power distribution within the core and all uncertainties.

The SLMCPR is determined using the NRC approved General Electric Thermal Basis (GETAB) described in "General Electric Standard application for Reactor Fuel," NEDE-24011-P-A-10, February, 1991 and "General Electric BWR Thermal Analysis (GETAB): Data Correlation and Design Application," NEDO-10958-A, January 1977, for two recirculation loop operation. The SLMCPR is increased by 0.01 for single loop operation as described in "General Electric BWR Thermal Analysis Basis (GETAB): Data, Correlation and Design Application," NEDO-10958A, January 1977. The SLMCPR is influenced by the critical power correlation and by bundle design parameters which affect the bundle R-factor distribution and the core radial power distribution. These parameters include the spacer design assembly dimensional geometry, enrichment level and distribution, and fuel discharge exposure. For the GE11 fuel design, there are significant design changes from previous designs, thereby requiring a recalculation of the SLMCPR.

A Safety Limit MCPR of 1.07 (1.08 for single loop) has been approved by the NRC for D- or C-lattice plants operating with a reload core of GE11 fuel (GE11 Compliance with Amendment 22 of NEDE-240110-P-A GESTAR 11, NEDE-31917P, April 1991). PBAPS Unit 2 is a D-lattice plant and the reload fuel for Cycle 10 is of the GE11 design.

As discussed previously, the proposed MCPR Safety Limits have been established in accordance with NRC-approved methods. In addition, conservative MCPR operating limits have been established using NRC-approved methods in accordance with TS 6.9.1.e(1) and (2) and were published in the Core Operating Limits Report (COLR) for Cycle 10. The COLR has been submitted to the NRC in accordance with TS 6.9.1.e(4).

The accidents previously evaluated which are potentially impacted by this change are the limiting Anticipated Operational

Occurrences (AOOs) specifically analyzed for each operating cycle. These AOOs are Rod Withdrawal Error, Loss of 100°F Feedwater Heating, Generator Load Rejection Without Bypass, Feedwater Controller Failure, Fuel Loading Error, and Rotated Bundle Error. These events are described in the United States supplement to GESTAR.

PECo proposes that the changes to the MCPR Safety Limits do not involve significant hazards considerations for the following reasons.

i) The proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated. Because the MCPR Safety Limits are operational thresholds analytically selected using proven methods, they cannot, themselves, initiate an accident. The probability of occurrence of transients is determined by the frequency of operator errors and equipment failures, not by the adequacy of the MCPR Safety Limits selected. Because the proposed MCPR safety limits have been selected such that no fuel damage is calculated to occur during the most severe moderate frequency transient events, they will ensure that the consequences of these events are not increased. The response of the plant to transients will be within the bounds of the discussion in Chapter 14 and Appendix G of the Updated Final Safety Analysis Report since the proposed MCPR Safety Limits will accomplish the same objectives as the previous limits.

ii) The proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated because the proposed MCPR Safety Limits have been selected such that the design basis is satisfied. The MCPR Safety Limits are operational thresholds analytically selected using proven methods; therefore, they cannot, themselves, initiate an accident. An improperly selected limit could result in fuel damage, which is a consequence of previously evaluated accidents. Thus, no new or different type of accident could be created by revising the limits.

iii) The proposed changes do not involve a significant reduction in a margin of safety because the proposed MCPR Safety Limits have been selected such that the design basis is satisfied and such that the conservatism described in the Bases for the Fuel Cladding Integrity

Safety Limit TS are maintained. Thus, margins of safety with the proposed MCPR Safety Limits are the same as with the previous limits.

ENVIRONMENTAL IMPACT

An environmental assessment is not required for the changes requested by this Application because the requested changes conform to the criteria for "actions eligible for categorical exclusion" as specified in 10CFR51.22(c)(9). The requested changes have been shown by this Application not to adversely affect the systems and equipment that prevent the uncontrolled release of radioactive material to the environment. The Application involves no significant hazards considerations as demonstrated in the preceding sections. The Application involves no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, and there will be no significant increase in individual or cumulative occupational radiation exposure.

CONCLUSION

The Plant Operations Review Committee and the Nuclear Review Board have reviewed these proposed changes to the Technical Specifications and determined that they do not involve an Unreviewed Safety Question and will not endanger the health and safety of the public.