

PHILADELPHIA ELECTRIC COMPANY

NUCLEAR GROUP HEADQUARTERS

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February 26, 1993

(215) 640-6000

Docket Nos. 50-277

50-278

License Nos. DPR-44

DPR-56

NUCLEAR SERVICES DEPARTMENT

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

Subject: Peach Bottom Atomic Power Station, Units 2 and 3
Technical Specifications Change Request 89-18

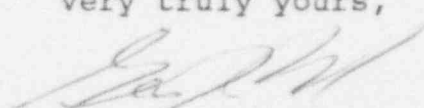
Dear Sir:

Philadelphia Electric Company (PECo) hereby submits Technical Specifications Change Request (TSCR) No. 89-18, in accordance with 10 CFR 50.90, requesting a change to Appendix A of the Peach Bottom Facility Operating Licenses. The proposed change concerns the frequency of performance of various Logic System Functional Tests (LSFT). The increase in the surveillance testing interval being requested is from 6 months (7.5 months with the allowable grace) to 24 months (an operating cycle, 30 months with the allowable grace). A change to the Technical Specification (TS) definition of a LSFT is also being requested to bring the definition in agreement with the BWR industry standard.

Attachment 1 to this letter describes the proposed changes and provides justification for the changes. Attachment 2 contains the revised Technical Specification pages.

If you have any questions regarding this matter, please contact us.

Very truly yours,



G. J. Beck, Manager
Licensing Section

Enclosures: Affidavit, Attachment 1, Attachment 2

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

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ADD 1

COMMONWEALTH OF PENNSYLVANIA:

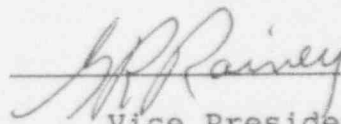
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COUNTY OF CHESTER

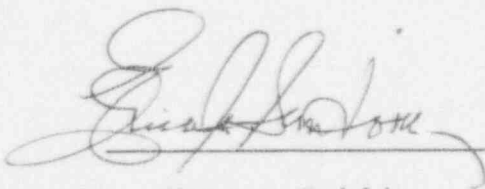
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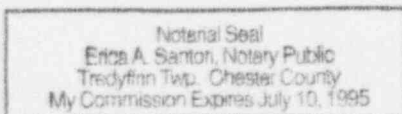
G. R. Rainey, being first duly sworn, deposes and says:

That he is Vice President of Philadelphia Electric Company; the Applicant herein; that he has read the attached Technical Specifications Change Request (Number 89-18) for Peach Bottom Facility Operating Licenses DPR-44 and DPR-56, 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.


Vice President

Subscribed and sworn to
before me this *26th* day
of *February* 1993.


Notary Public



ATTACHMENT 1

PEACH BOTTOM ATOMIC POWER STATION
UNITS 2 AND 3

Docket Nos. 50-277
50-278

License Nos. DPR-44
DPR-56

TECHNICAL SPECIFICATION CHANGE REQUEST
89-18

"Change to the Frequency and Definition of
Logic System Functional Tests"

Supporting Information for Changes 6 Pages

Philadelphia Electric Company (PECo), Licensee under Facility Operating Licenses DPR-44 and DPR-56 for the Peach Bottom Atomic Power Station (PBAPS) Unit No. 2 and Unit No. 3, respectively, requests that the Technical Specifications contained in Appendix A to the Operating Licenses be amended. Proposed changes to the Technical Specifications are indicated by vertical bars in the margin of the affected pages. The proposed revised pages 4, 80, 82, 83, and 84 for each unit are included in Attachment 2.

Description of Changes

- (1) Unit 2 and Unit 3 Technical Specification Section 1.0, Logic System Functional Test definition.
- (2) Unit 2 and Unit 3 Technical Specification Table 4.2.A, which specifies the minimum test and calibration frequency for the Primary Containment Isolation System (PCIS) be amended to have the required LSFT performed once an operating cycle.
- (3) Unit 2 and Unit 3 Technical Specification Table 4.2.B, which specifies the minimum test and calibration frequency for the Core Standby Cooling System (CSCS) be amended to have the required LSFT performed once an operating cycle.
- (4) Unit 2 and Unit 3 Technical Specification Table 4.2.C, which specifies the minimum test and calibration frequency for the Control Rod Block Actuation System be amended to have the required LSFT performed once an operating cycle.
- (5) Unit 2 and Unit 3 Technical Specification Table 4.2.D, which specifies the minimum test and calibration frequency for the Radiation Monitoring System be amended to have the required LSFT performed once an operating cycle.

Safety Discussion

Change Request 1

- 1) Change request 1 clarifies the exact requirements of a Logic System Functional Test and does not affect the performance of any test. The change is consistent with the industry standard for BWRs. This change may be considered an administrative change to clarify and improve the understanding of an existing requirement without changing or affecting the requirement.

Change Requests 2 through 5

- 2) Technical Specification Table 4.2.A requires performance of a LSFT on the following PCIS functions (listed here by PCIS group number): 1) Main Steam Line Isolation Valves, Main Steam Line Drain Valves and Reactor Water Sample Valves, 2) Residual Heat Removal (RHR) Isolation Valve Control, Shutdown Cooling Valves and Head Spray, 3) Reactor Water Cleanup Isolation Valves, 4) Drywell Isolation Valves, Traversing Incore Probe (TIP) Withdrawal Valves, Atmospheric Control Valves and Sump Drain Valves, 5) Standby Gas Treatment System and Reactor Building Isolation Valves. It should be noted that the head spray valve has been removed for Unit 3 and the logic has been disabled for Unit 2. Another TSCR is being processed to remove the test from the Unit 2 TS. The PCIS, in conjunction with other protective systems, is designed to provide timely protection against the onset and consequences of accidents involving the gross release of radioactive materials from the fuel and the nuclear system process barriers. LSFT are performed to verify operability of all switches, relays, contacts and wiring which make up the system's logic. Portions of the PCIS logic are tested on a shorter period than present LSFT. Primary Containment Isolation Valves are manually stroked in accordance with TS 4.7.D and the containment isolation instrumentation is functionally tested on a shorter period than present LSFTs, per TS Table 4.2.A. The PCIS contains redundant trip channels and isolation valves which are independently capable of performing the isolation function to protect against failures of any single component.
- 3) Technical Specification Table 4.2.B requires performance of a LSFT on the following CSCS functions: 1) Core Spray, 2) Low Pressure Coolant Injection (LPCI), 3) Containment Cooling, 4) High Pressure Coolant Injection (HPCI), 5) HPCI system isolation, 6) Automatic Depressurization (ADS), 7) Reactor Core Isolation Cooling (RCIC) system isolation, and 8) Area Cooling for Safeguard systems. The purpose of the controls and instruments associated with the CSCS is to initiate appropriate system responses to ensure that adequate core cooling under abnormal and accident conditions is provided. Portions of the CSCS logic are tested on a shorter period than present LSFTs. The CSCS initiation and isolation instrumentation is functionally tested in accordance with TS Section 4.2.B. The CSCS subsystem pumps and valves are functionally tested for operability on a shorter period than present LSFT, in accordance with

TS Sections 4.5.A, 4.5.B, 4.5.C and 4.5.D. These tests prove operability of portions of the CSCS logic. The CSCS subsystems are functionally separated into redundant trains, which each contain redundant instrumentation channels to ensure that the failure of one component or subsystem will not prevent the CSCS from fulfilling its design objective.

- 4) TS Table 4.2.C requires performance of an LSFT on Control Rod Block functions. The Control Rod Block functions prevent excessive Control Rod withdrawal so that the Minimum Critical Power Ratio (MCPR) does not decrease to the fuel cladding integrity safety limit. The trip logic for this function is such that any one trip out of six Average Power Range Monitors (APRMs), eight Intermediate Range Monitors (IRMs) or four Source Range Monitors (SRMs) will result in a rod block. Portions of the Control Rod block system logic is tested by performance of functional tests of these instrument channels, on a shorter period than present LSFTs, in accordance with TS Table 4.2.C.
- 5) TS Table 4.2.D requires performance of an LSFT on Reactor Building Isolation and Standby Gas Treatment System Actuation by the Radiation Monitoring System. The Radiation Monitoring System consists of four instrument channels to monitor radiation in the Refueling Area Ventilation exhaust ducts and four instrument channels to monitor radiation in the Reactor Building ventilation below the Refueling Floor. Each set of instrument channels is arranged in a one-out-of-two twice trip logic. These instrument channels are functionally tested once per month per TS Table 4.2.D.

The equipment and components used in the design of systems requiring LSFT was chosen based on reliability as demonstrated by years of service in both the nuclear and non-nuclear industries. A review of all of the surveillance test history for the subject TS was performed to detect evidence of excessive random equipment or component failure rates and no such evidence was found. Based on this review and the redundant equipment in each of the subject systems, it was concluded that the impact of reducing the LSFT frequency on system availability is insignificant.

This conclusion was supported by two independent studies. The first study was completed for the BWR Owners Group in 1989 and the second was completed for the Nuclear Regulatory Commission (NRC) in 1988. An evaluation of LSFT completed by General Electric Co. for the BWR Owners Group (BWR Owners Group Report EAS 25-0489, Evaluation of Logic System Functional Testing methods, July 1989)

has shown that circuit unavailability due to removal from service for testing at power, is the largest contributor to total circuit unavailability. This study analyzed the effect of different surveillance intervals on various basic logic configurations with the net result being that for most logic configurations, changing from a 6 month to a refuel cycle surveillance improves the total circuit availability. With the exception of ADS, in no case is the unavailability increased by an appreciable amount. This conclusion is based on the determination that for the subject systems, the unavailability is only increased appreciably after increasing the test interval beyond 90 months. For ADS, unavailability caused by logic system failure (assuming a test interval of 36 months) remains two orders of magnitude less than currently accepted unavailability caused by valve actuator or solenoid failure. Therefore, the additional unavailability due to increased test interval is insignificant in comparison to the existing system unavailability.

A study completed by Brookhaven National Laboratories for the NRC (BNL-NUREG 52141 - Interfacing system LOCA - Boiling Water Reactors, February 1988) which specifically evaluated PBAPS, has shown that the core damage frequency (CDF) is decreased by performing CSCS logic testing with the reactor depressurized due to the diminished potential for CSCS low pressure piping over pressurization. For PBAPS, the CDF due to such an interfacing system LOCA, is reduced by almost an order of magnitude by performing logic testing when the reactor is shut down.

No Significant Hazards Consideration

The change proposed in this Application does not constitute a significant hazards consideration in that:

- i) The proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed TS changes involve a change in the surveillance testing intervals. The proposed changes do not physically impact the plant nor do they impact any design or functional requirements of the associated systems. That is, the proposed TS changes do not degrade the performance or increase the challenges of any safety systems assumed to function in the accident analysis. The proposed TS changes do not impact the TS surveillance requirements themselves nor the way in which the surveillance requirements are performed. In addition, the proposed TS changes do not introduce any new accident initiators since no accidents previously evaluated have as their initiators anything related to the change in the

frequency of surveillance testing. Also, the proposed TS changes do not affect the availability of equipment or systems required to mitigate the consequences of an accident because of other, more frequent testing or the availability of redundant systems or equipment. Furthermore, an historical review of surveillance test results indicated that there was no evidence of any failures that would invalidate the above conclusions. Therefore, the proposed TS changes do not increase the probability or consequences of an accident previously evaluated.

- ii) The proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

The proposed TS changes involve a change in the surveillance testing intervals. The proposed TS changes do not introduce new accident initiators or any failure mechanisms of a different type than those previously evaluated since there are no physical changes being made to the facility. In addition, the surveillance test requirements themselves and the way surveillance tests are performed will remain unchanged. Furthermore, an historical review of surveillance test results indicated there was no evidence of any failures that would invalidate these conclusions. Therefore, the proposed TS changes do not create the possibility of a new or different kind of accident from any previously evaluated.

- iii) The proposed changes do not involve a significant reduction in a margin of safety.

Although the proposed TS changes will result in an increase in the interval between surveillance tests, the impact on system availability is insignificant based on other, more frequent testing, redundant systems and equipment, and independent studies which support PECO's evaluation. Furthermore, there is no evidence of any failures that would impact the availability of the systems. Therefore, the margin of safety assumptions in the licensing bases are not impacted and the proposed TS changes do not reduce a margin of safety.

Environmental Assessment

An environmental impact assessment is not required for the changes proposed by the Application because the changes conform to the criteria for "actions eligible for categorical exclusion" as specified in 10 CFR 51.22(c)(9).

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Conclusion

The Plant Operations Review Committee and the Nuclear Review Board have reviewed these proposed changes and have concluded that they do not involve an unreviewed safety question and are not a threat to the health and safety of the public.