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March 15, 1989

Dockets Nos. 50-277/278

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BGrimes		

Mr. George A. Hunger, Jr.
Director-Licensing
Philadelphia Electric Company
Correspondence Control Desk
P. O. Box 7520
Philadelphia, Pennsylvania 19101

Dear Mr. Hunger:

SUBJECT: SOURCE RANGE MONITOR MINIMUM COUNT RATE FOR STARTUP (TAC NOS. 69296 AND 69297)

RE: PEACH BOTTOM ATOMIC POWER STATION, UNIT NOS. 2 AND 3

The Commission has issued the enclosed Amendments Nos. 140 and 142 to Facility Operating License Nos. DPR-44 and DPR-56 for the Peach Bottom Atomic Power Station, Unit Nos. 2 and 3. These amendments consist of changes to the Technical Specifications in response to your application dated October 21, 1988 as supplemented on November 30, 1988. The second submittal provided additional detailed information and did not change or modify the original application.

These amendments revise the minimum count rate required on the source range monitors for the withdrawal of control rods for startup.

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,

/S/

Robert E. Martin, Project Manager
Project Directorate I-2
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 140 to DPR-44
2. Amendment No. 142 to DPR-56
3. Safety Evaluation

cc w/enclosures:
See next page

[PB AMEND]

PDI-2/LA	PDI-2/PM	OGC	PDI-2/D
MO'Brien	REMartin:mr	RBachmann	WButler
3/15/89	03/03/89	3/19/89	3/15/89

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

March 15, 1989

Dockets Nos. 50-277/278

Mr. George A. Hunger, Jr.
Director-Licensing
Philadelphia Electric Company
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P. O. Box 7520
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SUBJECT: SOURCE RANGE MONITOR MINIMUM COUNT RATE FOR STARTUP (TAC NOS. 69296 AND 69297)

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Office of Nuclear Reactor Regulation

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1. Amendment No. 140 to DPR-44
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3. Safety Evaluation

cc w/enclosures:
See next page

cc:

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Board of Supervisors
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Wilmington, DE 19899

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Annapolis, Maryland 21401

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

PHILADELPHIA ELECTRIC 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. 140
License No. DPR-44

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Philadelphia Electric Company, et al. (the licensee) dated October 21, 1988 as supplemented on November 30, 1988, 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 or 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. 140 , 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.

FOR THE NUCLEAR REGULATORY COMMISSION

/S/

Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 15, 1989

PDI-2/LA PDI-2/PM OGC PDI-2/D
MO'Brien REMartin:mr for E. Reichmann WButler
3/15/89 03/03/89 3/13/89 3/15/89

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 140 , 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.

FOR THE NUCLEAR REGULATORY COMMISSION

Walter R. Butler

Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 15, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 140

FACILITY OPERATING LICENSE NO. DPR-44

DOCKET NO. 50-277

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Remove	Insert
iv	iv
103	103
-	103a
110	110

PBAPS

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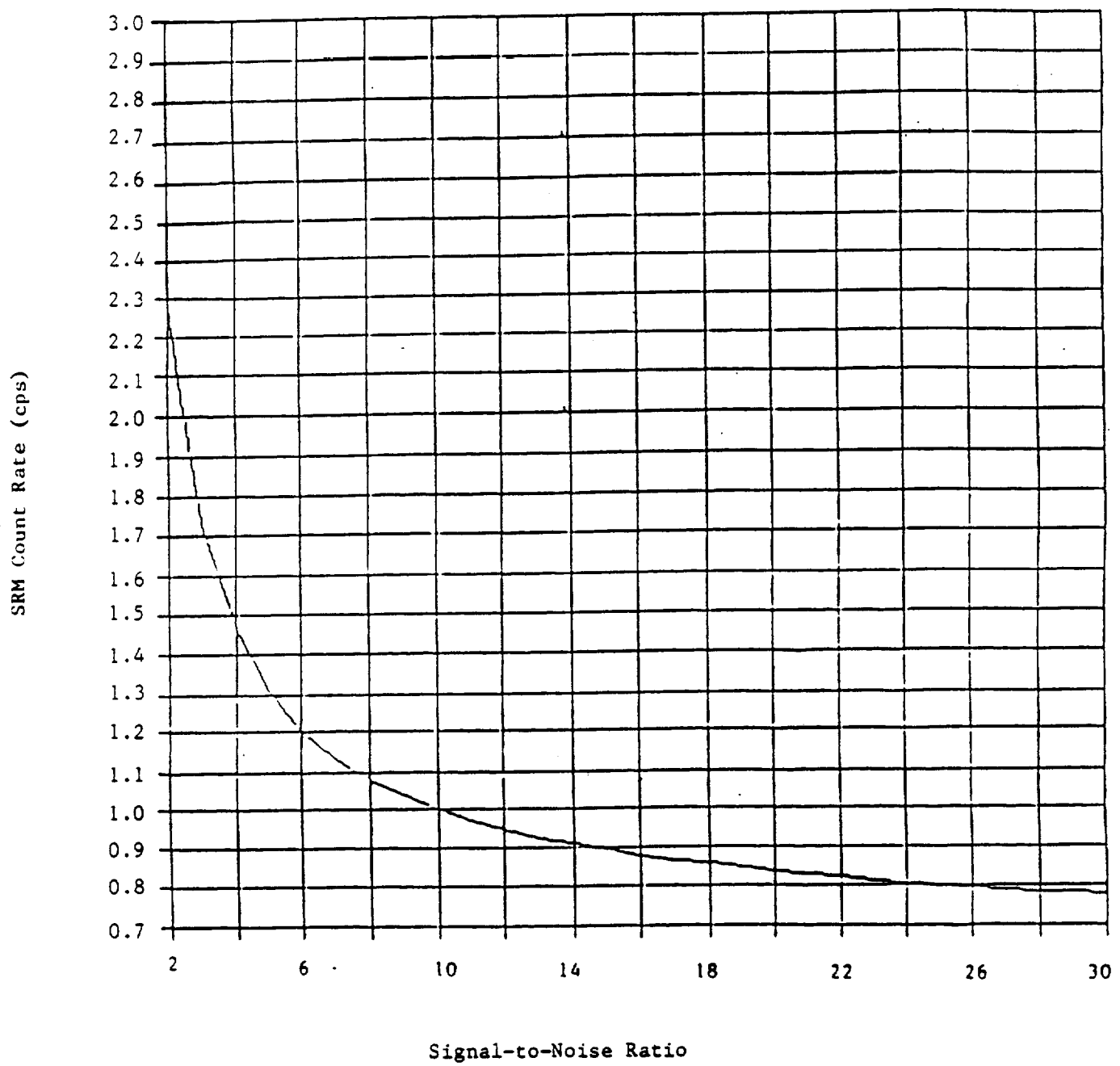
LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.3.B Control Rods (Cont'd.)	4.3.B Control Rods (Cont'd.)
4. Control rods shall not be withdrawn for startup or refueling unless at least two source range channels have an observed count rate equal to or greater than three counts per second.*	4. Prior to control rod withdrawal for startup or during refueling verify that at least two source range channels have an observed count rate of at least three counts per second.*
5. During operation with limiting control rod patterns as determined by the designated qualified personnel, either:	5. When a limiting control rod pattern exists, an instrument functional test of the RBM shall be performed prior to withdrawal of the designated rod(s).
a. Both RBM channels shall be operable, or b. Control rod withdrawal shall be blocked, or c. The operating power level shall be limited so that the MCPR will remain above the fuel cladding integrity safety limit assuming a single error that results in complete withdrawal of a single operable control rod.	*May be reduced for startup only, provided at least three source range channels have an observed count rate and a signal-to-noise ratio on or above the curve shown on Figure 3.3.1.
C. Scram Insertion Times	C. Scram Insertion Times
1. The average scram insertion time, based on the deenergization of the scram pilot valve solenoids as time zero, of all operable control rods in the reactor power operation condition shall be no greater than:	1. After each refueling outage, and prior to synchronizing the main turbine generator initially following restart of the plant, all operable fully withdrawn insequence rods shall be scram time tested during operational hydrostatic testing or during startup from the fully withdrawn position with the nuclear system pressure above 800 psig.

% Inserted from Fully Withdrawn	Avg. Scram Insertion Times (sec)
5	0.375
20	0.90
50	2.0
90	3.5

Figure 3.3.1

SRM Count Rate Versus
Signal-to-Noise Ratio



3.3.B and 4.3.B BASES (Cont'd.)

The requirement of at least 3 counts per second (may be reduced for start-up provided the count rate and signal-to-noise ratio is on or above the curve shown on Figure 3.3.1) assures that any transient, should it occur begins at or above the initial value of 10^{-8} of rated power used in analyses of transient cold conditions. One operable SRM channel would be adequate to monitor the approach to criticality using homogeneous patterns of scattered control rod withdrawal. A minimum of two operable SRM's are provided as an added conservatism.

5. The Rod Block Monitor (RBM) is designed to automatically prevent fuel damage in the event of erroneous rod withdrawal from locations of high power density during high power level operation. Two channels are provided, and one of these may be bypassed from the console for maintenance and/or testing. Tripping of one of the channels will block erroneous rod withdrawal soon enough to prevent fuel damage. This system backs up the operator who withdraws control rods according to written sequences. The specified restrictions with one channel out of service conservatively assure that fuel damage will not occur due to rod withdrawal errors when this condition exists.

A limiting control rod pattern is a pattern which results in the core being on a thermal hydraulic limit (i.e., operating on a limiting value for APLHGR, LHGR, or MCPR as defined in Technical Specifications 3.5.I., 3.5.J and 3.5.K). During use of such patterns, it is judged that testing of the RBM system prior to withdrawal of such rods to assure its operability will assure that improper withdrawal does not occur. It is the responsibility of the Reactor Engineer to identify these limiting patterns and the designated rods either when the patterns are initially established or as they develop due to the occurrence of inoperable control rods in other than limiting patterns. Other personnel qualified to perform this function may be designated by the station superintendent.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

PHILADELPHIA ELECTRIC COMPANY
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
DELMARVA POWER AND LIGHT COMPANY
ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-278

PEACH BOTTOM ATOMIC POWER STATION, UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 142
License No. DPR-56

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Philadelphia Electric Company, et al. (the licensee) dated October 21, 1988 as supplemented on November 30, 1988, 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 or 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-56 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 142, 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.

FOR THE NUCLEAR REGULATORY COMMISSION

/S/

Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 15, 1989

PDI-2/LA
MO'Brien
3/14/89

PDI-2/PM
PEMartin:mr
03/03/89

OGC
EBachmann
3/19/89

PDI-2/D
WButler
3/15/89

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 142, 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.

FOR THE NUCLEAR REGULATORY COMMISSION

Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 15, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 142

FACILITY OPERATING LICENSE NO. DPR-56

DOCKET NO. 50-278

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Remove	Insert
iv	iv
103	103
-	103a
110	110

PBAPS

LIST OF FIGURES

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3.5.1.G	DELETED	
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LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
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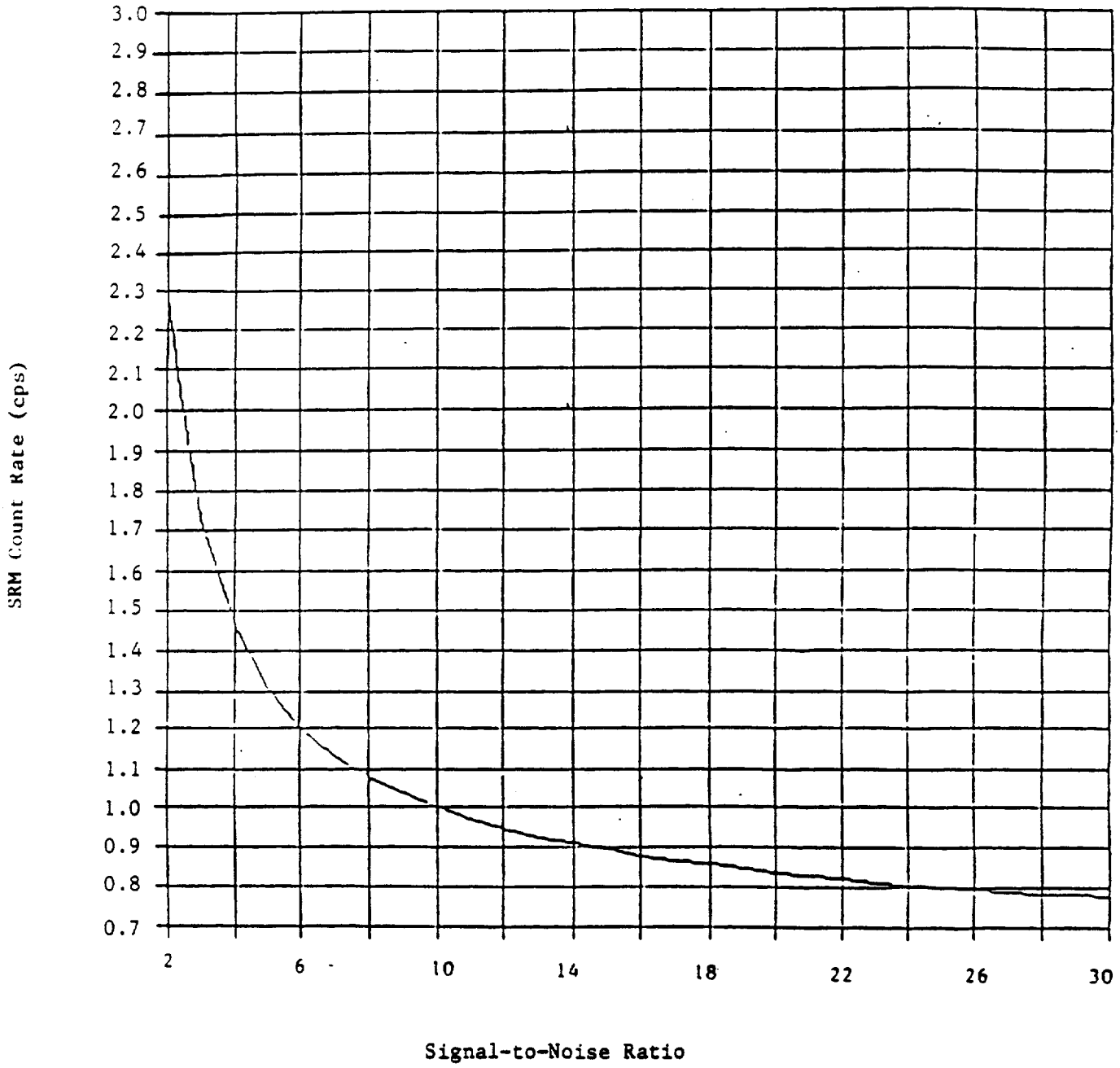
% Inserted from Fully Withdrawn	Avg. Scram Insertion Times (sec)
5	0.375
20	0.90
50	2.0
90	3.5

Figure 3.3.1 UNIT 3

SRM Count Rate Versus
Signal-to-Noise Ratio



3.3.B and 4.3.B BASES (Cont'd.)

The requirement of at least 3 counts per second (may be reduced for startup provided the count rate and signal-to-noise ratio is on or above the curve shown on Figure 3.3.1) assures that any transient, should it occur begins at or above the initial value of 10^{-8} of rated power used in analyses of transient cold conditions. One operable SRM channel would be adequate to monitor the approach to criticality using homogeneous patterns of scattered control rod withdrawal. A minimum of two operable SRM's are provided as an added conservatism.

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION SUPPORTING

AMENDMENT NOS. 140 AND 142 TO FACILITY OPERATING

LICENSE NOS. DPR-44 and DPR-56

PHILADELPHIA ELECTRIC COMPANY
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
DELMARVA POWER AND LIGHT COMPANY
ATLANTIC CITY ELECTRIC COMPANY

PEACH BOTTOM ATOMIC POWER STATION, UNIT NOS. 2 AND 3

DOCKET NOS. 50-277 AND 50-278

1.0 INTRODUCTION

By letter dated October 21, 1988, Philadelphia Electric Company requested an amendment to Facility Operating License Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station, Unit Nos. 2 and 3. By letter dated September 7, 1988, Philadelphia Electric Company (PECo) requested changes to several of Peach Bottom Atomic Power Station Units 2 and 3 (PB 2&3) Technical Specifications (TS). The primary request was to change the requirement for the source range monitor (SRM) minimum count rate for operability during startup from 3 counts per second (cps) to 0.7 cps with a signal-to-noise (S/N) ratio of two or more. There was also a secondary request for an administrative change to replace a phrase previously inadvertently deleted.

The initial staff examination of the primary request resulted in a phone conversation between members of the staff and PECo. It was indicated to PECo that, based on a previous discussion between the staff and General Electric (GE), the staff had reservations about the adequacy of the proposed count rate and S/N combination. The staff requested that PECo contact GE and get their insight on the problem and the S/N requirements. As a result of this interaction on October 21, 1988, PECo submitted a revised request (replacing the initial request in its entirety) providing a specification with a functional relationship between minimum count rate for operability and S/N ratio for an SRM during startup operations. This specification is based on an analysis by GE as discussed in the supplementary information provided with the licensee's letter of November 30, 1988. This submittal provided additional detailed information and did not change or modify the submittal of October 21, 1988.

2.0 EVALUATION

In common with a number of other reactors, Peach Bottom 2 and 3 (PB2&3) have TS requiring two SRM having count rates of 3 cps or more when withdrawing control rods for startup. Because of a long shutdown time, PB2&3 are not likely to achieve this for the forthcoming restart. The licensee has therefore proposed changes to the TS which would permit such startup operations, when necessary, with a count rate less than 3 cps. A similar proposal for reload operations, as addressed by the licensee's submittal of December 28, 1988, will be addressed as a separate license amendment application.

The proposed changes are to TS 3/4.3.B.4 and associated Bases. The changes add, via an asterisk marked footnote, a statement that the 3 cps requirements may be reduced for startups if three (vs two for the current specification) SRM Channels meet the limits on count rate vs S/N ratio provided in proposed TS Figure 3.3.1. As an example, a count rate of 0.8 cps is allowed if the S/N ratio is about 25 or more. Figure 3.3.1 is based on the new analysis by GE for PB2&3 of SPM downscale nominal trip setpoint vs S/N ratio.

SRM minimum count rates have previously been lowered for several reactors, with GE concurrence, to 0.7 cps with a S/N ratio of 2 for first cycle startup with weak neutron sources resulting from delayed schedules. GE later evaluated this reduction for reload cores (with increased noise) and found that an increased S/N limit is required to achieve the same probability of detecting real signals. This analysis was done at PECo's request (as a plant specific analysis) for PB2&3. This analysis (for SRM downscale trip setpoint determination) involves several assumptions about the signal and noise characteristics and probability requirements, and uses the new standard GE setpoint methodology for setpoint uncertainties. The assumed signal characteristics are straightforward and acceptable. A primary assumption is that there will be only a 5 percent probability of incorrectly detecting neutrons when they are absent and a 95 percent probability of detecting them when present. This is a reasonable criterion. The NRC review of these various assumptions and probability requirements, and of the analysis methodology concludes that an acceptable analysis has been developed to provide the SRM downscale setpoint and corresponding TS limit for SRM operability.

The lower count rate might result in a slightly lower initial neutron flux level for the control rod drop and withdrawal event analyses. However, the staff agrees with the licensee's conclusion that the results of such events are not significantly affected by the change.

The review thus concludes that the proposed change to PB2&3 TS 3/4.B.4 (and Bases), providing an alternate limit for control rod withdrawal during startup when at least three SRM meet the limit of Figure 3.3.1, is acceptable. This approval is specific to the Peach Bottom units.

The licensee has also proposed several administrative changes to correct Technical Specification (TS) 4.3.C.1 of the Unit 2 TS to state that scram time testing may be accomplished during operational hydrostatic testing or during startup. This would restore a phrase that was inadvertently omitted in an earlier amendment application and would make the Unit 2 TS identical to the current Unit 3 TS in this regard. The licensee also proposes to correct the abbreviation for the Rod Block Monitor in TS 3.3.B.5.a. These changes are straight forward and are acceptable.

3.0 ENVIRONMENTAL CONSIDERATIONS

These amendments involve a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes to the surveillance requirements. The 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. 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 nor environmental assessment need be prepared in connection with the issuance of the amendments.

4.0 CONCLUSION

The Commission made a proposed determination that the amendments involve no significant hazards consideration which was published in the Federal Register (53 FR 53096) on December 30, 1988 and consulted with the State of Pennsylvania. No public comments were received and the State of Pennsylvania did not have any comments.

The staff 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, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: H. Richings

Dated: March 15, 1989