December 19, 1991

Docket Nos. 50-277
and 50-278

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Mr. George J. Beck
Manager-Licensing, MC 5-2A-5
Philadelphia Electric Company
Nuclear Group Headquarters
Correspondence Control Desk
P.O. Box No. 195
Wayne, Pennsylvania 19087-0195

Dear Mr. Beck:

SUBJECT: EMERGENCY SERVICE WATER PUMP SURVEILLANCE REQUIREMENTS FOR PEACH BOTTOM ATOMIC POWER STATION, UNIT NOS. 2 AND 3 (TAC NOS. 81156 AND 81157)

The Commission has issued the enclosed Amendments Nos. 165 and 169 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 July 2, 1991.

These amendments revise the testing requirements for the Emergency Service Water pumps. The original edition of the Technical Specifications determined pump operability by measuring discharge pressure at shut off head. The revised Technical Specifications require the Emergency Service Water pumps to be tested in accordance with the ASME Boiler and Pressure Vessel Code, Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components with the exception of pump instrumentation accuracy. Relief from the pump instrument accuracy requirements of ASME Code Section XI, was granted on February 22, 1991.

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/

Joseph W. Shea, Acting Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 165 to DPR-44
2. Amendment No. 169 to DPR-56
3. Safety Evaluation

cc w/enclosures:
See next page

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

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Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

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1. Amendment No. 165 to DPR-44
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3. Safety Evaluation

cc w/enclosures:
See next page

cc:

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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. 165
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 July 2, 1991, 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. 165 , 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

Charles L. Miller

Charles L. Miller, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 19, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 165

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
221	221
224	224

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.9.C Emergency Service Water System	4.9.C Emergency Service Water System
1. The Emergency Service Water System (ESWS) shall be operable at all times when the reactor coolant temperature is greater than 212 F.	1. The ESWS shall be tested once every 3 months as follows:
2. If two ESW pumps become inoperable, the reactor may remain in operation for a period not to exceed 1 month.	a. Pump operability - the pump shall be manually started and flow capability tested in accordance with the Section XI of the ASME Boiler Pressure Vessel Code and applicable addenda except where relief has been granted.
3. To consider the Emergency Cooling Water pump operable as an equivalent ESW pump, at least 1 ESW booster pump and 2 Emergency Cooling Tower fans must be operable.	b. Valve operability - the automatic valves shall be stroked individually from their control switches.
4. To consider the ESW pump operable the associated pump room fans must be available for normal operation except that a) one pump room supply and/or exhaust fan for each compartment may be out of service for one month or b) temporary fans may be used in place of permanently installed fans to provide room temperatures at less than 120°F.	2. The associated pump room fans shall be tested for operability every 3 months.
	3. a. The Emergency Cooling Water pump and ESW booster pumps shall be tested once per operating cycle to verify operabilty.
	b. The Emergency Cooling Tower fans shall be tested once per operating cycle to verify operability.

4.9 BASES (Cont'd.)

Periodic tests between refueling outages verify the ability of the diesel generator to run at full load and the core and containment cooling pumps to deliver full flow. Periodic testing of the various components, plus a functional test one-a-cycle, is sufficient to maintain adequate reliability.

Although station batteries will deteriorate with time, utility experience indicates there is almost no possibility of precipitous failure. The type of surveillance described in this specification is that which has been demonstrated over the years to provide an indication of a cell becoming irregular or unserviceable long before it becomes a failure. In addition, the checks described also provide adequate indication that the batteries have the specified ampere hour capability.

The station batteries shall be subjected to a performance test every third refueling outage and a service test during the other refueling outages. This testing frequency complies with the testing requirements of the Institute of Electrical and Electronics Engineers (IEEE) Standard 450 (1975), "Recommended Practice for Maintenance, Testing and Replacement of Large Lead Storage Batteries," and Regulatory Guide 1.129, Revision 1 (February 1978), "Maintenance, Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants."

A performance test determines the ability of the battery to meet a specified discharge rate and duration based on the manufacturer's rating. A service test proves the capability of the battery to deliver the design requirements of the dc systems; i.e., supply and maintain in operable status all of the actual emergency loads for the design basis accident. A performance test is the most severe test because the cycling on the battery at manufacturer's rating shortens the service life of the battery. A service test is performed at design load instead of manufacturer's ratings.

The diesel fuel oil quality must be checked to ensure proper operation of the diesel generators. Water content should be minimized because water in the fuel could contribute to excessive damage to the diesel engine. Amendment No. 131 centralized commitments related to Position C.2 of Regulatory Guide 1.137, Revision 1 (October, 1979) "Fuel Oil Systems for Standby Diesel Generators".

When it is determined that some auxiliary electrical equipment is out-of-service, the increased surveillance required in Section 4.5.F is deemed adequate to provide assurance that the remaining equipment will be operable.

The test interval for the Emergency Service Water System, plus the ESW booster pumps, Emergency Cooling Tower fans, and pump room fans associated with the ESW pumps is deemed adequate to provide assurance that the equipment will be operable based on good engineering judgment and system redundancy, plus the additional testing accomplished when the diesel generators are tested. Pump flow tests during normal operation will be performed by measuring the head and flow in the system using suitable flow equipment and pressure instrumentation.

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. 169
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 July 2, 1991, 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. 169, 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

Charles L. Miller

Charles L. Miller, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 19, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 169

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
221	221
224	224

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.9.C Emergency Service Water System	4.9.C Emergency Service Water System
1. The Emergency Service Water System (ESWS) shall be operable at all times when the reactor coolant temperature is greater than 212 F.	1. The ESWS shall be tested once every 3 months as follows: a. Pump operability - the pump shall be manually started and flow capability tested in accordance with the Section XI of the ASME Boiler Pressure Vessel Code and applicable addenda except where relief has been granted. b. Valve operability - the automatic valves shall be stroked individually from their control switches.
2. If two ESW pumps become inoperable, the reactor may remain in operation for a period not to exceed 1 month.	2. The associated pump room fans shall be tested for operability every 3 months.
3. To consider the Emergency Cooling Water pump operable as an equivalent ESW pump, at least 1 ESW booster pump and 2 Emergency Cooling Tower fans must be operable.	3. a. The Emergency Cooling Water pump and ESW booster pumps shall be tested once per operating cycle to verify operabilty. b. The Emergency Cooling Tower fans shall be tested once per operating cycle to verify operability.
4. To consider the ESW pump operable the associated pump room fans must be available for normal operation except that a) one pump room supply and/or exhaust fan for each compartment may be out of service for one month or b) temporary fans may be used in place of permanently installed fans to provide room temperatures at less than $120^{o}F$.	

4.9 BASES (Cont'd.)

Periodic tests between refueling outages verify the ability of the diesel generator to run at full load and the core and containment cooling pumps to deliver full flow. Periodic testing of the various components, plus a functional test one-a-cycle, is sufficient to maintain adequate reliability.

Although station batteries will deteriorate with time, utility experience indicates there is almost no possibility of precipitous failure. The type of surveillance described in this specification is that which has been demonstrated over the years to provide an indication of a cell becoming irregular or unserviceable long before it becomes a failure. In addition, the checks described also provide adequate indication that the batteries have the specified ampere hour capability.

The station batteries shall be subjected to a performance test every third refueling outage and a service test during the other refueling outages. This testing frequency complies with the testing requirements of the Institute of Electrical and Electronics Engineers (IEEE) Standard 450 (1975), "Recommended Practice for Maintenance, Testing and Replacement of Large Lead Storage Batteries," and Regulatory Guide 1.129, Revision 1 (February 1978), "Maintenance, Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants."

A performance test determines the ability of the battery to meet a specified discharge rate and duration based on the manufacturer's rating. A service test proves the capability of the battery to deliver the design requirements of the dc systems; i.e., supply and maintain in operable status all of the actual emergency loads for the design basis accident. A performance test is the most severe test because the cycling on the battery at manufacturer's rating shortens the service life of the battery. A service test is performed at design load instead of manufacturer's ratings.

The diesel fuel oil quality must be checked to ensure proper operation of the diesel generators. Water content should be minimized because water in the fuel could contribute to excessive damage to the diesel engine. Amendment No. 134 centralized commitments related to Position C.2 of Regulatory Guide 1.137, Revision 1 (October, 1979) "Fuel Oil Systems for Standby Diesel Generators".

When it is determined that some auxiliary electrical equipment is out-of-service, the increased surveillance required in Section 4.5.F is deemed adequate to provide assurance that the remaining equipment will be operable.

The test interval for the Emergency Service Water System, plus the ESW booster pumps, Emergency Cooling Tower fans, and pump room fans associated with the ESW pumps is deemed adequate to provide assurance that the equipment will be operable based on good engineering judgment and system redundancy, plus the additional testing accomplished when the diesel generators are tested. Pump flow tests during normal operation will be performed by measuring the head and flow in the system using suitable flow equipment and pressure instrumentation.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 165 AND 169 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 July 2, 1991, the Philadelphia Electric Company, Public Service Electric & Gas Company, Delmarva Power and Light Company and Atlantic City Electric Company (the licensees) submitted a request for changes to the Peach Bottom Atomic Power Station, Unit Nos. 2 and 3, Technical Specifications (TS). The requested changes would revise the Emergency Service Water Surveillance Test method for demonstrating pump operability from a measurement of pump shut-off discharge pressure to a measurement of pump flow.

2.0 EVALUATION

The licensee stated in its July 2, 1991 submittal that the purpose of the requested TS Change is to minimize the adverse affects of the current method of testing and to provide for increased pump reliability. Present Peach Bottom Atomic Power Station, Units 2 and 3, Technical Specification surveillance requirements for the Emergency Service Water (ESW) System provide for demonstrating the operability of the ESW pumps every three months. Under the current Technical Specifications, pump operability is demonstrated by measuring the pump's discharge pressure at shut-off head. Pump operability is considered satisfactory if the discharge pressure at shut-off head is greater than or equal to 54 psig.

The current surveillance test is conducted by establishing a flow path through an Emergency Diesel Generator (DG) cooler, manually starting the ESW pump and, once the pump is running, shutting the DG cooler discharge valve. In this condition, there is no flow through the ESW pump and shut-off head discharge pressure is measured. Operation of the Pump at shut-off head can cause excessive vibration of the pump and set up internal recirculation flows which, over time, can seriously degrade the hydraulic parts and bearings of the pump. The ESW pump is of centrifugal construction, specifically it is a single stage, vertical turbine pump. Centrifugal pumps require a minimum flow through the pump in order to cool the pump while it is in operation. Operation of the ESW pump with the flow blocked for testing could lead to overheating of the pump.

In order to implement the proposed test method, the licensee has installed ultrasonic flow measuring devices, which measure pump flow, downstream of the ESW pumps as a means of verifying pump operability. The results of the proposed test method will provide an integrated indication of pump operability by providing data with the system in a flow-through configuration. The test method proposed by the licensee conforms to ASME Boiler and Pressure Vessel Code, Section XI, Rules for Inservice Inspection of Nuclear Power Plant Components.

The staff has reviewed the proposed change in ESW pump testing methodology to flow measurement and finds it acceptable. The proposed change will reduce pump degradation due to testing and will provide for a more reliable pump.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes the surveillance requirements. The NRC 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 (56 FR 41585). 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 or environmental assessment need be prepared in connection with the issuance of the amendments.

5.0 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Joseph W. Shea

Date: December 19, 1991