



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

February 23, 1990

Docket No. 50-277

Mr. George A. Hunger, Jr.  
Director-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. Hunger:

SUBJECT: EMERGENCY TECHNICAL SPECIFICATION CHANGE FOR AUTOMATIC DEPRESSURIZATION SYSTEM ALLOWED OUTAGE TIME (TAC NO. 75967)

RE: PEACH BOTTOM ATOMIC POWER STATION, UNIT NO. 2

The Commission has issued the enclosed Amendment No. 152 to Facility Operating License No. DPR-44 for the Peach Bottom Atomic Power Station, Unit No. 2. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated February 14, 1990 as supplemented on February 16, 1990. It was prepared and issued on an emergency basis to avoid an unnecessary shutdown to repair an inoperable Automatic Depressurization System (ADS) valve.

This amendment provided for a one time extension of the seven-day limiting condition for operation of Technical Specification 3.5.E.2 for continued operation with one inoperable ADS valve. The allowed outage time was extended to 11:59 pm on March 3, 1990.

The staff reviewed the circumstances associated with your request and concluded that you provided a sufficient basis for finding that the situation could not have been avoided by prior application. Therefore, in accordance with 10 CFR 50.91(a)(5), a valid emergency existed.

On February 14, 1990, the staff granted a Temporary Waiver of Compliance which was immediately effective and remained in effect until the proposed license amendment was issued.

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Mr. George A. Hunger, Jr.

- 2 -

A copy of the Safety Evaluation is also enclosed. Notice of Issuance and Final Determination of No Significant Hazards Consideration and Opportunity for Hearing will be included in the Commission's Bi-Weekly Federal Register Notice.

Sincerely,



Bruce A. Boger, Assistant Director  
for Region I Reactors  
Division of Reactor Projects I/II  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 152 to  
License No. DPR-44
2. Safety Evaluation

cc w/enclosures:  
See next page

Mr. George A. Hunger, Jr.  
Philadelphia Electric Company

Peach Bottom Atomic Power Station,  
Units 2 and 3

cc:

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Resident Inspector  
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Baltimore, Maryland 21201

Mr. George A. Hunger, Jr.

- 2 -

A copy of the Safety Evaluation is also enclosed. Notice of Issuance and Final Determination of No Significant Hazards Consideration and Opportunity for Hearing will be included in the Commission's Bi-Weekly Federal Register Notice.

Sincerely,

/s/

Bruce A. Boger, Assistant Director  
for Region I Reactors  
Division of Reactor Projects I/II  
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No. 152 to License No. DPR-44
- 2. Safety Evaluation

cc w/enclosures:  
See next page

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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. 152  
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 February 14, 1990 and supplemented by letter dated February 16, 1990, 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. 152, 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/

Bruce A. Boger, Assistant Director  
for Region I Reactors  
Division of Reactor Projects I/II  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: February 23, 1990

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PDI-2/PM  
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(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 152, 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



Bruce A. Boger, Assistant Director  
for Region I Reactors  
Division of Reactor Projects I/II  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: February 23, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 152

FACILITY OPERATING LICENSE NO. DPR-44

DOCKET NO. 50-277

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

Remove

131

Insert

131

## PBAPS

LIMITING CONDITIONS FOR OPERATION3.5.E Automatic Depressurization System (ADS)

1. The Automatic Depressurization Subsystem shall be operable whenever there is irradiated fuel in the reactor vessel and the reactor pressure is greater than 105 psig and prior to a startup from a Cold Condition, except as specified in 3.5.E.2 below.
2. From and after the date that one valve in the automatic depressurization subsystem is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding seven days\* unless such valve is sooner made operable, provided that during such seven days the HPCI subsystem is operable.
3. If the requirements of 3.5.E cannot be met, an orderly shutdown shall be initiated and the reactor pressure shall be reduced to at least 105 psig within 24 hours.

\* This seven-day LCO has a one-time extension to 11:59 p.m. on March 3, 1990 provided RCIC is operable.

SURVEILLANCE REQUIREMENT4.5.E Automatic Depressurization System (ADS)

1. During each operating cycle the following tests shall be performed on the ADS:  
  
A simulated automatic actuation test shall be performed prior to startup after each refueling outage.
2. When it is determined that one valve of the ADS is inoperable, the ADS subsystem actuation logic for the other ADS valves and the HPCI subsystem shall be demonstrated to be operable immediately and at least weekly thereafter.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION SUPPORTING

AMENDMENT NO. 152 TO FACILITY OPERATING LICENSE NO. DPR-44

PHILADELPHIA ELECTRIC 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 February 14, 1990 and supplemented by letter dated February 16, 1990, Philadelphia Electric Company requested an Emergency License Amendment to Facility Operating License No. DPR-44 for the Peach Bottom Atomic Power Station, Unit No. 2. The proposed amendment would provide for a one time extension of the seven day limiting condition for operation of Technical Specification (TS) 3.5.E.2 for continued operation with one inoperable Automatic Depressurization System (ADS) valve. The allowed outage time would be extended to 11:59 pm on March 3, 1990.

2.0 BACKGROUND

During surveillance testing performed on February 12, 1990, the licensee identified a failed electrical circuit for the solenoid valve associated with one of the five ADS valves. The licensee postulated that there was a failed winding in the solenoid valve which is located inside the drywell. It was determined that plant shutdown would be necessary to fix the valve. The licensee determined that this condition existed during surveillance testing conducted on February 7, 1990, and that the ADS valve was inoperable at that time. Facility Technical Specifications allow seven days of operation with one valve inoperable, after which the unit is required to be shutdown and to be at a reactor system pressure at or below 105 psig within the next 24 hours. The seven day allowed outage time expired at about 2:00 p.m. on February 14, 1990.

By letter dated February 14, 1990, the licensee requested relief from TS 3.5.E.2 to allow continued operation with one inoperable ADS valve. The proposed license amendment involving an interim TS change would allow a one time extension of the seven day allowed outage time to 11:59 p.m. on March 3, 1990, provided the reactor core isolation cooling (RCIC) system remains operable.

In its submittal, the licensee stated that power levels were restricted by feedwater heater tube leaks to 80% or less of the licensed power level.

Licensee calculations concluded that operation at the restricted power level will decrease the currently calculated peak clad temperature (PCT) for a small break loss-of-coolant-accident (SBLOCA) from approximately 1500 degrees F, which assumed operation at 100% power, to less than 1350 degrees F. The staff understands that Unit 2 will continue to operate at or below the restricted power level discussed above until the scheduled mid-cycle outage.

The licensee discussed the results of its design basis review for ADS valve and system operability requirements. The review concluded that the high pressure coolant injection (HPCI) system, in combination with the ADS system with four operable ADS valves and low pressure core standby cooling systems (CSCS), would be able to provide adequate core cooling for the most limiting condition requiring ADS initiation, a SBLOCA, assuming a single failure to either the ADS or HPCI system. Results of best estimate calculations were discussed which indicated that three ADS valves (which assumes an additional ADS valve failure) would be sufficient to fulfill the ADS safety function. In addition, results of analyses to support continued 10 CFR 50, Appendix R safe shutdown capability was presented, given that the inoperable ADS valve, denoted as the K relief valve, was associated with the licensee's safe shutdown method "D."

### 3.0 EVALUATION

The staff has reviewed the licensee's submittal and reached the following conclusions:

- 1) The licensee indicated that the peak cladding temperature estimated for the worst-case small break LOCA (using licensing basis models) is about 1500 degrees F when performed at 100% power. In addition, operation during the period with one inoperable ADS valve will be limited to less than 80% power. This provides an additional reduction in PCT which the licensee in conjunction with the NSSS vendor has estimated to be approximately 150 degrees F. The resulting margin relative to the requirements of 10 CFR 50 (2200 degrees F) is therefore on the order of 850 degrees F.
- 2) The number of operable ADS valves will be at least four, and the number assumed to actuate in licensing basis small break loss of coolant accident analyses was four. The licensee is required by the proposed TS to initiate a plant shutdown if it is determined that any other ADS valve is inoperable, if the HPCI system is inoperable, or if RCIC is inoperable.
- 3) The condition requiring continued operability of the RCIC system provides assurance of additional capability to depressurize and provide coolant injection at operating pressure.

- 4) Best estimate calculations of small break LOCAs for BWR/3 and BWR/4 plants indicate that even with the operation of only three ADS valves (assuming 100% power), calculated peak clad temperatures will not exceed 2200 degrees F.
- 5) Operation with one inoperable ADS valve is limited to a short time period, until March 3, 1990.
- 6) The safety valve (spring actuated) function of the inoperable ADS valve is still operable and will function for overpressurization protection.
- 7) The licensee has reviewed fire protection requirements for shutdown from alternate control stations and has determined that the combination of HPCI, two ADS valves, and low pressure CSCS is sufficient to depressurize the plant and remove decay heat following a fire which prevents safe shutdown from the main control room.

Based on the supporting analyses discussed above, we find operation with one inoperable ADS valve acceptable until 11:59 p.m. on March 3, 1990.

#### 4.0 EMERGENCY CIRCUMSTANCES

In its February 14, 1990 letter, the licensee requested that its application for license amendment be processed as an emergency change per 10 CFR 50.91(a)(5) and that a Temporary Waiver of Compliance be granted until the license amendment was approved. During surveillance testing performed on February 12, 1990, the licensee identified a failed electrical circuit for the solenoid valve associated with one of the five ADS valves. The licensee postulated that there was a failed winding in the solenoid valve which is located inside the drywell. It was determined that plant shutdown would be necessary to fix the valve. The licensee determined that this condition existed during surveillance testing conducted on February 7, 1990, and that the ADS valve was inoperable at that time. Facility Technical Specifications allow seven days of operation with one valve inoperable, after which the unit is required to be shutdown and to be at a reactor system pressure at or below 105 psig within the next 24 hours. The seven day allowed outage time expired at about 2:00 p.m. on February 14, 1990. The licensee stated that although the inoperability of the valve was traced back to February 7, 1990, identification of the situation at that time would not have allowed sufficient time for the normal or exigent processing of a license amendment. The emergency license amendment would allow operation to continue until a mid-cycle outage which was scheduled to begin on March 3, 1990.

The NRC staff concluded a preliminary review of the licensee's request and agreed that a plant shutdown to fix the inoperable ADS valve was unnecessary prior to the scheduled mid-cycle outage. On February 14, 1990, the staff granted a Temporary Waiver of Compliance which was immediately effective and remained in effect until the proposed license

amendment was issued. The staff has reviewed the circumstances associated with the licensee's request for an emergency Technical Specifications change. Without the proposed change Peach Bottom, Unit 2 would be forced into an unnecessary shutdown. Additionally, this condition could not have been reasonably foreseen prior to this time as it is a direct result of the identification of an inoperable ADS valve during surveillance testing performed on February 7 and February 12, 1990. It is therefore concluded that this change satisfies the criteria of 10 CFR 50.91(a)(5).

#### 5.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards consideration if operation of the facility in accordance with the amendment would not:

- (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or
- (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or
- (3) Involve a significant reduction in a margin of safety.

The licensee proposed that the proposed TS change did not involve significant hazards consideration. Based on a review of the licensee's determination, the staff has determined the following:

1. The inability of the inoperable ADS valve to perform its Automatic Depressurization System function is not considered to increase the probability of a previously evaluated accident. Although the failure of the inoperable valve to perform its ADS function will affect plant response to an intermediate or small break LOCA, the inoperability of the ADS valve is not considered to be related to a potential accident initiator. Based on a review of the facility's updated final safety analysis report (UFSAR) discussions on the ADS valves, it was concluded that the open circuit for the solenoid valve associated with the inoperable ADS valve does not affect the overpressurization protection capability of the ADS valve or increase the probability of the ADS valve failing in the open position.

A single failure to either the HPCI system or the ADS system would not prevent the existing operating condition with four ADS valves operable with low pressure Core Standby Cooling Systems (CSCS), in conjunction with High Pressure Coolant Injection, to provide for adequate core cooling for intermediate and small break loss-of-coolant accidents. One inoperable ADS valve does not affect the operability of the four remaining ADS valves. LOCA analyses presented in the facility's UFSAR were based on maintaining four ADS valves operable. In addition, 10 CFR 50, Appendix R safe shutdown capability

will also be assured with the K ADS valve inoperable because for safe shutdown method "D," only two of the three provided nuclear system pressure relief valves are required. Licensee engineering calculations related to Appendix R safe shutdown analyses has determined that only two nuclear system pressure relief valves are required for low pressure CSCS to remove decay heat after reactor shutdown.

Therefore, operation of the facility in accordance with the proposed amendment would not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. A single ADS valve out of service has already been evaluated in the UFSAR. The failure mode of the inoperable ADS valve, an electrical open circuit, does not interfere with the pressure relief valve function. Adequate core cooling ability during small and intermediate break LOCA's is not affected given that LOCA analyses presented in the facility's UFSAR were based on maintaining four ADS valves operable. Additional assurance of adequate core cooling exists with continued operation at less than 80% of the licensed power level and with the requirement for continued RCIC system operability. Therefore, operation of the facility in accordance with the proposed amendment would not create the possibility of a new or different kind of accident from any previously evaluated.
3. The current LOCA analysis assumes four ADS valves are operable. The large break LOCA peak clad temperature margin is unchanged since the ADS does not initiate during this scenario. The small and intermediate break PCT margin is not significantly reduced with four operable ADS valves given that LOCA analyses presented in the facility's UFSAR were based on maintaining four ADS valves operable. The currently analyzed small and intermediate break LOCA PCT is on the order of 1500 F which is significantly below the 2200 degrees F PCT limit. In addition, operation at less than 80% of the licensed power level provides an additional reduction in PCT estimated to be approximately 150 degrees F. Finally, if another ADS valve, HPCI or RCIC becomes inoperable, an orderly shutdown will be initiated per facility Technical Specification 3.5.E.3.

It is therefore concluded that operation of the facility in accordance with the proposed amendment would not involve a significant reduction in a margin of safety.

Based on the above discussion the staff concludes that this amendment meets the criteria and therefore does not involve a significant hazards consideration.

## 6.0 STATE CONSULTATION

The Commonwealth of Pennsylvania was consulted on this matter and had no comments on the determination.

## 7.0 ENVIRONMENTAL CONSIDERATIONS

This amendment involves 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. The 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 made a final no significant hazards finding with respect to this amendment. Accordingly, this 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 this amendment.

## 8.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) the amendment does not (a) significantly increase the probability or consequences of an accident previously evaluated, (b) increase the possibility of a new or different kind of accident from any previously evaluated or (c) significantly reduce a safety margin and, therefore, the amendment does not involve significant hazards consideration; (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; and (3) such activities will be conducted in compliance with the Commission's regulations, and the issuance of this amendment will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributors: T. E. Collins and G. Y. Suh

Dated: February 23, 1990