

September 12, 1986

Dockets Nos. 50-277 and 278

<u>DISTRIBUTION</u>	TBarnhart-8
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NThompson	

Mr. Edward G. Bauer, Jr.  
Vice President and General Counsel  
Philadelphia Electric Company  
2301 Market Street  
Philadelphia, Pennsylvania 19101

Dear Mr. Bauer:

The Commission has issued the enclosed Amendments Nos. 121 and 125 to Facility Operating Licenses Nos. DPR-44 and DPR-56 for the Peach Bottom Atomic Power Station, Units Nos. 2 and 3. These amendments consist of changes to the Technical Specifications (TSs) in response to your application dated May 23, 1985, as supplemented by letter dated January 31, 1986.

The specific changes to the TSs covered by these amendments involve an increase in the hydrogen concentration limit downstream of the off-gas recombiners to 4 percent (volume) and a decrease in the number of hydrogen analyzers required to be operational during power operation to one from the currently required two. In addition a revised definition for "Alteration of the Reactor Core" was proposed and approved.

A copy of our Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's Bi-Weekly Federal Register Notice.

Sincerely,

Gerald E. Gears, Project Manager  
BWR Project Directorate #2  
Division of BWR Licensing

Enclosures:

1. Amendment No. 121 to DPR-44
2. Amendment No. 125 to DPR-56
2. Safety Evaluation

cc w/enclosures:  
See next page

OFFICIAL RECORD COPY

BDL:PD#2  
SNORRIS  
8/25/86

BDL:PD#2  
GGears:CB  
8/26/86

OGC - Bethesda  
J. G. Liberg  
8/27/86

BDL:PD#2  
DMutter  
9/10/86

Mr. E. G. Bauer, Jr.  
Philadelphia Electric Company

Peach Bottom Atomic Power Station,  
Units 2 and 3

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Mr. Albert R. Steel, Chairman  
Board of Supervisors  
Peach Bottom Township  
R. D. #1  
Delta, Pennsylvania 17314



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. 121  
License No. DPR-44

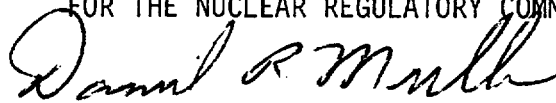
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Philadelphia Electric Company, et al. (the licensee) dated May 23, 1985, as supplemented by letter dated January 31, 1986, to the extent approved herein, complies with the standards and requirements 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 and 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. 121, 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



Daniel R. Muller, Director  
BWR Project Directorate #2  
Division of BWR Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: September 12, 1986

ATTACHMENT TO LICENSE AMENDMENT NO. 121

FACILITY OPERATING LICENSE NO. DPR-44

DOCKET NO. 50-277

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change.

Remove

Insert

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PBAPS

1.0 DEFINITIONS

The succeeding frequently used terms are explicitly defined so that a uniform interpretation of the specifications may be achieved.

Alteration of the Reactor Core - The act of moving any component in the region above the core support plate, below the upper grid and within the shroud with the vessel head removed and fuel in the vessel.

Normal control rod movement with the control drive hydraulic system is not defined as a core alteration. Normal movement of in-core instrumentation and the traversing in-core probe is not defined as a core alteration.

Channel - A channel is an arrangement of a sensor and associated components used to evaluate plant variables and produce discrete outputs used in logic. A channel terminates and loses its identity where individual channel outputs are combined in logic.

Cold Condition - Reactor coolant temperature equal to or less than 212 F.

Cold Shutdown - The reactor is in the shutdown mode, the reactor coolant temperature equal to or less than 212 F, and the reactor vessel is vented to atmosphere.

Critical Power Ratio (CPR) - The critical power ratio is the ratio of that assembly power which causes some point in the assembly to experience transition boiling to the assembly power at the reactor condition of interest as calculated by application of the GEXL correlation. (Reference NEDO-10958).

Dose Equivalent I-131 - That concentration of I-131 (Ci/gm) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present.

pursuant to Specification  
6.9.3 a Special Report which  
includes the following  
information:

- a. Explanation of why gaseous radwaste was being discharged without treatment, identification of any inoperable equipment or subsystems and the reason for its inoperability.
- b. Action taken to restore the inoperable equipment to operable status.
- c. Summary description of action taken to prevent a recurrence.

Reactor shutdown is not required.

6. The concentration of hydrogen downstream of the recombiners shall be limited to less than or equal to 2% by volume.
- With the concentration of hydrogen downstream of the recombiner greater than 2% but less than or equal to 4% by volume, restore the concentration to within the limit within 48 hours.
  - With the concentration of hydrogen downstream of the recombiner greater than 4% by volume, an orderly reduction of power shall be initiated within one hour to bring the hydrogen downstream of the recombiner to less than or equal to 2% by volume.
  - Except as specified in 3.8.C.6.d, two hydrogen monitors downstream of the recombiners shall be operable during power operation.
  - With the number of hydrogen monitors operable one less than required, operation may continue for up to 14 days provided grab samples are taken and analyzed daily. With both hydrogen monitors inoperable, operation may continue for up to 14 days provided grab samples are taken and analyzed every 4 hours during power operation.
6. \*The concentration of hydrogen downstream of the recombiners shall be limited to less than or equal to 4% by volume.
- \*With the concentration of hydrogen downstream of the recombiner greater than 4%, restore the concentration to within the limit within 48 hours.
  - \*Except as specified in 3.8.C.6.c, one hydrogen monitor downstream of the recombiner shall be operable during power operation.
  - \*With the number of hydrogen monitors operable less than required, operation may continue for up to 30 days provided grab samples are taken and analyzed every 4 hours during power operation.
- 6a. An instrument check of the operation of the hydrogen monitors shall be performed once per day.
- 6b. The hydrogen monitors and associated alarms downstream of the recombiner shall be calibrated once per month.
- 6c. Calibration shall include the use of standard gas samples containing a nominal:
- 1% hydrogen, balance nitrogen by volume.
  - 4% hydrogen, balance nitrogen by volume.
- \*To become effective upon completion of the installation of the ambient charcoal treatment system.



The radioactivity release rate of noble gases from the Steam Jet Air Ejector discharge as determined by quantitative analysis of identifiable gamma emitters shall not exceed 320,000 uCi/sec after 30 minutes decay. With the radioactivity release rate of noble gases from Steam Jet Air Ejector discharge exceeding 320,000 uCi/sec after 30 minutes decay restore the radioactivity release rate to within its limit within 72 hrs., or be in hot standby within the next 12 hours.

7a. The radioactivity release rate of noble gases from the Steam Jet Air Ejector discharge shall be determined to be within limits at the following frequencies by performing an isotopic analysis of a representative sample of gases taken at the discharge of the Steam Jet Air Ejector.

1. At least once per month unless the unit has been out of service for the entire month.
2. Within 4 hrs. following an increase, if the off-gas monitors indicate an increase of greater than 50% in the steady state fission gas release after factoring out increases due to power changes.

7b. One Steam Jet Air Ejector radiation monitor shall be operable during operation of a main condenser Steam Jet Air Ejector. Upon loss of both Steam Jet Air Ejector radiation monitors, releases may continue via this pathway for up to 72 hours provided

7b. The Steam Jet Air Ejector radiation monitors shall be calibrated every quarter and an instrument check shall be performed once per day. Additionally a functional test will be performed every month. The channel functional test shall also demonstrate that



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. 125  
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 May 23, 1985, as supplemented by letter dated January 31, 1986, to the extent approved herein, 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 and 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. 125, 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



Daniel R. Muller, Director  
BWR Project Directorate #2  
Division of BWR Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: September 12, 1986

ATTACHMENT TO LICENSE AMENDMENT NO. 125

FACILITY OPERATING LICENSE NO. DPR-56

DOCKET NO. 50-278

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change.

Remove

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## PBAPS

### 1.0 DEFINITIONS

The succeeding frequently used terms are explicitly defined so that a uniform interpretation of the specifications may be achieved.

Alteration of the Reactor Core - The act of moving any component in the region above the core support plate, below the upper grid and within the shroud with the vessel head removed and fuel in the vessel.

Normal control rod movement with the control drive hydraulic system is not defined as a core alteration. Normal movement of in-core instrumentation and the traversing in-core probe is not defined as a core alteration.

Channel - A channel is an arrangement of a sensor and associated components used to evaluate plant variables and produce discrete outputs used in logic. A channel terminates and loses its identity where individual channel outputs are combined in logic.

Cold Condition - Reactor coolant temperature equal to or less than 212 F.

Cold Shutdown - The reactor is in the shutdown mode, the reactor coolant temperature equal to or less than 212 F, and the reactor vessel is vented to atmosphere.

Critical Power Ratio (CPR) - The critical power ratio is the ratio of that assembly power which causes some point in the assembly to experience transition boiling to the assembly power at the reactor condition of interest as calculated by application of the GEXL correlation. (Reference NEDO-10958).

Dose Equivalent I-131 - That concentration of I-131 (Ci/gm) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present.

pursuant to Specification  
6.9.3 a Special Report which  
includes the following  
information:

- a. Explanation of why gaseous radwaste was being discharged without treatment, identification of any inoperable equipment or subsystems and the reason for its inoperability.
- b. Action taken to restore the inoperable equipment to operable status.
- c. Summary description of action taken to prevent a recurrence.

Reactor shutdown is not required.

6. The concentration of hydrogen downstream of the recombiners shall be limited to less than or equal to 2% by volume.
- a. With the concentration of hydrogen downstream of the recombiner greater than 2% but less than or equal to 4% by volume, restore the concentration to within the limit within 48 hours.
  - b. With the concentration of hydrogen downstream of the recombiner greater than 4% by volume, an orderly reduction of power shall be initiated within one hour to bring the hydrogen downstream of the recombiner to less than or equal to 2% by volume.
  - c. Except as specified in 3.8.C.6.d, two hydrogen monitors downstream of the recombiners shall be operable during power operation.
  - d. With the number of hydrogen monitors operable one less than required, operation may continue for up to 14 days provided grab samples are taken and analyzed daily. With both hydrogen monitors inoperable, operation may continue for up to 14 days provided grab samples are taken and analyzed every 4 hours during power operation.
6. \*The concentration of hydrogen downstream of the recombiners shall be limited to less than or equal to 4% by volume.
- a. \*With the concentration of hydrogen downstream of the recombiner greater than 4%, restore the concentration to within the limit within 48 hours.
  - b. \*Except as specified in 3.8.C.6.c, one hydrogen monitor downstream of the recombiner shall be operable during power operation.
  - c. \*With the number of hydrogen monitors operable less than required, operation may continue for up to 30 days provided grab samples are taken and analyzed every 4 hours during power operation.
- 6a. An instrument check of the operation of the hydrogen monitors shall be performed once per day.
- 6b. The hydrogen monitors and associated alarms downstream of the recombiner shall be calibrated once per month.
- 6c. Calibration shall include the use of standard gas samples containing a nominal:
1. 1% hydrogen, balance nitrogen by volume.
  2. 4% hydrogen, balance nitrogen by volume.
- \*To become effective upon completion of the installation of the ambient charcoal treatment system.

7a. The radioactivity release rate of noble gases from the Steam Jet Air Ejector discharge as determined by quantitative analysis of identifiable gamma emitters shall not exceed 320,000 uCi/sec after 30 minutes decay. With the radioactivity release rate of noble gases from Steam Jet Air Ejector discharge exceeding 320,000 uCi/sec after 30 minutes decay restore the radioactivity release rate to within its limit within 72 hrs., or be in hot standby within the next 12 hours.

7b. One Steam Jet Air Ejector radiation monitor shall be operable during operation of a main condenser Steam Jet Air Ejector. Upon loss of both Steam Jet Air Ejector radiation monitors, releases may continue via this pathway for up to 72 hours provided,

7a. The radioactivity release rate of noble gases from the Steam Jet Air Ejector discharge shall be determined to be within limits at the following frequencies by performing an isotopic analysis of a representative sample of gases taken at the discharge of the Steam Jet Air Ejector.

1. At least once per month unless the unit has been out of service for the entire month.
2. Within 4 hrs. following an increase, if the off-gas monitors indicate an increase of greater than 50% in the steady state fission gas release after factoring out increases due to power changes.

7b. The Steam Jet Air Ejector radiation monitors shall be calibrated every quarter and an instrument check shall be performed once per day. Additionally a functional test will be performed every month. The channel functional test shall also demonstrate that





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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NOS. 121 AND 125 TO FACILITY OPERATING

LICENSES 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, UNITS NOS. 2 AND 3

DOCKETS NOS. 50-277 AND 50-278

1.0 INTRODUCTION

By letter dated May 23, 1985, Philadelphia Electric Company (licensee) transmitted a Peach Bottom Technical Specification change request. The licensee proposed (1) to raise the hydrogen concentration limit downstream of the off-gas recombiners to 4 percent by volume from the current 2 percent, (2) to lower the number of hydrogen analyzers required to be operational during power operation to one from the currently required two, and (3) to revise the definition of "Alteration of the Reactor Core" consistent with the Standard Technical Specifications.

2.0 EVALUATION

The licensee has replaced the Unit 2 high pressure (200 psig) compressed off-gas storage system with a low pressure (1 psig) charcoal delay system. Specifically, the licensee has (1) removed the mechanical compressors, the precooler/moisture separator, and the jet compressors, (2) converted the holdup pipe (5 feet in diameter and 470 feet long) into a charcoal adsorber bed, and (3) installed a new condenser/moisture separator, new jet compressors, and glycol cooling equipment. The same modifications are planned for the Unit 3 off-gas system in the next refueling outage (late 1987).

The original high pressure compressed off-gas storage system was not designed to withstand the effects of a hydrogen explosion. Hence, the current Peach Bottom Technical Specifications (1) require two independent hydrogen analyzers to be operational, (2) limit the hydrogen concentration downstream of the recombiners to 2 percent by volume, and (3) allow continuous operation of up to 14 days in the event that one of the two hydrogen analyzers becomes inoperable, provided that grab samples are taken and analyzed every 4 hours.

The licensee states in their letter dated January 31, 1986, in response to additional staff questions that with the modified off-gas systems, all portions of the Unit 2 off-gas system are designed to withstand the effects of a hydrogen explosion. The licensee further states that piping and components in the off-gas system have been analyzed in accordance with the methodology provided in Appendix C, "Acceptable Methods of Design to Contain Detonation" of ANSI/ANS 55.4, "Gaseous Radioactive Waste Processing Systems for Light Water Reactor Plants (1979)". The off-gas system planned for Unit 3 will satisfy the same standards upon completion late in 1987.

In view of the above, we accept the following revised Limiting Conditions for Operation (LCO) which the licensee proposed for incorporation into the Peach Bottom Technical Specification Section 3.8.C.6:

- 3.8.C.6 The concentration of hydrogen downstream of the recombiners shall be limited to less than or equal to 4% by volume.
- a. With the concentration of hydrogen downstream of the recombiner greater than 4%, restore the concentration to within the limit within 48 hours.
  - b. Except as specified in 3.8.C.6.c, one hydrogen monitor downstream of the recombiner shall be operable whenever the main condenser evacuation system is in operation.
  - c. With the number of hydrogen monitors operable less than required, operation may continue for up to 30 days provided grab samples are taken and analyzed every 4 hours whenever the main condenser evacuation system is in operation.

The above revised LCO is consistent with GE/BWR-5 Standard Technical Specifications for off-gas systems designed to withstand the effects of a hydrogen explosion. The off-gas system modification made is also in accordance with Standard Review Plan Section 11.3.

The licensee also proposed a revision to the current TSs involving the definition for "Alteration of the Reactor Core". The proposed revision would clarify the definition in the current TSs to reflect the staff's position and guidance in this matter. The staff's intent as manifested in the Standard Technical Specifications (NUREG-0123, Rev. 3, Standard Technical Specifications for General Electric Boiling Water Reactors) is that the definition of "Alteration of Reactor Core" or "Core Alteration" should apply only when the vessel head is removed and fuel is in the vessel. The proposed TS change would provide clarification of this fact by adding the following words (noted here by underlining) to the current "Alteration of the Reactor Core" definition:

"Alteration of the Reactor Core - The act of moving any component in the region above the core support plate, below the upper grid and within the shroud with the vessel head removed and fuel in the vessel."

On the bases of the above evaluation, we find that the specific requested amendment changes addressed by the staff at this time are acceptable.

### 3.0 ENVIRONMENTAL CONSIDERATION

These 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. We have 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 these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, these 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.

### 4.0 CONCLUSION

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

Principal Contributor: J. Lee, G. Gears

Dated: September 12, 1986