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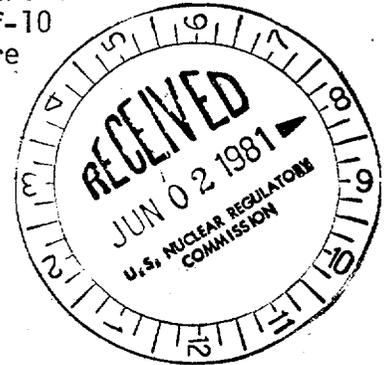
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Docket No. 50-277



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 Amendment No. 79 to Facility Operating License No. DPR-44 for the Peach Bottom Atomic Power Station, Unit No. 2. The amendment revises the Technical Specifications (TSs) for the remainder of Cycle 5 operation and is in partial response to your application dated September 30, 1980, as amended by your letter dated May 14, 1981. This completes our action on your September 30, 1980, application for Unit No. 2. Outstanding items for Unit No. 3 will be processed separately.

The revised TSs extend the maximum average planar linear heat generation rate for the Cycle 5 fuel from 30,000 megawatt days per short ton of uranium (Mwd/T) to 40,000 Mwd/T.

Copies of our Safety Evaluation and a related Notice of Issuance are also enclosed.

Sincerely,

Original signed by

John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing

Enclosures:

1. Amendment No. 79 to DPR-44
2. Safety Evaluation
3. Notice

cc w/enclosures:
See next page

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*No legal objection to
issuance of notice of amendment
if not reviewed for
conformance*

OFFICE	ORB#4:DL	ORB#4:DL	C/ORB#4:DL	AD OR:DL	OELB		
SURNAME	RIngram	MFairtile/cb	JStolz	TNovak	CUTCHIN		
DATE	5/18/81	5/18/81	5/18/81	5/18/81	5/18/81		



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

May 20, 1981

Docket No. 50-277

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

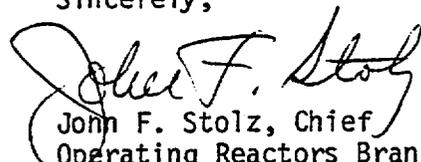
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John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing

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2. Safety Evaluation
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cc w/enclosures:
See next page

Philadelphia Electric Company

cc w/enclosure(s):

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Albert R. Steel, Chairman
Board of Supervisors
Peach Bottom Township
R. D. #1
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Curt Cowgill
U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
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Delta, Pennsylvania 17314

U. S. Environmental Protection Agency
Region III Office
ATTN: EIS COORDINATOR
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6th and Walnut Streets
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Philadelphia Electric Company
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Philadelphia, Pennsylvania 19101

Government Publications Section
State Library of Pennsylvania
Education Building
Commonwealth and Walnut Streets
Harrisburg, Pennsylvania 17126

cc w/enclosure(s) & incoming dtd.:
5/14/81*

Mr. R. A. Heiss, Coordinator
Pennsylvania State Clearinghouse
Governor's Office of State Planning
and Development
P. O. Box 1323
Harrisburg, Pennsylvania 17120

*Incoming dtd. 9/30/80 included w/cy.
of NRC ltr. to licensee dtd. 12/10/80



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. 79
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 September 30, 1980, as supplemented May 14, 1981, 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:

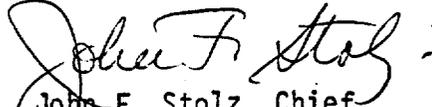
(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 79, are hereby incorporated in the license. PECO shall operate the facility in accordance with the Technical Specifications.

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3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in cursive script, appearing to read "John F. Stolz".

John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 20, 1981

ATTACHMENT TO LICENSE AMENDMENT NO. 79

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 pages are identified by amendment number and contain vertical lines indicating the area of change.

Remove Pages

142b

142c

Insert Pages

142b

142c

PEACH BOTTOM UNIT 2

8X8 FUEL, TYPE 8D274H - 80 MIL and 100 MIL CHANNELS

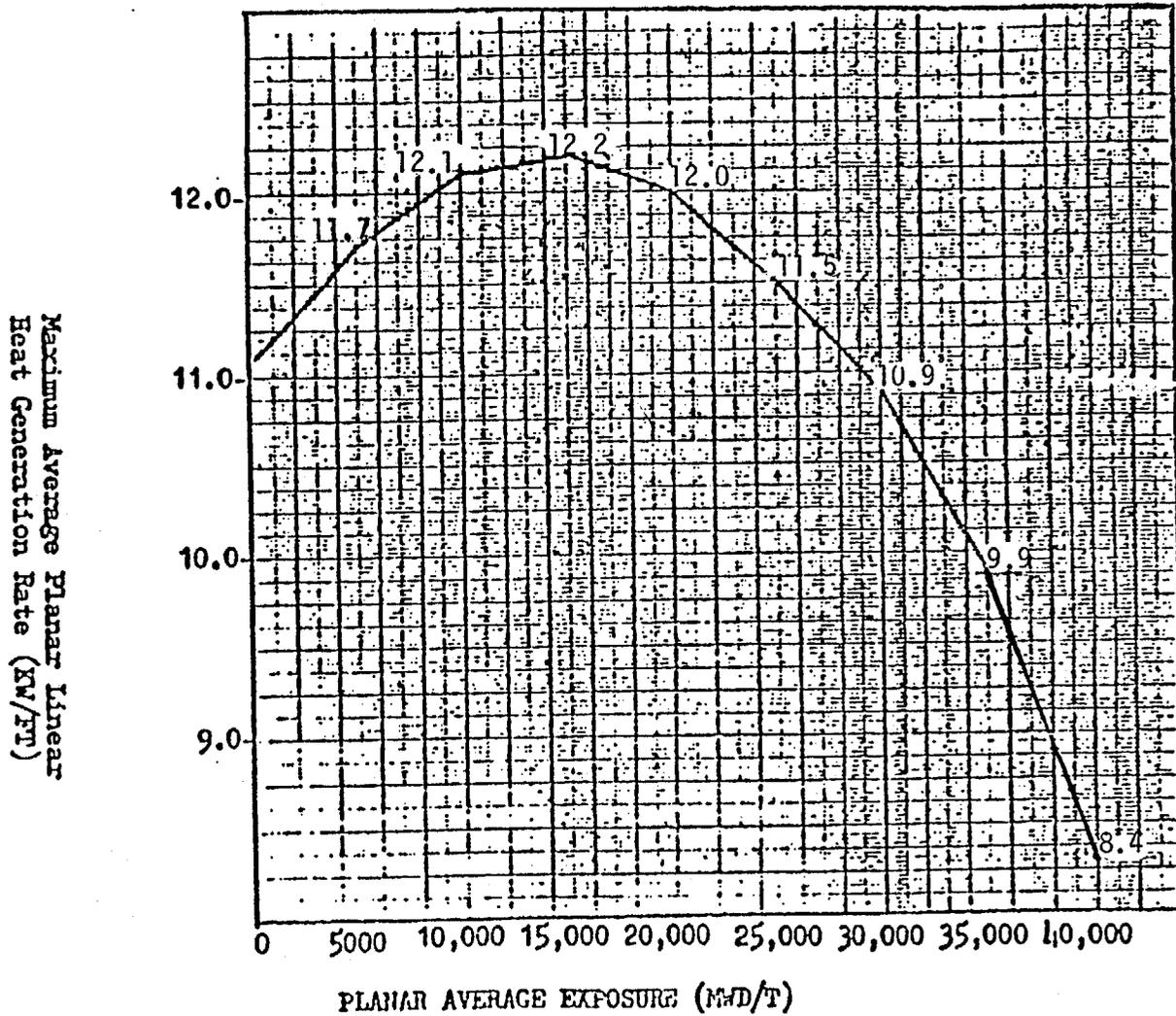


Figure 3.5.1.C Maximum Average Planar Linear Heat Generation Rate Versus Planar Average Exposure

The average level of irradiation of the irradiated fuel from the reactor shall not exceed 33,000 MWD/MTU in accordance with Tables S-3 and S-4 of 10 CFR Part 51.

PBAPS

Unit 2

PEACH BOTTOM UNIT 2

8X8 Fuel, Type L

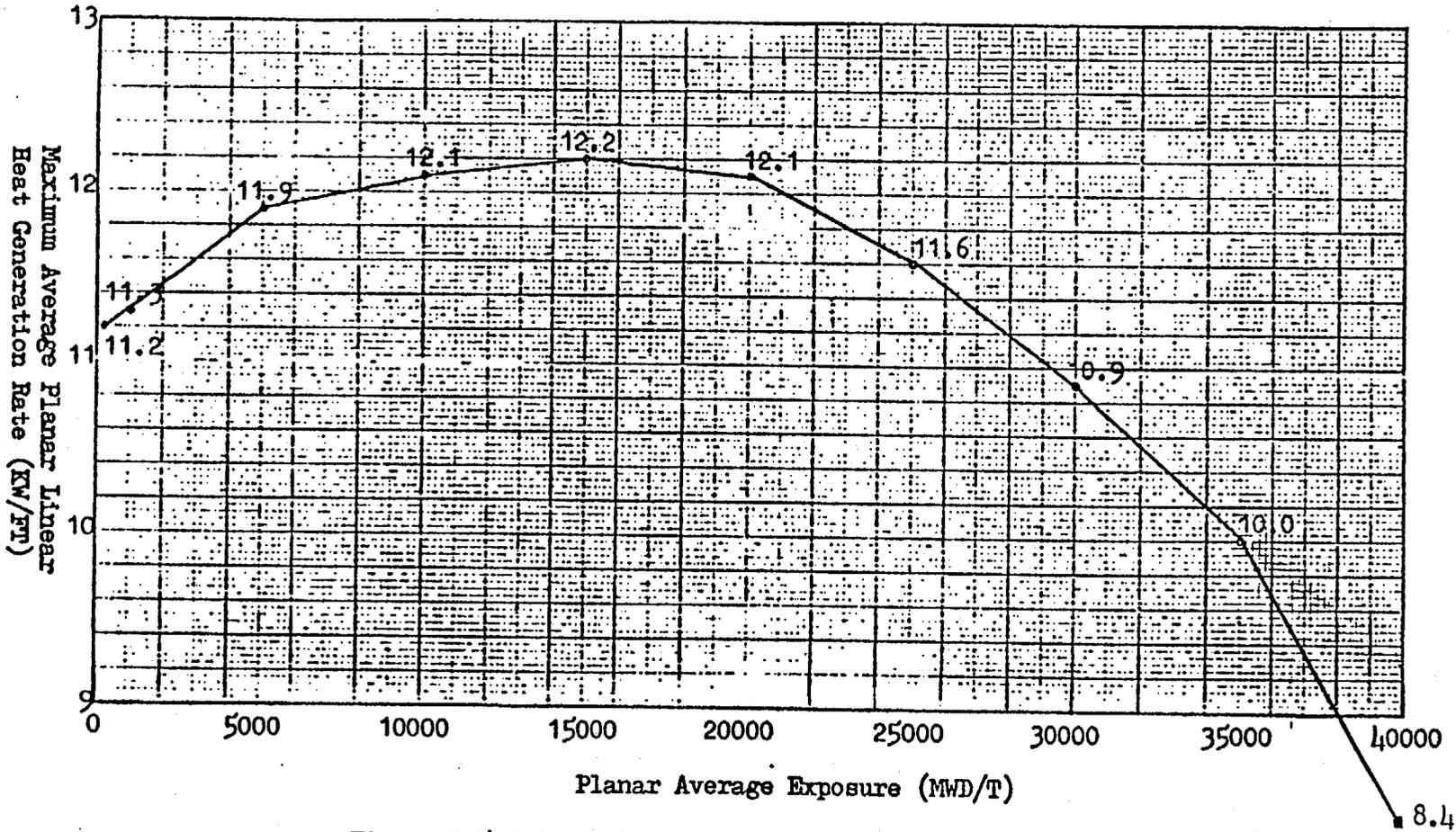


Figure 3.5.1.D Maximum Average Planar Linear Heat Generation Rate Versus Planar Average Exposure

The average level of irradiation of the irradiated fuel from the reactor shall not exceed 33,000 MWD/MTU in accordance with Tables S-3 and S-4 of 10 CFR Part 51.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 79 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 letters dated September 30, 1980 (Ref. 1) and May 14, 1981 (Ref. 7), Philadelphia Electric Company (PECO or the licensee) made application to modify the Technical Specifications for Peach Bottom Atomic Power Station, Unit 2, to permit continued Cycle 5 operation. The application contains a fuel-design-related change to revise Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) to extend exposure limits.

2.0 Evaluation

Extension of MAPLHGR limits from 30 Gwd/StU to 40 Gwd/StU was performed by methods (Ref. 2) submitted as part of this application. Although the methodology used is generally applicable for this MAPLHGR extension, we believe that the effects of enhanced fission gas release in high burnup fuel (above 20 Gwd/MtU) were not adequately considered. Considering these effects, we have recommended a reduction in the proposed MAPLHGR values. The reduction is based on the results of comparative calculations (Ref. 3) of fuel volume average temperature performed by General Electric using GEGAP-III (Ref. 4) with and without an NRC correction (Ref. 5) for burnup enhanced fission gas release. In calculating the MAPLHGR reduction, we conservatively assumed the change in volume-average temperature can be translated directly into a peak cladding temperature (PCT) change. An additional correlation between the increase in PCT and the increase in MAPLHGR was also taken from Reference 3.

Table 1 gives the percent reduction in MAPLHGR as a function of burnup above 20 Gwd/StU.

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TABLE 1 REDUCTION IN MAPLHGR AS A FUNCTION OF EXPOSURE

Burnup (Gwd/StU)	<30	30	32	34	36	38	40
MAPLHGR Reduction (%)							
Unpressurized Fuel	0	6.3	12.5	16.5	20.5	30.3	40.0
Pressurized Fuel	0	3.0	6.0	8.4	10.8	13.5	16.5

Although a reduction could be calculated for fuel with local burnups as low as 20 Gwd/MtU, previously approved MAPLHGR limits have been accepted for burnups below 30 Gwd/StU (Ref. 6). The reduction, therefore, is applied only for burnups above 30 Gwd/StU.

The MAPLHGR reductions have been incorporated into the licensee's revised proposed Technical Specifications for Cycle 5 in Reference 7. This change assures that the cladding temperature and local cladding oxidation would remain below the 2200°F PCT and the 17% local cladding oxidation limits allowed by 10 CFR 50.46 when the effects of enhanced fission gas release above 30 Gwd/StU are accounted for.

There are two significant changes in the application of MAPLHGR reductions to Peach Bottom Unit 2. First, the application is valid for planar average burnups as high as 40 Gwd/StU, rather than 36 Gwd/StU as requested for other boiling water reactors (BWRs) with General Electric safety analysis. Second, the application modifies MAPLHGR limits for fuel type 8D274H, which were previously accepted (Ref. 8) for exposures above 30 Gwd/StU. It is also noted that MAPLHGR limits for 7x7 fuel have previously been accepted for exposures above 30 Gwd/StU. There is currently no fuel of the 7x7 design in Peach Bottom Unit 2.

As is the case for other GE-fueled BWRs, we have allowed credit for the difference between calculated PCT and the 2200°F limit of 10 CFR 50.46 to offset MAPLHGR reduction penalties. This is accomplished in the following manner: The value of MAPLHGR reduction at 35 Gwd/StU by interpolation of Table 1 is 18.5%. From Reference 2 (Table 4-3c) PCT at 35 Gwd/StU for 8D274L fuel with a MAPLHGR limit of 10.0 KW/ft is 1664°F. Thus, giving 1% credit for every 20°F difference in PCT (between 2200°F and 1664°F), the value of the MAPLHGR reduction at 35 Gwd/StU is zero. Thus, the licensee's revised Technical Specification value (Table 4-3c of Ref. 2) for 8D274L fuel is unchanged at 35 Gwd/StU. A similar calculation is performed for other fuel types and other burnups in the Cycle 5 core. Net MAPLHGR reductions are calculated for most fuel types at 40 Gwd/StU. These reductions have been incorporated into the licensee's revised proposed Technical Specifications. Accordingly, we conclude that the proposed MAPLHGR versus average planar exposure values are acceptable.

Table 4-3 of Reference 2 contains MAPLHGR limits to 50 Gwd/StU for one fuel type, LTA260. These MAPLHGR limits apply to only four extended burnup lead test assemblies described in Reference 9. Correcting the MAPLHGR limits in the 40-50 Gwd/StU range is not practical by the same method used in the 30-40 Gwd/StU range. As a result, the licensee has not applied a MAPLHGR correction for these four assemblies in the core. We believe that the licensee's decision to use an uncorrected analysis for these four assemblies is acceptable because, (a) the allowable power rating of these assemblies at high exposures is significantly lower than the rest of the core, (b) only four lead test bundles are involved, and (c) the benefits to be derived from this high-burnup lead test assembly program outweigh the small risk that will be taken by relying on an uncorrected analysis. We conclude that the licensee's safety analysis (Refs. 2 and 9) as related to Peach Bottom 2 Cycle 5 extended operation adequately considers the effects of operation with the proposed extended burnup lead test assemblies.

3.0 Environmental Considerations

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

There is, however, an environmental consideration related to the amendment. 10 CFR 51.20g(2)(iii) states, "The average level of irradiation of the irradiated fuel from the reactor does not exceed 33,000 megawatt days per metric ton and...". The Technical Specification curves specify burnup in megawatt days per short ton. A short ton is 2,000 pounds and a metric ton is 2,205 pounds, thus a metric ton is 1.1 times greater than a short ton.

In a previous Safety Evaluation performed for the Browns Ferry Nuclear Plant, Units Nos. 1 and 2, dated October 6, 1980, we extended the irradiation to 40,000 megawatt days per short ton. This is the same request made by PECO for Peach Bottom Unit No. 2 in this amendment. We found that the Browns Ferry fuel when irradiated to 40,000 megawatt days per short ton did not exceed an average level of burnup of 33,000 megawatt days per metric ton. The Peach Bottom 2 fuel is bounded by the evaluation done for the Browns Ferry fuel. We conclude, based on the bounding Browns Ferry analysis, that the proposed burnups to 40,000 MWD/Short Ton do not exceed the 10 CFR Part 51.20 limits of 33,000 MWD/Metric Ton.

To assure that the environmental considerations in 10 CFR 51 are evaluated if MAPLHGR limits are extended in the future, we have with the licensee's concurrence, added a note to Technical Specification Figures 3.5.1.C and 3.5.1.D, stating the requirement in 10 CFR 51.20.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a 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 or to the health and safety of the public.

Dated: May 20, 1981

REFERENCES

1. E. J. Bradley (PECo) letter to H. R. Denton (NRC), dated September 30, 1980.
2. "Loss-of-Coolant Accident Analysis Report for Peach Bottom Atomic Power Station Unit 2", General Electric Company Report NEDO-24081, December 1977 (with Addenda 1-6).
3. R. B. Elkins, "Fuel Rod Prepressurization, Amendment 1", General Electric Company Report NEDE-23786-1-P, May 1978.
4. "GEGAP-III: A Model for the Prediction of Pellet-Cladding Thermal Conductance in BWR Fuel Rods", General Electric Company Report NEDC-20181, November 1973.
5. R. O. Meyer, C. E. Beyer and J. C. Voglewede, "Fission Gas Release from Fuel at High Burnup", U. S. NRC Report NUREG-0418, March 1978.
6. T. A. Ippolito (NRC) letter to J. M. Pilant (Nebraska Public Power District) on Cooper Nuclear Station dated January 30, 1981.
7. M. J. Cooney (PECo) letter to J. F. Stolz (NRC) dated May 14, 1981.
8. R. W. Reid (NRC) letter to E. G. Bauer (PECo) dated June 13, 1980.
9. "Lead Test Assembly Supplemental Information for Reload 1 Licensing Submittal for Peach Bottom Atomic Power Station Unit 2", General Electric Company Report NEDO-21172, Revision 1, Supplement 1, March 1976.

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NO. 50-277PHILADELPHIA ELECTRIC COMPANY, ET ALNOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 79 to Facility Operating License No. DPR-44, issued to Philadelphia Electric Company, Public Service Electric and Gas Company, Delmarva Power and Light Company, and Atlantic City Electric Company, which revised Technical Specifications for operation of the Peach Bottom Atomic Power Station, Unit No. 2 (the facility) located in York County, Pennsylvania. The amendment is effective as of its date of issuance.

The revised Technical Specifications extend the maximum average planar linear heat generation rate for the Cycle 5 fuel from 30,000 megawatt days per short ton of uranium (Mwd/T) to 40,000 Mwd/T.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant

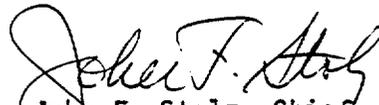
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to 10 CFR §51.5(d)(4) that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated September 30, 1980, as supplemented May 14, 1981, (2) Amendment No. 79 to License No. DPR-44, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Government Publications Section, State Library of Pennsylvania, Education Building, Commonwealth and Walnut Streets, Harrisburg, Pennsylvania. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 20th day of May 1981.

FOR THE NUCLEAR REGULATORY COMMISSION



John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing