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Dockets Nos. 50-277
 and 50-278

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

Gentlemen:

The Commission has issued the enclosed Amendment No. 25 to Facility Operating License No. DPR-44 and Amendment No. 24 to Facility Operating License No. DPR-56 for the Peach Bottom Atomic Power Station, Units Nos. 2 and 3. These amendments consist of changes to the Technical Specifications and are in response to your request dated June 21, 1976.

The amendment consists of changes to the Environmental Technical Specifications relating to operation of cooling towers which will replace the interim Technical Specifications issued to you on May 15, 1976.

Copies of: (1) a Notice of Issuance of Amendment to Facility Operating License and Negative Declaration, and (2) Environmental Impact Appraisal are also enclosed for your information. Item (1) is being filed with the Office of the Federal Register for publication.

Sincerely,

George Lear, Chief
 Operating Reactors Branch #3
 Division of Operating Reactors

Enclosures:

1. Amendment No. 25 to DPR-44
2. Amendment No. 24 to DPR-56
3. Federal Register Notice and Negative Declaration
4. Environmental Impact Appraisal

*Concur with addition of
 a clarification in
 section 4 of EIA*

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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

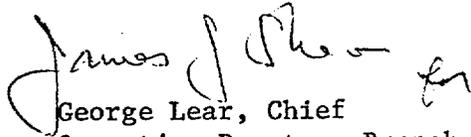
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 25
License No. DPR-44

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Philadelphia Electric Company, Public Service Electric and Gas Company, Delmarva Power and Light Company, and Atlantic City Electric Company, (the licensees) dated June 21, 1976, 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; and
 - 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.
 - 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 a change to the Technical Specifications as indicated in the attachment to this license amendment.

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

FOR THE NUCLEAR REGULATORY COMMISSION



George Lear, Chief
Operating Reactors Branch #3
Division of Operating Reactors

Attachment:
Changes to the
Technical Specifications

Date of Issuance: July 15, 1976

ATTACHMENT TO LICENSE AMENDMENT NO. 25

TO THE ENVIRONMENTAL TECHNICAL SPECIFICATIONS

FACILITY OPERATING LICENSE NO. DPR-44

DOCKET NO. 50-277

Replace pages 5, 5a, 5b and 6 of Appendix B with the attached revised pages. Add new page 5c (no change has been made on page 6).

2.0 PROTECTION LIMITS

2.1 Thermal

Objective

To minimize adverse effects on the aquatic biota in the Conowingo Pond which could result from the increase in water temperature.

Specification

- 2.1.1 All three cooling towers shall be operated whenever the sum of Units 2 and 3 power is greater than 20% of the sum of the maximum design output of the two units except as specified below.
- 2.1.2 For purposes of maintenance or repair, cooling towers may be inoperable for a period of 72 hours provided that the provisions of paragraphs A, B, and C of Exhibit 1 of the "Stipulation" between Philadelphia Electric Company and the Commonwealth of Pennsylvania, dated August 12, 1975 and amended May 13, 1976 are met.
- 2.1.3 For purposes of maintenance or repair, cooling towers may be inoperable for a period in excess of 72 hours provided that (1) the provisions of paragraphs A, B, and C of Exhibit 1 of the "Stipulation" between Philadelphia Electric Company and the Commonwealth of Pennsylvania are met, and (2) if the flow of the Susquehanna River through Conowingo Pond as calculated daily is 15,000 cfs or less for a period of 3 consecutive days and the difference between the 3 day average of hourly temperatures measured at the Pennsylvania/Maryland state line and the 3 day average of hourly temperatures measured at the

3.0 MONITORING REQUIREMENTS

3.1 Thermal

Objective

To assure that the water temperature in the Conowingo Pond is not increased to a level that adverse effects on the aquatic biota would result.

Specification

The bulk temperature of the condenser inlet water and of the water discharged to Conowingo Pond from the discharge canal shall be transmitted to the PBAPS control room and logged. Temperatures at Holtwood Dam and the Pennsylvania/Maryland state line shall be transmitted to the PBAPS control room and logged. For purposes of maintenance, the temperature monitoring system may be inoperable for a period not to exceed 7 days.

Thermal impact upon Conowingo Pond shall be periodically monitored and reported as specified in Section 6.3.

When one or more of the cooling towers are not in operation and the flow of the Susquehanna River through Conowingo Pond as calculated daily is less than 15,000 cfs, thermal plume mapping, as described in Section 6.3.a of these specifications, shall be performed at least once per week. The results of this thermal mapping shall be submitted to the NRC in monthly reports along with applicable data on river flows, heat discharged from the station and the number of cooling towers in operation. Under these conditions, measurements of the bulk temperature of the water discharged to Conowingo Pond from the discharge canal and the temperatures at the Pennsylvania/Maryland state line and Holtwood Dam shall be recorded notwithstanding the maintenance provisions stated above.

Holtwood Dam exceeds 5°F over the same 3 day period, the sum of the power of Units 2 and 3 shall not be greater than 89% of the sum of the maximum design output of the two Units if one tower is unavailable, 78% if two towers are unavailable, and 67% if three towers are unavailable.

2.1.4 When potential icing conditions exist, operation of the cooling towers may be varied so as to prevent damage due to icing.

2.1.5 This restriction does not preclude operation for purposes of testing and studies required by the certifications issued by the Commonwealth of Pennsylvania dated June 12, 1973 for Unit 2 and the further certification dated May 8, 1974 for Unit 3.

Bases

A time period of 72 hours is included under Specification 2.1.2 and 2.1.3. The basis for this number is that it is shorter than both the life cycles of most microinvertebrates and shorter than the spawning periods of most fishes. This condition will protect the microinvertebrate populations by not promoting gradual shifts in population temperature tolerances caused by excessive heating, and will protect the young fishes and larvae populations from excessive impact as the spawning cycle of most fish populations are at least several weeks in duration. Although the phytoplankton life cycle can be shorter than 3 days, their capability to recover from an impact is much greater than fishes or microinvertebrates because their mode of reproduction is largely asexual, and will not be permanently affected by 3 day periods of excessive heating.

During periods of low river flows the size of the 5°F thermal plume isotherm has been observed to be significantly larger than that described in the FES or that described in paragraph A of

Bases

As indicated in "Predicted Prototype Temperature Distribution in Conowingo Pond," prepared for the Philadelphia Electric Company by the Bechtel Power Corporation in July, 1973, adherence to this specification will assure, in essentially all instances, compliance to the thermal criteria of the Maryland Water Quality Standard.

Exhibit 1 of the "Stipulation" between Philadelphia Electric Company and the Commonwealth of Pennsylvania. This impact is considered adverse but acceptable as it will occur only until the closed-cycle cooling system becomes operational. Specification 2.1.3 insures that when the towers are out of service during periods of low flows that the plume sizes described in the "Stipulation" and in the FES are not, on the average, exceeded.

The specification conforms to operating limits contained in Exhibit 1 to a Stipulation between licensee and the Commonwealth of Pennsylvania dated August 12, 1975. Compliance with this specification will assure compliance with Pennsylvania and Maryland thermal water quality criteria, will keep adverse affects on Conowingo Pond at an acceptable level until the closed cycle cooling system is operational, and will provide flexibility to modify cooling tower operation requirements when such modifications will not conflict with the objectives of the specifications.

A cooling tower shall be considered operable if its lift pump is operable and no more than 2 fans in any one bank are inoperable (one bank is defined as one half of the 11 cooling tower fans arranged in groups of 5 and 6 fans).

PROTECTION LIMITS (Continued)

2.2 Chemical

2.2.1 Biocides

Objective

To minimize adverse effects on aquatic biota which may result from the chlorine used to control fouling organisms within the station.

Specification

The concentration of total residual chlorine at the point of discharge to the Conowingo Pond shall not be greater than 0.1 mg/liter. The period of chlorine addition to a condenser stream shall not exceed one hour per day. The total period of chlorine addition to the condenser circulating water systems and to the cooling tower systems shall not exceed two hours per day.

MONITORING REQUIREMENTS (Continued)

3.2 Chemical

3.2.1 Biocides

Objective

To assure that chlorine discharges are maintained in accordance with the environmental technical specification.

Specification

Free residual chlorine shall be measured continuously at the discharge of the condenser section being chlorinated. The chlorine analyzer shall be calibrated monthly. In the event the continuous chlorine analyzer is inoperable, manual measurements of the free residual chlorine level in the condenser discharge water shall be made at the start, midpoint, and end of chlorination.

PROTECTION LIMITS (Continued)MONITORING REQUIREMENTS (Continued)Specification (Continued)

If this specification is exceeded, the chlorine addition rate shall be reduced as necessary, to operate within this specification.

Specification (Continued)

During chlorination of the cooling towers, the total residual chlorine level in the circulating water discharged to Conowingo Pond shall be measured at the start of chlorination, at the mid-point of chlorination, and at the finish of chlorination.

Once a month, during a period of chlorination and one hour after the end of chlorine addition, a chlorine survey will be made of the circulating water discharged to the Conowingo Pond. This chlorine survey will consist of obtaining data on the chlorine feed rate, the free residual chlorine level at the condenser section discharge, and the total residual chlorine level of the circulating water discharged to Conowingo Pond. The total residual chlorine level of the circulating water discharged to Conowingo Pond will be measured every fifteen minutes during the survey.

Bases

Chlorine is used to control the growth of fouling organisms in the cooling water systems. Control of these organisms is necessary to maintain the required heat transfer rates in these heat exchange devices by preventing fouling of the heat exchange surfaces.

Growth of fouling organisms will be prevented by addition of chlorine to the cooling water on the suction side of the circulating water and sea water pumps. The plant has a total of six circulating water pumps, and each condenser of the two generating units is divided into three sections. Chlorination will be scheduled to add chlorine to one section at a time. Operators will set the rate of chlorine addition using the chlorination control panel, such that the chlorine residual obtained at the outlet of the condenser section being chlorinated will result in a

Bases

The monitoring of total residual chlorine as described above will assure compliance to the environmental technical specification.



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. 24
License No. DPR-56

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Philadelphia Electric Company, Public Service Electric and Gas Company, Delmarva Power and Light Company, and Atlantic City Electric Company (the licensees), dated June 21, 1976, 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; and
 - 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.
 - 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 a change to the Technical Specifications as indicated in the attachment to this license amendment.

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

FOR THE NUCLEAR REGULATORY COMMISSION

James J. Shea for
George Lear, Chief
Operating Reactors Branch #3
Division of Operating Reactors

Attachment:
Changes to the
Technical Specifications

Date of Issuance: July 15, 1976

ATTACHMENT TO LICENSE AMENDMENT NO. 24

TO THE ENVIRONMENTAL TECHNICAL SPECIFICATIONS

FACILITY OPERATING LICENSE NO. DPR-56

DOCKET NO. 50-278

Replace pages 5, 5a, 5b, and 6 of Appendix B with the attached revised pages. Add new page 5c (no change has been made on page 6).

2.0 PROTECTION LIMITS

2.1 Thermal

Objective

To minimize adverse effects on the aquatic biota in the Conowingo Pond which could result from the increase in water temperature.

Specification

- 2.1.1 All three cooling towers shall be operated whenever the sum of Units 2 and 3 power is greater than 20% of the sum of the maximum design output of the two units except as specified below.
- 2.1.2 For purposes of maintenance or repair, cooling towers may be inoperable for a period of 72 hours provided that the provisions of paragraphs A, B, and C of Exhibit 1 of the "Stipulation" between Philadelphia Electric Company and the Commonwealth of Pennsylvania, dated August 12, 1975 and amended May 13, 1976 are met.
- 2.1.3 For purposes of maintenance or repair, cooling towers may be inoperable for a period in excess of 72 hours provided that (1) the provisions of paragraphs A, B, and C of Exhibit 1 of the "Stipulation" between Philadelphia Electric Company and the Commonwealth of Pennsylvania are met, and (2) if the flow of the Susquehanna River through Conowingo Pond as calculated daily is 15,000 cfs or less for a period of 3 consecutive days and the difference between the 3 day average of hourly temperatures measured at the Pennsylvania/Maryland state line and the 3 day average of hourly temperatures measured at the

3.0 MONITORING REQUIREMENTS

3.1 Thermal

Objective

To assure that the water temperature in the Conowingo Pond is not increased to a level that adverse effects on the aquatic biota would result.

Specification

The bulk temperature of the condenser inlet water and of the water discharged to Conowingo Pond from the discharge canal shall be transmitted to the PBAPS control room and logged. Temperatures at Holtwood Dam and the Pennsylvania/Maryland state line shall be transmitted to the PBAPS control room and logged. For purposes of maintenance, the temperature monitoring system may be inoperable for a period not to exceed 7 days.

Thermal impact upon Conowingo Pond shall be periodically monitored and reported as specified in Section 6.3.

When one or more of the cooling towers are not in operation and the flow of the Susquehanna River through Conowingo Pond as calculated daily is less than 15,000 cfs, thermal plume mapping, as described in Section 6.3.a of these specifications, shall be performed at least once per week. The results of this thermal mapping shall be submitted to the NRC in monthly reports along with applicable data on river flows, heat discharged from the station and the number of cooling towers in operation. Under these conditions, measurements of the bulk temperature of the water discharged to Conowingo Pond from the discharge canal and the temperatures at the Pennsylvania/Maryland state line and Holtwood Dam shall be recorded notwithstanding the maintenance provisions stated above.

Holtwood Dam exceeds 5°F over the same 3 day period, the sum of the power of Units 2 and 3 shall not be greater than 89% of the sum of the maximum design output of the two Units if one tower is unavailable, 78% if two towers are unavailable, and 67% if three towers are unavailable.

2.1.4 When potential icing conditions exist, operation of the cooling towers may be varied so as to prevent damage due to icing.

2.1.5 This restriction does not preclude operation for purposes of testing and studies required by the certifications issued by the Commonwealth of Pennsylvania dated June 12, 1973 for Unit 2 and the further certification dated May 8, 1974 for Unit 3.

Bases

A time period of 72 hours is included under Specification 2.1.2 and 2.1.3. The basis for this number is that it is shorter than both the life cycles of most microinvertebrates and shorter than the spawning periods of most fishes. This condition will protect the microinvertebrate populations by not promoting gradual shifts in population temperature tolerances caused by excessive heating, and will protect the young fishes and larvae populations from excessive impact as the spawning cycle of most fish populations are at least several weeks in duration. Although the phytoplankton life cycle can be shorter than 3 days, their capability to recover from an impact is much greater than fishes or microinvertebrates because their mode of reproduction is largely asexual, and will not be permanently affected by 3 day periods of excessive heating.

During periods of low river flows the size of the 5°F thermal plume isotherm has been observed to be significantly larger than that described in the FES or that described in paragraph A of

Bases

As indicated in "Predicted Prototype Temperature Distribution in Conowingo Pond," prepared for the Philadelphia Electric Company by the Bechtel Power Corporation in July, 1973, adherence to this specification will assure, in essentially all instances, compliance to the thermal criteria of the Maryland Water Quality Standard.

Exhibit 1 of the "Stipulation" between Philadelphia Electric Company and the Commonwealth of Pennsylvania. This impact is considered adverse but acceptable as it will occur only until the closed-cycle cooling system becomes operational. Specification 2.1.3 insures that when the towers are out of service during periods of low flows that the plume sizes described in the "Stipulation" and in the FES are not, on the average, exceeded.

The specification conforms to operating limits contained in Exhibit 1 to a Stipulation between licensee and the Commonwealth of Pennsylvania dated August 12, 1975. Compliance with this specification will assure compliance with Pennsylvania and Maryland thermal water quality criteria, will keep adverse affects on Conowingo Pond at an acceptable level until the closed cycle cooling system is operational, and will provide flexibility to modify cooling tower operation requirements when such modifications will not conflict with the objectives of the specifications.

A cooling tower shall be considered operable if its lift pump is operable and no more than 2 fans in any one bank are inoperable (one bank is defined as one half of the 11 cooling tower fans arranged in groups of 5 and 6 fans).

PROTECTION LIMITS (Continued)

MONITORING REQUIREMENTS (Continued)

2.2 Chemical

3.2 Chemical

2.2.1 Biocides

3.2.1 Biocides

Objective

Objective

To minimize adverse effects on aquatic biota which may result from the chlorine used to control fouling organisms within the station.

To assure that chlorine discharges are maintained in accordance with the environmental technical specification.

Specification

Specification

The concentration of total residual chlorine at the point of discharge to the Conowingo Pond shall not be greater than 0.1 mg/liter. The period of chlorine addition to a condenser stream shall not exceed one hour per day. The total period of chlorine addition to the condenser circulating water systems and to the cooling tower systems shall not exceed two hours per day.

Free residual chlorine shall be measured continuously at the discharge of the condenser section being chlorinated. The chlorine analyzer shall be calibrated monthly. In the event the continuous chlorine analyzer is inoperable, manual measurements of the free residual chlorine level in the condenser discharge water shall be made at the start, midpoint, and end of chlorination.

PROTECTION LIMITS (Continued)MONITORING REQUIREMENTS (Continued)Specification (Continued)

If this specification is exceeded, the chlorine addition rate shall be reduced as necessary, to operate within this specification.

Specification (Continued)

During chlorination of the cooling towers, the total residual chlorine level in the circulating water discharged to Conowingo Pond shall be measured at the start of chlorination, at the mid-point of chlorination, and at the finish of chlorination.

Once a month, during a period of chlorination and one hour after the end of chlorine addition, a chlorine survey will be made of the circulating water discharged to the Conowingo Pond. This chlorine survey will consist of obtaining data on the chlorine feed rate, the free residual chlorine level at the condenser section discharge, and the total residual chlorine level of the circulating water discharged to Conowingo Pond. The total residual chlorine level of the circulating water discharged to Conowingo Pond will be measured every fifteen minutes during the survey.

Bases

Chlorine is used to control the growth of fouling organisms in the cooling water systems. Control of these organisms is necessary to maintain the required heat transfer rates in these heat exchange devices by preventing fouling of the heat exchange surfaces.

Growth of fouling organisms will be prevented by addition of chlorine to the cooling water on the suction side of the circulating water and seal water pumps. The plant has a total of six circulating water pumps, and each condenser of the two generating units is divided into three sections. Chlorination will be scheduled to add chlorine to one section at a time. Operators will set the rate of chlorine addition using the chlorination control panel, such that the chlorine residual obtained at the outlet of the condenser section being chlorinated will result in a

Bases

The monitoring of total residual chlorine as described above will assure compliance to the environmental technical specification.

ENVIRONMENTAL IMPACT APPRAISAL BY THE DIVISION OF OPERATING REACTORS

SUPPORTING AMENDMENT NO. 25 TO DPR-44 AND AMENDMENT NO. 24 TO DPR-56

DOCKETS NOS. 50-277 AND 50-278

PHILADELPHIA ELECTRIC COMPANY

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

1.0 Introduction

By letter dated June 21, 1976, Philadelphia Electric Company (PECO) submitted a request for license amendment which proposed changes to the Environmental Technical Specifications for Peach Bottom Atomic Power Station Units Nos. 2 and 3. The proposed changes relate to the operation of the forced draft cooling towers at Peach Bottom and were submitted by the licensee to replace the interim Technical Specifications issued by the NRC staff on May 15, 1976. The NRC staff has examined the proposed Technical Specifications and determined that they were generally acceptable. However, the NRC staff considered that certain additional operating restrictions were necessary to insure that the environmental impacts associated with operation with less than all cooling towers in service would be no more significant than the impacts evaluated and approved in the Final Environmental Statement (FES) issued by the NRC in April 1973 for the Peach Bottom Atomic Power Station Units Nos. 2 and 3. These additional restrictions have been discussed with the licensee and he does not object.

2.0 Discussion

Prior to May 15, 1976 Specification 2.1 allowed the licensee to operate the Peach Bottom Atomic Power Station Units Nos. 2 and 3 to full power only if all three cooling towers were operating except that for the purposes of maintenance or repair one cooling tower could be inoperable for a period not exceeding 48 hours provided the Susquehanna River flow exceeded 10,000 cfs. If the flow was 10,000 cfs or less without all towers in operation neither Unit No. 2 or 3 could be operated above 20% power. On May 15, 1976 an interim license change (set to expire on July 15, 1976) was granted which allowed operation at full power with one or more cooling towers out for purpose of maintenance or repair provided that (1) certain provisions of a "Stipulation" between the licensee and the Commonwealth of Pennsylvania were met, and (2) the Susquehanna River flow be at least 15,000 cfs. If the flow was less than 15,000 cfs neither Unit No. 2 nor 3 could be operated above 20% power if more than one tower was unavailable. The specification

approved herein allows operation with one or more cooling towers out for the purposes of maintenance or repair provided that (1) certain provisions of the "Stipulation" between the licensee and the Commonwealth of Pennsylvania be met, and (2) if the towers are out for a period greater than 72 hours and the flow of the Susquehanna River is 15,000 cfs or less for 3 consecutive days and the difference between the 3 day average of hourly temperatures measured at the Pennsylvania/Maryland state line and the 3 day average of hourly temperatures measured at the Holtwood Dam exceeds 5°F over the same 3 day period, that the sum of the power of Units 2 and 3 not be greater than 89% of the sum of the maximum design output of the two Units if one tower is unavailable, 78% if two towers are unavailable, and 67% if three towers are unavailable.

Table I displays the conditions of these specifications.

3.0 Evaluation

Table II lists the Susquehanna River flow through Conowingo Pond for several days in the summers of 1974 and 1975 (Reference 1) for which the licensee's isotherm plots show that a significant portion of the 5°F isotherm was much larger than that described in the FES. We interpret these isotherm plots to reflect the average conditions and to be relatively independent of natural variability. This is justified because of the large number of sampling stations in Conowingo Pond. The 5°F isotherm for the days listed in Table II averaged 35% of Conowingo Pond. This is significantly larger than the 15% described in the "Stipulation" between Philadelphia Electric Company and the Commonwealth of Pennsylvania or the 5.2% (500 acres) described in the FES. The river flow averaged 13,400 cfs for these days and power output averaged 133% of total station power. All three towers were operating most of the days. It is likely that even more extensive heating of Conowingo Pond occurs when the plant power is increased to the maximum or when one or more cooling towers are inoperable.

The limit on power when the flow of the Susquehanna River is 15,000 cfs or less for 3 days and the 3 day averaged temperature difference between the upstream and downstream monitors is greater than 5°F as described in Specification 2.1.3 is to assure that, during periods of low flow, the impact to Conowingo Pond is no greater than that for the station producing full power with all towers operating as was evaluated in the FES. The basis for the 15,000 cfs flow is two-fold: (1) the data in Table I indicate that potential for significantly heating Conowingo Pond exists when flows in the Susquehanna River are low; and (2) on the basis of previous studies we conclude that the fraction of water which is diverted by a plant should not be more than about 20% of the river flow (Regulatory Guide 4.7). The flow through the Peach Bottom Plant is approximately 3200 cfs which is approximately 21% of 15,000 cfs. The values of 89%, 78%, and 67% were arrived at as follows: The fraction of circulating water that is cooled by a single tower is, on the average, 19%. The fraction of heat removed from the

water passing through a tower is approximately $(T_{in} - T_{out}/T_{in} - T_{amb}) = .57$, where T_{in} = temperature of water entering tower, T_{out} = temperature of water leaving tower, T_{amb} = temperature of water entering condensers. Hence, the average amount of heat removed by a single tower is $(19\%)(.57) = 11\%$.

It is important to keep excessive heating to periods less than about 72 hours because it is shorter than both the life cycles of most microinvertebrates and shorter than the spawning periods of most fishes. Excessive heating over periods of time longer than life cycles has been shown to cause temperature tolerance of populations to shift (Reference 2 and 3). The 72 hour limit will prevent the tolerance of populations from shifting. Periods of spawning and growth of young fishes are generally thought to be the periods during which a population can be most readily affected by an abnormal environmental parameter (Reference 4 and 5). The spawning time and growth phase of most fish in a population do not occur at the same time. This time difference is usually several days to several weeks in length. This condition will prevent a large fraction of a spawning fish population or a large fraction of young fish to be affected due to excessive heating. Although the phytoplankton life cycle can be shorter than three days, the populations' capability to recover from an impact is much greater than for fishes or microinvertebrates because their mode of reproduction is largely asexual and will not be permanently affected by three-day periods of excessive heating.

Appendix K of the FES describes in detail sources of potential biological damage and relates them to the organisms that are likely to be damaged. Much of that discussion was considered in the development of this appraisal. The impact on the aquatic populations of Conowingo Pond is likely to continue to be adverse, at least during periods of low flow, until such time that the closed cycle cooling system becomes operational.

4.0 Conclusion and Basis for Negative Declaration

We have modified Appendix B Technical Specification 2.1 to allow more flexibility in plant operation. The new specification insures that the impact of plant operation will not be significantly greater than previously evaluated in the FES. We agree with the FES finding that there is significant potential for thermal damage to the biological community and judge, as did the FES, this impact to be acceptable for the time period prior to use of the closed cycle cooling system required by the operating license. Therefore, we have determined that there will be no additional impact of significance attributable to the change beyond that evaluated in the FES, and that a Negative Declaration to this effect is appropriate.

Dated: July 15, 1976

TABLE I
CONDITIONS OF SPECIFICATION 2.1

Number Towers Unavailable	Prior to May 15, 1976*		Interim Conditions* May 15 to July 15, 1976		New Condition ⁺ July 15, 1976	
	1	100%	20%	100%	100%	100%
2	20%	20%	100%	20%	100%	78%
3	20%	20%	100%	20%	100%	67%
Susquehanna flow time allowed	> 10,000 cfs ≤ 48 hours	≤ 10,000 cfs NA	≥ 15,000 cfs NA	< 15,000 cfs NA	NA ≤ 72	≤ 15,000** cfs > 72

* Percentage applies to Unit 2 or 3 power level.

+ Percentage applies to the sum of the maximum design output of the two units.

** Flow must be 15,000 cfs or less for 3 consecutive days and the difference between the 3 day average of hourly temperatures measured at the Pennsylvania/Maryland state line and the 3 day average of hourly temperatures measured at the Holtwood Dam exceeds 5°F over the same 3 day period before power reduction is required.

TABLE II (1)

River Flows During Days Where 5°
Isotherm is Found in Maryland

<u>Date</u>	<u>% Power*</u>	<u>Flow 10³ CFS</u>
8/24/74	100	6600
10/9/74	128	9800
10/28/74	158	11800
10/29/74	155	8000
6/26/75	127	22000
7/1/75	150	28700
7/3/75	126	23000
8/11/75	124	10700
8/13/75	153	9300
8/15/75	155	8600
9/2/75	112	12100
9/10/75	113	11200

*Based on 100% each for Units 2 and 3.

REFERENCES

1. Peach Bottom Atomic Power Station Monthly Reports, Nos. 14, 16, 24 - 27.
2. C. C. Coutant, Biological Aspects of Thermal Pollution. I. Entrainment and Discharge Canal Effects, CRC Critical Reviews in Environmental Control 1(3): 341-381 (1970).
3. J. W. Warinner and M. L. Brehmer, The Effects of Thermal Effluents on Marine Organisms, International Jour. Air and Water Poll. 10(4): 277-289 (1966).
4. L. P. Parrish, Marine, Estuarine, and Anadromous Fishes, pp. 52-82 in Temperature and Aquatic Life, Laboratory Investigation No. 6, Technical Advisory and Investigations Branch, FWPCA, 1967.
5. O. P. De Sylva, Theoretical Considerations on the Effects of Heated Effluents on Marine Fish, pp. 229-293 in Biological Aspects of Thermal Pollution, P. A. Krenkel and F. L. Parker (eds.), Vanderbilt University Press, Nashville, Tennessee, 1969.

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKETS NOS. 50-277 AND 50-278

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

NOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY
OPERATING LICENSES

Notice is hereby given that the U. S. Nuclear Regulatory Commission (the Commission) has issued Amendments Nos. 25 and 24 to Facility Operating Licenses Nos. DPR-44 and DPR-56, respectively, 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, Units Nos. 2 and 3, located in Peach Bottom, York County, Pennsylvania. The amendments are effective as of their date of issuance.

The amendment consists of changes to the Technical Specifications relating to operation of cooling towers.

The application for the amendments 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 to 10 CFR Chapter I, which are set forth in these license amendments. Prior public notice of these amendments was not required since the amendments do not involve a significant hazards consideration.

The Commission has prepared an environmental impact appraisal for the revised Technical Specifications and has concluded that an environmental impact statement for this particular action is not warranted because there

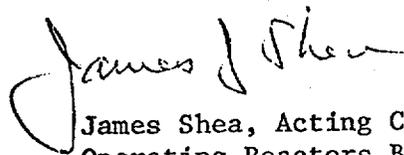
will be no environmental impact attributable to the proposed action other than that which has already been predicted and described in the Commission's Final Environmental Statement for the Peach Bottom Atomic Power Station, Units Nos. 2 and 3 published in April 1973, and that a negative declaration to this effect is appropriate.

For further details with respect to this action, see (1) the application for amendments dated June 21, 1976, (2) Amendment No. 25 to License No. DPR-44, and (3) Amendment No. 24 to License No. DPR-56. 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 Martin Memorial Library, 159 E. Market Street, York, Pennsylvania 17401.

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 Operating Reactors.

Dated at Bethesda, Maryland, this 15 day of July 1976.

FOR THE NUCLEAR REGULATORY COMMISSION



James Shea, Acting Chief
Operating Reactors Branch #3
Division of Operating Reactors