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Docket No. 50-334

JANUARY 25 1980

Mr. C. N. Dunn, Vice President  
 Operations Division  
 Duquesne Light Company  
 435 Sixth Avenue  
 Pittsburgh, Pennsylvania 15219

Dear Mr. Dunn:

The Commission has issued the enclosed Amendment No. 24 to Facility Operating License No. DPR-66 for the Beaver Valley Power Station, Unit No. 1. The amendment consists of changes to the Technical Specifications in response to your applications dated October 23, 1979 and November 15, 1979.

The amendment deletes a license condition on steam generator water rise rate and approves the use of quarter core flux maps for calibration of excore neutron flux detection systems.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

Original Signed By

A. Schwencer, Chief  
 Operating Reactors Branch #1  
 Division of Operating Reactors

Enclosures:

1. Amendment No. 24 to DPR-66
2. Safety Evaluation
3. Notice of Issuance

cc: w/enclosures  
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 G. Lainas  
 01/25/80

TACS 12373 (Quarter Maps)  
 12520 (SG Rise Rate)

OFFICE	DOR:ORB1 DWigginton	DOR:ORB1 CSParrish	DOR:AD:ORP WPGammill	OELD S. Sotinki	DOR:ORB1 ASchwencer	STSG DBrinkman
SURNAME						
DATE	01/25/80	01/25/80	01/25/80	01/29/80	01/25/80	01/25/80



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

January 25, 1980

Docket No. 50-334

Mr. C. N. Dunn, Vice President  
Operations Division  
Duquesne Light Company  
435 Sixth Avenue  
Pittsburgh, Pennsylvania 15219

Dear Mr. Dunn:

The Commission has issued the enclosed Amendment No. 24 to Facility Operating License No. DPR-66 for the Beaver Valley Power Station, Unit No. 1. The amendment consists of changes to the Technical Specifications in response to your applications dated October 23, 1979 and November 15, 1979.

The amendment deletes a license condition on steam generator water rise rate and approves the use of quarter core flux maps for calibration of excore neutron flux detection systems.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

A handwritten signature in cursive script, appearing to read "A. Schwencer".

A. Schwencer, Chief  
Operating Reactors Branch #1  
Division of Operating Reactors

Enclosures:

1. Amendment No. 24 to DPR-66
2. Safety Evaluation
3. Notice of Issuance

cc: w/enclosures  
See next page

Mr. C. N. Dunn  
Duquesne Light Company

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January 25, 1980

cc: Gerald Charnoff, Esquire  
Jay E. Silberg, Esquire  
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Beaver Valley Power Station  
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Ohio Edison Company  
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Ohio Environmental Protection Agency  
Division of Planning  
Environmental Assessment Section  
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Office of the Governor  
State of West Virginia  
Charleston, West Virginia 25305

Mr. Carl Frasure  
Committee of State Officials on  
Suggested State Legislation  
Department of Political Science  
West Virginia University  
Morgantown, West Virginia 26505

Mr. C. N. Dunn  
Duquesne Light Company

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January 25, 1980

cc: Mr. Joseph H. Mills, Acting Commissioner  
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State Department of Health  
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Charleston, West Virginia 25305

Director, Technical Assessment Division  
Office of Radiation programs (AW-459)  
U. S. Environmental Protection Agency  
Crystal Mall #2  
Arlington, Virginia 20460

U. S. Environmental Protection Agency  
Region III Office  
ATTN: EIS COORDINATOR  
Curtis Building - 6th Floor  
Philadelphia, Pennsylvania 19106

Governor's Office of State Planning  
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ATTN: Coordinator, Pennsylvania  
State Clearinghouse  
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Harrisburg, Pennsylvania 17120

Mr. John A. Levin  
Public Utility Commission  
P. O. Box 3265  
Harrisburg, Pennsylvania 17120



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

DUQUESNE LIGHT COMPANY

OHIO EDISON COMPANY

PENNSYLVANIA POWER COMPANY

DOCKET NO. 50-334

BEAVER VALLEY POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 24  
License No. DPR-66

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The applications for amendment by Duquesne Light Company, Ohio Edison Company, and Pennsylvania Power Company (the licensees) dated October 23, 1979 and November 15, 1979, comply 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-66 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 24, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION



A. Schwencer, Chief  
Operating Reactors Branch #1  
Division of Operating Reactors

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: January 25, 1980

ATTACHMENT TO LICENSE AMENDMENT NO. 24

FACILITY OPERATING LICENSE NO. DPR-66

DOCKET NO. 50-334

Replace the following page of the Appendix "A" Technical Specifications with the enclosed page. The revised page is identified by Amendment number and contains vertical lines indicating the area of change. The corresponding overleaf page is also provided to maintain document completeness.

Page

B 3/4 3-2

### 3/4.3 INSTRUMENTATION

#### BASES

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#### 3/4.3.1 and 3/4.3.2 PROTECTIVE AND ENGINEERED SAFETY FEATURES (ESF) INSTRUMENTATION

The OPERABILITY of the protective and ESF instrumentation systems and interlocks ensure that 1) the associated ESF action and/or reactor trip will be initiated when the parameter monitored by each channel or combination thereof exceeds its setpoint, 2) the specified coincidence logic is maintained, 3) sufficient redundancy is maintained to permit a channel to be out of service for testing or maintenance, and 4) sufficient system functional capability is available for protective and ESF purposes from diverse parameters.

The OPERABILITY of these systems is required to provide the overall reliability, redundancy and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the accident analyses.

The surveillance requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability.

The measurement of response time at the specified frequencies provides assurance that the protective and ESF action function associated with each channel is completed within the time limit assumed in the accident analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable.

Response time may be demonstrated by any series of sequential, overlapping or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either 1) in place, onsite or offsite test measurements or 2) utilizing replacement sensors with certified response times.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 24 TO FACILITY OPERATING LICENSE NO. DPR-66

DUQUESNE LIGHT COMPANY

OHIO EDISON COMPANY

PENNSYLVANIA POWER COMPANY

BEAVER VALLEY POWER STATION, UNIT NO. 1

Introduction

Facility Operating License No. DPR-66 for Beaver Valley Power Station, Unit No. 1 contains a condition that limits the secondary side water level rise rate in each steam generator when the secondary side water level is below the level of the feedwater sparger. This condition was imposed as an interim measure to prevent water hammers until the licensee demonstrated that secondary side flow instability would not result in unacceptable consequences. By letter dated November 15, 1979, the licensee proposed that this restriction be lifted.

Earlier, on a separate matter, on October 23, 1979, the licensee submitted a request to use quarter-core flux maps for excore neutron flux detection system calibration. The basis for this request was the Commission's approval of the Westinghouse Topical Report, WCAP 8648, "Excore Detector Calibration Using Quarter Core Flux Maps".

Discussion and Evaluation

Steam Generator Water Rise Rate

Section 2.C.(5) of Facility Operating License No. DPR-66 reads as follows:

Except for the purpose of performing secondary side flow stability tests, Duquesne Light Company shall, whenever the secondary side water level in a steam generator is below the level of the feedwater sparger, limit the secondary side water level rise rate in each steam generator to less than 1.2 inches per minute and shall reduce the rise rate to within this limit within two (2) minutes.

For the purpose of conducting this test, the limiting condition for operation specified in Specification 3.7.1.2 of the Technical Specifications, Appendix A, shall be modified to allow power lockout of the auxiliary feedwater pumps. This condition shall be removed by amendment to this license when Duquesne Light Company demonstrates to the satisfaction of the Commission that secondary side flow instability (water hammer) does not result in unacceptable consequences.

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This condition was determined to afford adequate measures against water hammer while the staff and the licensee further assessed the significance of water hammer considerations at Beaver Valley Unit No. 1. The purpose of limiting the water level rise rate in the steam generator was to limit the flow of subcooled water in the feedwater piping and feedring when the subcooled water is in contact with steam in the feedwater piping and feedring.

The staff has completed a review\* of steam generator water hammer at Beaver Valley Unit No. 1 and has determined that the provisions that have been made for minimizing the likelihood of water hammer events due to the rapid condensation of steam in the feedwater systems at Beaver Valley Unit No. 1 are acceptable.

Some of the assumptions that formed the basis for the license condition apply only to a feedring that discharges from the bottom. The design of the Beaver Valley Unit No. 1 feedrings was revised to include "J" tubes that discharge from the top of the ring. When a feedring discharges from the top, the water does not drain quickly. Under transient conditions, such as a plant trip with loss of feedwater, the steam generator water level will drop below the feedring but the feedring will be kept filled by the auxiliary feedwater that is automatically actuated upon a low water level signal in the steam generator. Administrative restrictions on flow are not necessary under these conditions.

There may be situations, however, when operator inattention or failures in the auxiliary feedwater system would lead to the introduction of subcooled water into the steam-filled feedwater ring and piping.

These situations are not likely to occur but if they did a water hammer would not be expected. Tests performed at a plant with similar feedring and piping geometry showed that water hammer did not occur when subcooled water was introduced into the steam filled piping. The tests were performed at the Trojan Power Station which, like Beaver Valley, is equipped with J tubes and has no horizontal feedwater piping attached to the steam generator.

Tests were conducted on September 28, 1975 at the Trojan Power Station to determine the effect of auxiliary feedwater flow rates on the inducements of steam generator water hammer. The eight tests simulated various normal and hypothetical operating conditions. Auxiliary feedwater was admitted into a steam generator at flow rates ranging from 120 gpm to 440 gpm. The steam generator secondary side pressure was varied from 400 psig to 1100 psig and the feedring drain times (feedring full at time zero) were varied from 1 minute to 120 minutes. No water hammer occurred. We have concluded that these test results are applicable to the Beaver Valley Power Station and provide an adequate demonstration that a limitation of auxiliary feedwater flow is not necessary to avoid steam generator water hammer.

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\* Letter A. Schwencer to C. N. Dunn (Licensee) dated February 12, 1979.

### Quarter-Core Flux Maps for Calibration of Excore Neutron Flux Detection System

By letter dated October 23, 1979, the licensee proposed changes which would allow use of quarter-core flux maps for calibration of the excore neutron flux detection system. The NRC staff has reviewed Westinghouse Topical Report, WCAP-8648, "Excore Detector Calibration Using Quarter Core Flux Maps" and by letter dated November 11, 1977, approved that Topical Report.

We find that WCAP-8648 is acceptable for reference to justify using quarter-core flux maps for such calibrations at reactor plants designed by Westinghouse. Since the technique presented in WCAP-8648 is applicable to the reactor design of Beaver Valley Unit 1 the proposed changes in the Technical Specifications as described herein are acceptable.

### Environmental Consideration

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.

### 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.

Date: January 25, 1980

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NO. 50-334DUQUESNE LIGHT COMPANYOHIO EDISON COMPANYPENNSYLVANIA POWER COMPANYNOTICE OF ISSUANCE OF AMENDMENT TO FACILITY  
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 24 to Facility Operating License No. DPR-66 issued to Duquesne Light Company, Ohio Edison Company, and Pennsylvania Power Company (the licensees), which revised Technical Specifications for operation of the Beaver Valley Power Station, Unit No. 1 (the facility) located in Beaver County, Pennsylvania. The amendment is effective as of the date of issuance.

The amendment deletes a license condition on steam generator water rise rate and approves the use of quarter core flux maps for calibration of excore neutron flux detection systems.

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 this amendment does not involve a significant hazards consideration.

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The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) 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 applications for amendment dated October 23, 1979 and March 15, 1979, (2) Amendment No. 24 to License No. DPR-66 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 B. F. Jones Memorial Library, 663 Franklin Avenue, Aliquippa, Pennsylvania 15001. 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 25th day of January, 1980.

FOR THE NUCLEAR REGULATORY COMMISSION



A. Schwencer, Chief  
Operating Reactors Branch #1  
Division of Operating Reactors