

SEP 15 1975

Docket No. 50-313

Arkansas Power and Light Company
ATTN: Mr. J. D. Phillips
Senior Vice President
Production, Transmission and
Engineering
Sixth and Pine Streets
Pine Bluff, Arkansas 71601

Gentlemen:

The Commission has issued the enclosed Amendment No. 5 to Facility License No. DPR-51 for Arkansas Nuclear One - Unit 1. This amendment includes Change No. 5 to the Technical Specifications and is in response to your request dated July 29, 1975.

This amendment revises: (1) the curves in Figures 2.1-2 and 2.3-2 to take credit for 100 effective full power days of fuel burnup, and (2) the curve in Figure 3.5.2-3 to conform with changes to Figure 2.3-2 described above.

Copies of our Safety Evaluation and the Federal Register Notice relating to this action are enclosed.

Sincerely,

Original Signed by:
Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Reactor Licensing

Enclosures:

- Amendment No. 5
w/Change No. 5
- Safety Evaluation
- Federal Register Notice

cc w/enclosures:
See next page

*Notified I&E (III) and
ANCO-1 (Don Rueter) that
package approved on 09/15/75.
W.C. Converse*

OFFICE →	RL:ORB #2	RL:ORB #2	OELD	RL:ORB #2	
SURNAME →	WEC WEConverse:ah	RMD RMDiggs	LDD LDDavis	DLZ DLZiemann	
DATE →	9/09/75	9/4/75	9/5/75	9/13/75	

SEP 15 1975

cc w/enclosures:

Horace Jewell
House, Holms & Jewell
1550 Tower Building
Little Rock, Arkansas 72201

Mr. William Cavanaugh, III
Production Department
Post Office Box 551
Little Rock, Arkansas 72203

Arkansas Polytechnic College
Russellville, Arkansas 72801

Honorable Wayne Nordin
Acting County Judge of Pope County
Pope County Courthouse
Russellville, Arkansas 72801

cc w/enclosures and cy of Arkansas's
filing dtd. 7/29/75:

Mr. E. F. Wilson, Director
Bureau of Environmental
Health Services
4815 West Markham Street
Little Rock, Arkansas 72201

Mr. Clinton Spotts
U. S. Environmental Protection Agency
Region VI Office
1600 Patterson Street
Dallas, Texas 75201

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

ARKANSAS POWER AND LIGHT COMPANY

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE - UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 5
License No. DPR-51

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Arkansas Power and Light Company (the licensee) dated July 29, 1975, 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.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.c(2) of Facility License No. DPR-51 is hereby amended to read as follows:



"(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. 5 ."

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

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed by:
Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Reactor Licensing

Attachment:
Change No. 5 to the
Technical Specifications

Date of Issuance: SEP 15 1975

ATTACHMENT TO LICENSE AMENDMENT NO. 5

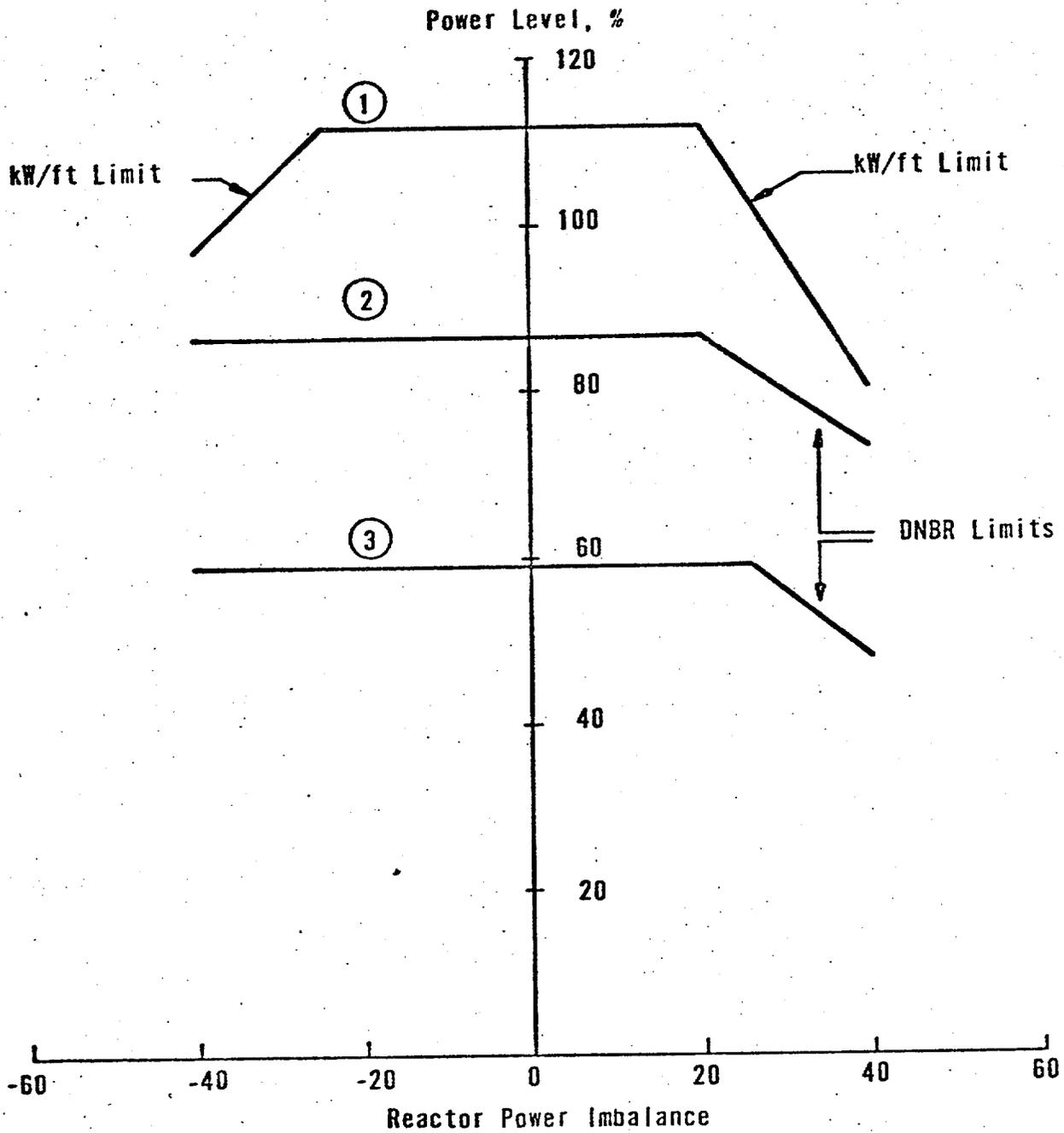
CHANGE NO. 5 TO THE TECHNICAL SPECIFICATIONS

FACILITY OPERATING LICENSE NO. DPR-51

DOCKET NO. 50-313

Replace existing Figures 2.1-2 (page 9b), 2.3-2 (page 14b), and 3.5.2-3 (page 48e) from the Appendix A Technical Specifications with the attached revised pages.

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DATE ➤						

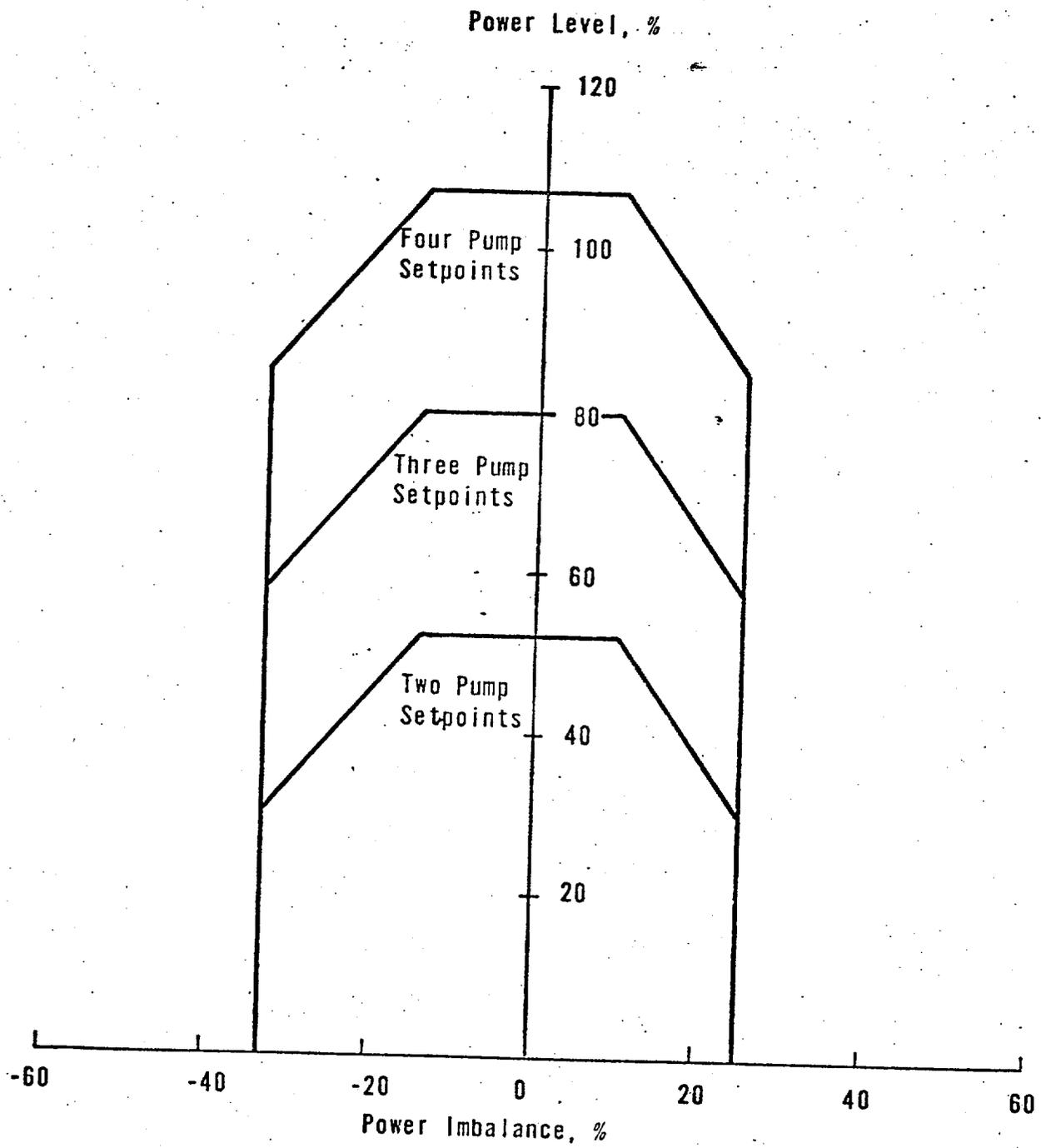


CURVE	REACTOR COOLANT FLOW (LB/HR)
1	131.3×10^6
2	98.1×10^6
3	64.4×10^6

ARKANSAS POWER & LIGHT CO.
 ARKANSAS NUCLEAR ONE - UNIT 1

CORE PROTECTION SAFETY LIMITS

FIG. NO.
 2.1-2

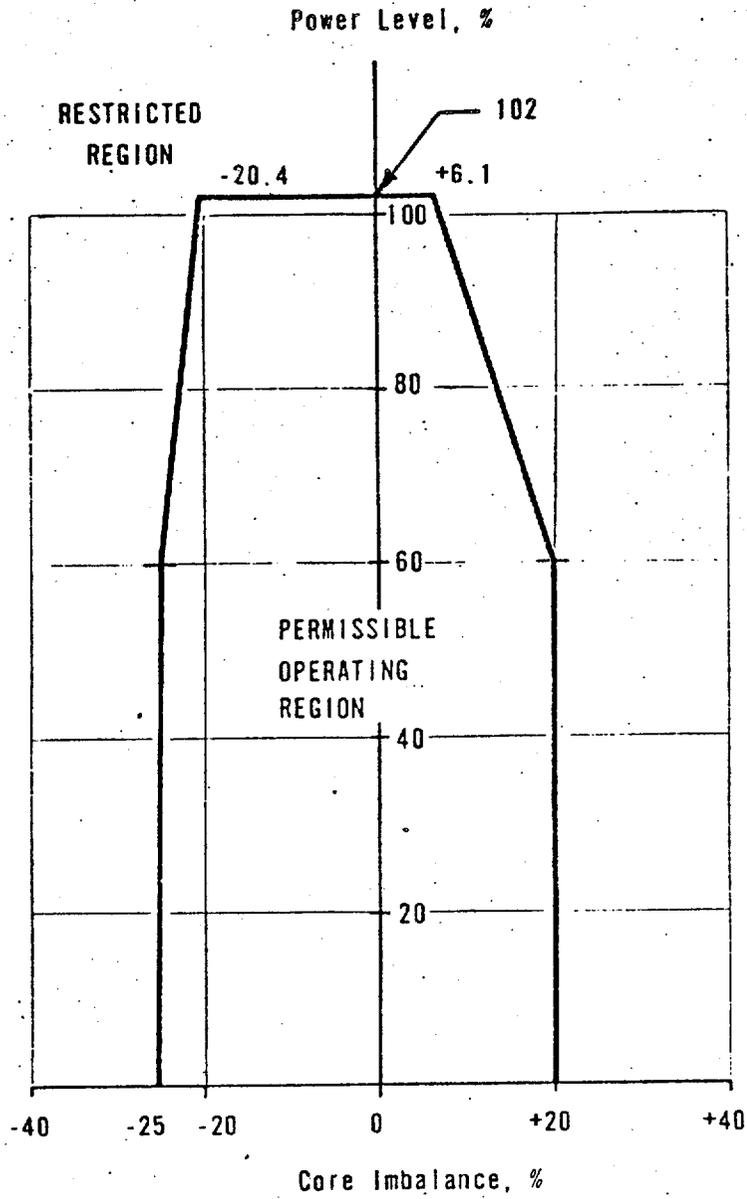


5

ARKANSAS POWER & LIGHT CO.
 ARKANSAS NUCLEAR ONE - UNIT 1

PROTECTIVE SYSTEM MAXIMUM
 ALLOWABLE SETPOINTS

FIG. NO.
 2.3-2



5

ARKANSAS POWER & LIGHT CO ARKANSAS NUCLEAR ONE-UNIT 1	OPERATIONAL POWER IMBALANCE ENVELOPE	FIG. NO. 3.5.2-3
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 5 TO LICENSE NO. DPR-51

AND

CHANGE NO. 5 TO THE TECHNICAL SPECIFICATIONS

ARKANSAS POWER AND LIGHT COMPANY

ARKANSAS NUCLEAR ONE - UNIT 1

DOCKET NO. 50-313

INTRODUCTION

By letter dated July 29, 1975, Arkansas Power & Light Company (AP&L) requested changes to the Radiological Technical Specifications appended to Facility Operating License No. DPR-51. The proposed changes would:

1. Revise the curves in Figure 2.1-2, "Core Protection Safety Limits," to reflect 100 Effective Full Power Days (EFPD) of fuel burnup. This revision involves extensions of the negative and positive imbalance portions of the curves from -17.5% to -24% imbalance and from +19% to +20% imbalance, respectively, and changes in the curve slopes and termination points.
2. Revise the curves in Figure 2.3-2, "Protective System Maximum Allowable Setpoints," to reflect 100 EFPD of fuel burnup. This revision involves extensions of the negative and positive imbalance portions of the curves from -3.98% to -14% imbalance and from +6.08% to +10% imbalance, respectively, and changes in the curve slopes and termination points.
3. Revise Figure 3.5.2-3, "Operational Power Imbalance Envelope," to conform with the extended negative imbalance portion of the proposed Figure 2.3-2.

EVALUATION

Items 1 and 2 described above are being proposed by AP&L to provide greater flexibility in reactor operation. The setpoints for the "overpower trip based on flow and imbalance" (hereafter called "power/flow/imbalance" trip) are established by the curves in Figure 2.3-2 which are, in turn, based

on the core protection safety limits established by the curves in Figure 2.1-2. The reactor protection system (RPS) is electronically adjusted to make the power/flow/imbalance trip settings conform with Figure 2.3-2. If this setpoint envelope is too restrictive, reactor operation with even small imbalances ($\pm 5\%$) may require a reduction in power level to assure that the reactor does not trip when large load changes occur. An expansion of the curves in Figure 2.3-2 would permit reliable reactor operation at 100% of rated power level.

The existing Figures 2.1-2 and 2.3-2 of the Appendix A Technical Specifications are based on beginning-of-life (BOL) power peaking as the "worst case" condition. The proposed changes would update Figures 2.1-2 and 2.3-2 to take credit for 100 effective full power days (EFPD) of operation. The present core exposure is greater than 150 EFPD. The effect of calculating new curves for Figures 2.1-2 and 2.3-2 based on 100 EFPD is to expand the negative and positive imbalance portions of those curves as well as to change the slopes and endpoints of the curves.

A representative case to be considered is the negative imbalance portion of the upper most curve in Figure 2.3-2. An increase of 10% (nominal) in the negative imbalance of a rodged plant such as Arkansas Nuclear One - Unit 1 will result in an increase in the peaking factor with a consequent increase in the maximum linear heat generation rate of approximately $1.2 \text{ kw/ft}^{1/}$. However, as a result of the burnup of the core to 100 EFPD, the flux is flattened and the peaking factor is reduced. This results in a decrease in the maximum linear heat generation rate of approximately $1.8 \text{ kw/ft}^{2/}$. The net result, considering the situation at 100 EFPD, is that the safety margin is increased by approximately 0.6 kw/ft over its value at BOL. The other proposed alterations in the curves lead to similar net increases in the maximum linear heat generation rate, and thus result in similar increases in the safety margin over those present at BOL. On this basis and the acceptability of the BOL safety margins in our review of the original Technical Specifications, we find that the proposed changes altering the imbalance curves of Figures 2.1-2 and 2.3-2 are acceptable.

1/ BAW-10079 (non-proprietary), "Operational Parameters for B&W Rodded Plants," October, 1973.

2/ BAW-B91 (proprietary), "Arkansas Nuclear One - Unit 1, Fuel Densification Report," June, 1973.

The third part of this proposed change would remove restrictions imposed by the existing Figure 2.3-2 and is consistent with the proposed changes to Figure 2.3-2 discussed above. Figure 3.5.2-3 was altered by Amendment 2 to DPR-51, dated May 9, 1975, from its original configuration which is based on loss-of-coolant accident (LOCA) calculations. The proposed change to Figure 3.5.2-3 would return it to its original configuration thereby reflecting the extended negative imbalance portion of the proposed Figure 2.3-2. Since the original Figure 3.5.2-3 (as it existed before Amendment 2 to DPR-51) previously has been found acceptable by the staff in reviewing the original Technical Specifications, we conclude that the proposed change to Figure 3.5.2-3 is acceptable.

CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) because the change 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 change 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: SEP 15 1975

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-313

ARKANSAS POWER AND LIGHT COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE

Notice is hereby given that the U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 5 to Facility Operating License No. DPR-51 issued to Arkansas Power and Light Company which revised Technical Specifications for operation of the Arkansas Nuclear One - Unit 1, located in Pope County, Arkansas. The amendment is effective as of its date of issuance.

The amendment revises: (1) the curves in Figures 2.1-2 and 2.3-2 to take credit for 100 effective full power days of fuel burnup, and (2) the curve in Figure 3.5.2-3 to conform with changes to Figure 2.3-2 described above.

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 is not required since the amendment does not involve a significant hazards consideration.

OFFICE ➤						
SURNAME ➤						
DATE ➤						

For further details with respect to this action, see (1) the application for amendment dated July 29, 1975, (2) Amendment No. 5 to License No. DPR-51, with Change No. 5, 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 Arkansas Polytechnic College, Russellville, Arkansas 72801. 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 Reactor Licensing.

Dated at Bethesda, Maryland, this *15th day of September, 1975*

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed by:
Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Reactor Licensing

OFFICE >						
SURNAME >						
DATE >						

MEMO ROUTE SLIP

Form AEC-93 (Rev. May 14, 1947) CM 0240

See me about this.

For concurrence.

For action.

Note and return.

For signature.

For information.

TO (Name and unit)		INITIALS	REMARKS
Dennis Ziemann			The evaluation section of this SER is inadequate to support the conclusions reached. It analyzes only the instrument limits.
		DATE	
TO (Name and unit)		INITIALS	REMARKS
			The safety issue of concern is: why is it now safe to operate this plant beyond 225 EFPD. I assume that the answer to that is because you have the new system. This should be expressed specifically and a description of how the new system will function to make sure the plant is safe should be provided. On this basis you can explain how you reach the "no significant hazards considerations" conclusions. This should be clearly described, since at least on the surface there appears to be a new accident (or new consequence)--that is a steam line break beyond 225 EFPD.
		DATE	
TO (Name and unit)		INITIALS	REMARKS
		DATE	
FROM (Name and unit)		REMARKS	
Joseph Scinto		SER Rev. by Bill + Dave this 9/15	
PHONE NO.	DATE		
7494	9/3/75		

USE OTHER SIDE FOR ADDITIONAL REMARKS