

September 8, 1982

DMB 016

Docket No. 50-313

Mr. William Cavanaugh, III
Senior Vice President
Energy Supply
Arkansas Power & Light Company
P. O. Box 551
Little Rock, Arkansas 72203

Dear Mr. Cavanaugh:

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The Commission has issued the enclosed Amendment No. 68 to Facility Operating License No. DPR-51 for Arkansas Nuclear One, Unit No. 1. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated July 15, 1982.

This amendment modifies the ANO-1 TSs to allow the extension of Cycle 5 from 435 ± 10 Effective Full Power Days (EFPD) to 455 ± 10 EFPD and operation from 400 ± 10 EFPD to end of cycle with the Axial Power Shaping Rods fully inserted.

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

Sincerely,

ORIGINAL SIGNED BY

Guy S. Vissing, Project Manager
Operating Reactors Branch #4
Division of Licensing

Enclosures:

1. Amendment No. 68 to DPR-51
2. Safety Evaluation
3. Notice

cc w/enclosures:

See next page

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OFFICE	ORB#4:DL	ORB#4:DL	C-ORB#4:DL	AD:OR:DL	OELD	
SURNAME	RIgram	GVissing	JStol	GLainas	Jones	
DATE	8/30/82	8/30/82	8/30/82	8/31/82	9/1/82	



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

September 8, 1982

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Docket No. 50-313

Docketing and Service Section
Office of the Secretary of the Commission

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT NO. 1

Two signed originals of the Federal Register Notice identified below are enclosed for your transmittal to the Office of the Federal Register for publication. Additional conformed copies (12) of the Notice are enclosed for your use.

- ☐ Notice of Receipt of Application for Construction Permit(s) and Operating License(s).
- ☐ Notice of Receipt of Partial Application for Construction Permit(s) and Facility License(s): Time for Submission of Views on Antitrust Matters.
- ☐ Notice of Availability of Applicant's Environmental Report.
- ☐ Notice of Proposed Issuance of Amendment to Facility Operating License.
- ☐ Notice of Receipt of Application for Facility License(s); Notice of Availability of Applicant's Environmental Report; and Notice of Consideration of Issuance of Facility License(s) and Notice of Opportunity for Hearing.
- ☐ Notice of Availability of NRC Draft/Final Environmental Statement.
- ☐ Notice of Limited Work Authorization.
- ☐ Notice of Availability of Safety Evaluation Report.
- ☐ Notice of Issuance of Construction Permit(s).
- ☒ Notice of Issuance of Facility Operating License(s) or Amendment(s).

☒ Other: Amendment No. 68.

Referenced documents have been provided PDR.

Enclosure:
As Stated

Division of Licensing, ORB#4
Office of Nuclear Reactor Regulation

OFFICE →	ORB#4:DL					
SURNAME →	RIngram;cf					
DATE →	9/8 /82					

Arkansas Power & Light Company

cc w/enclosure(s):

Mr. John R. Marshall
Manager, Licensing
Arkansas Power & Light Company
P. O. Box 551
Little Rock, Arkansas 72203

Mr. James P. O'Hanlon
General Manager
Arkansas Nuclear One
P. O. Box 608
Russellville, Arkansas 72801

Mr. William Johnson
U.S. Nuclear Regulatory Commission
P. O. Box 2090
Russellville, Arkansas 72801

Mr. Robert B. Borsum
Babcock & Wilcox
Nuclear Power Generation Division
Suite 220, 7910 Woodmont Avenue
Bethesda, Maryland 20814

Mr. Nicholas S. Reynolds
Debevoise & Liberman
1200 17th Street, NW
Washington, DC 20036

Arkansas Tech University
Russellville, Arkansas 72801

Honorable Ermil Grant
Acting County Judge of Pope County
Pope County Courthouse
Russellville, Arkansas 72801

Regional Radiation Representative
EPA Region VI
1201 Elm Street
Dallas, Texas 75270

Mr. John T. Collins, Regional Administrator
U. S. Nuclear Regulatory Commission, Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

cc w/enclosure(s) & incoming dtd.:

7/15/82.

Director, Bureau of Environmental
Health Services
4815 West Markham Street
Little Rock, Arkansas 72201



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

ARKANSAS POWER & LIGHT COMPANY

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE - UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 68
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 15, 1982, 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.

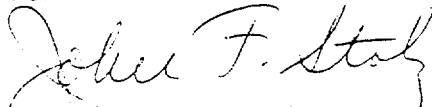
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.c.(2) of Facility Operating License No. DPR-51 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 68, 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



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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 8, 1982

ATTACHMENT TO LICENSE AMENDMENT NO. 68

FACILITY OPERATING LICENSE NO. DPR-51

DOCKET NO. 50-313

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.

35a

48b3

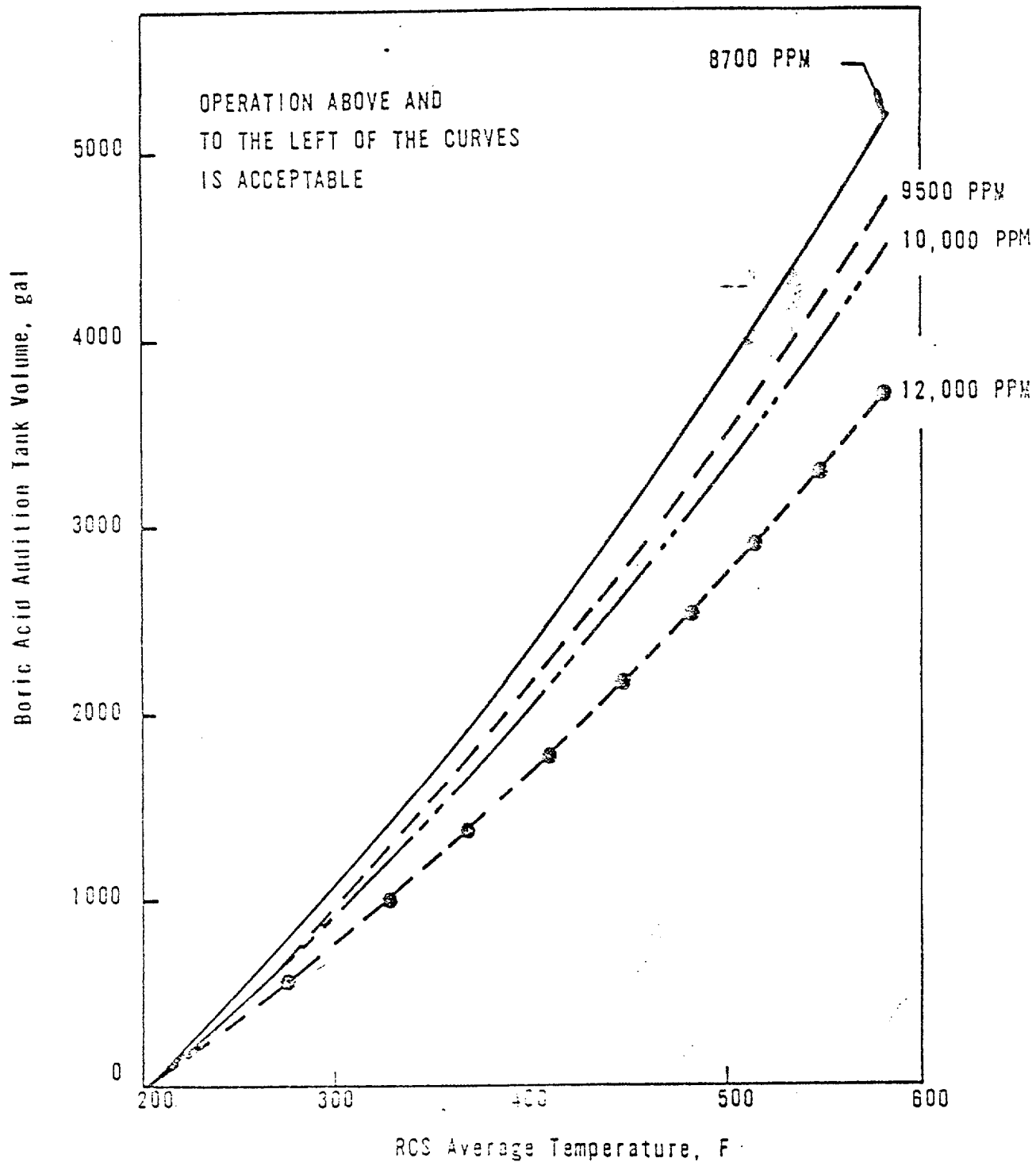
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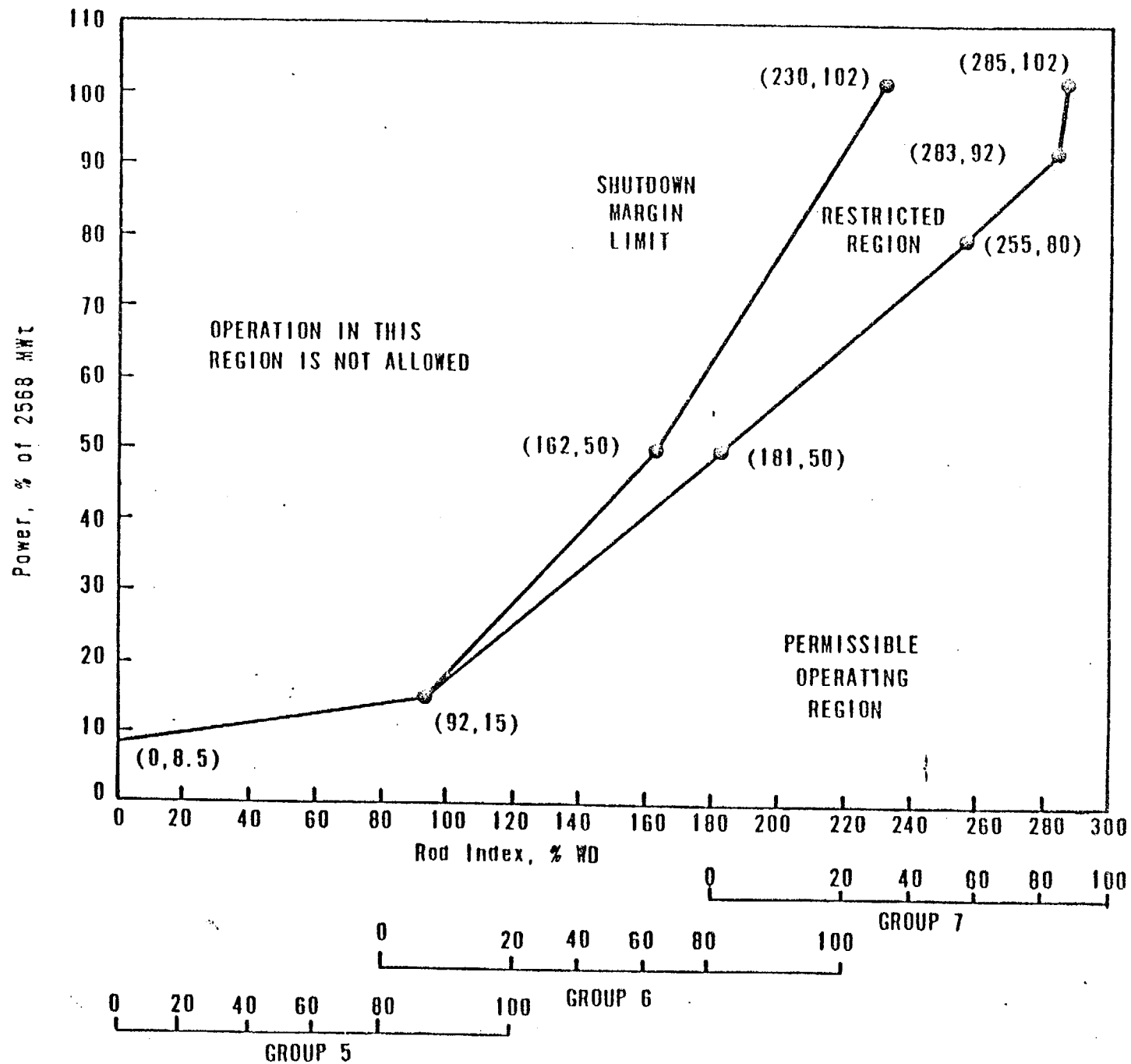
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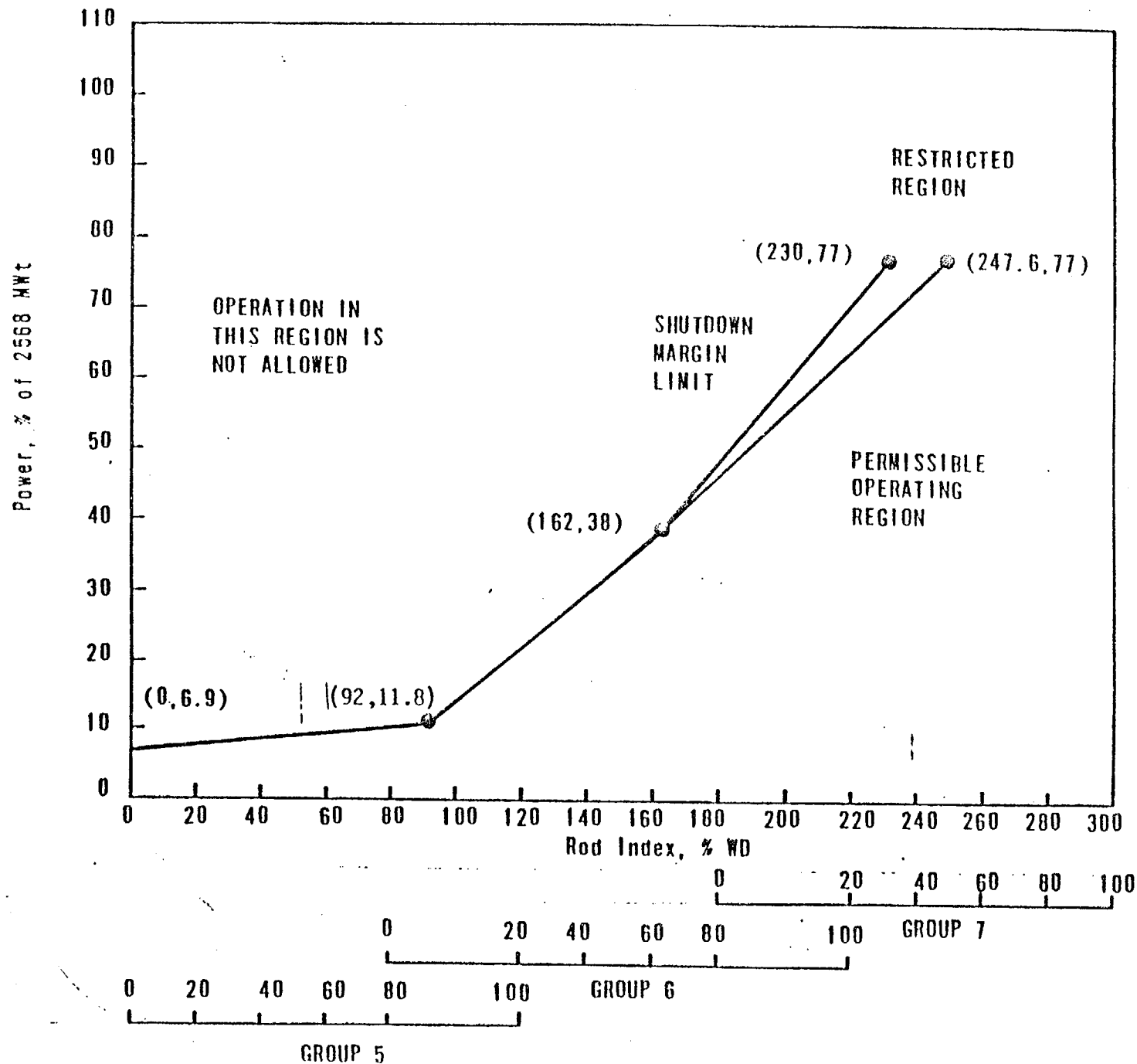
BORIC ACID ADDITION TANK VOLUME AND CONCENTRATION
REQUIREMENTS VS RCS AVERAGE TEMPERATURE
(TECH SPEC FIGURE 3.2-1)



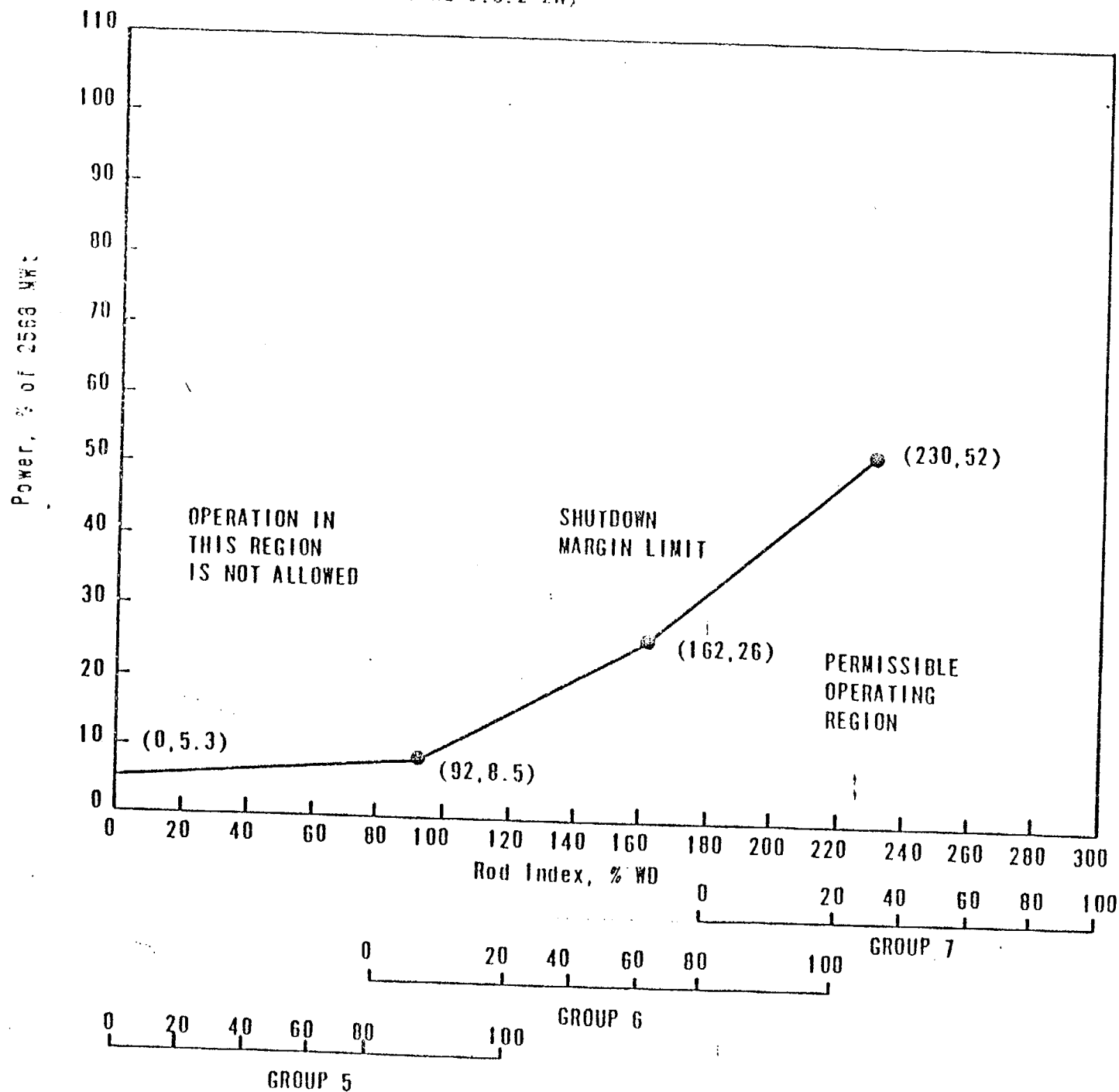
ROD POSITION LIMITS FOR FOUR-PUMP OPERATION FROM 400 ± 10
TO 455 ± 10 EFPU - ANG-1, CYCLE 5 (TECH SPEC FIGURE 3.5.2-10)



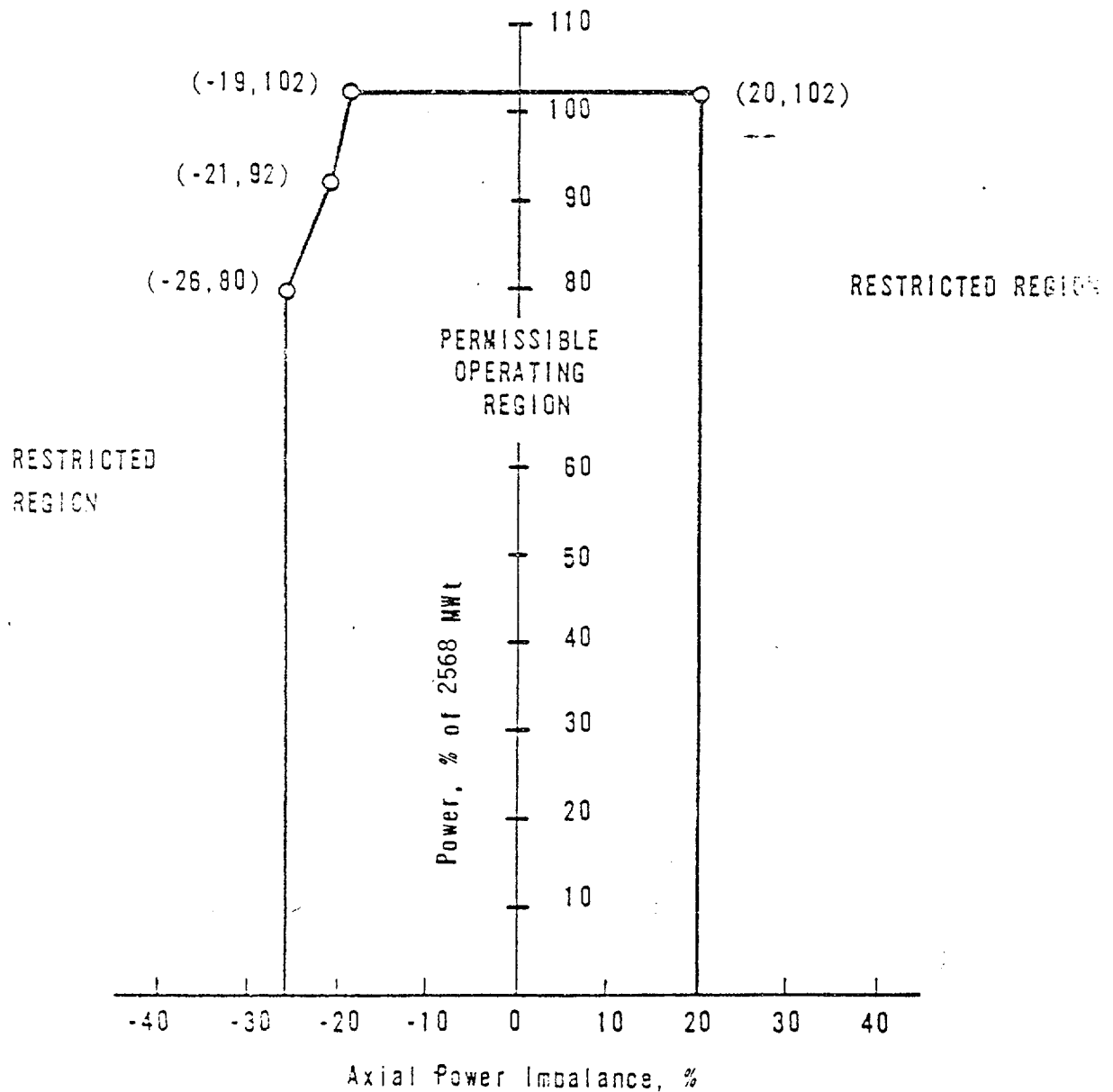
ROD POSITION LIMITS FOR THREE PUMP OPERATION FROM 400 ± 10 TO 455 ± 10
 FFPG-540-1, CYCLE 5
 (TECH SPEC FIGURE 3.5.2-20)



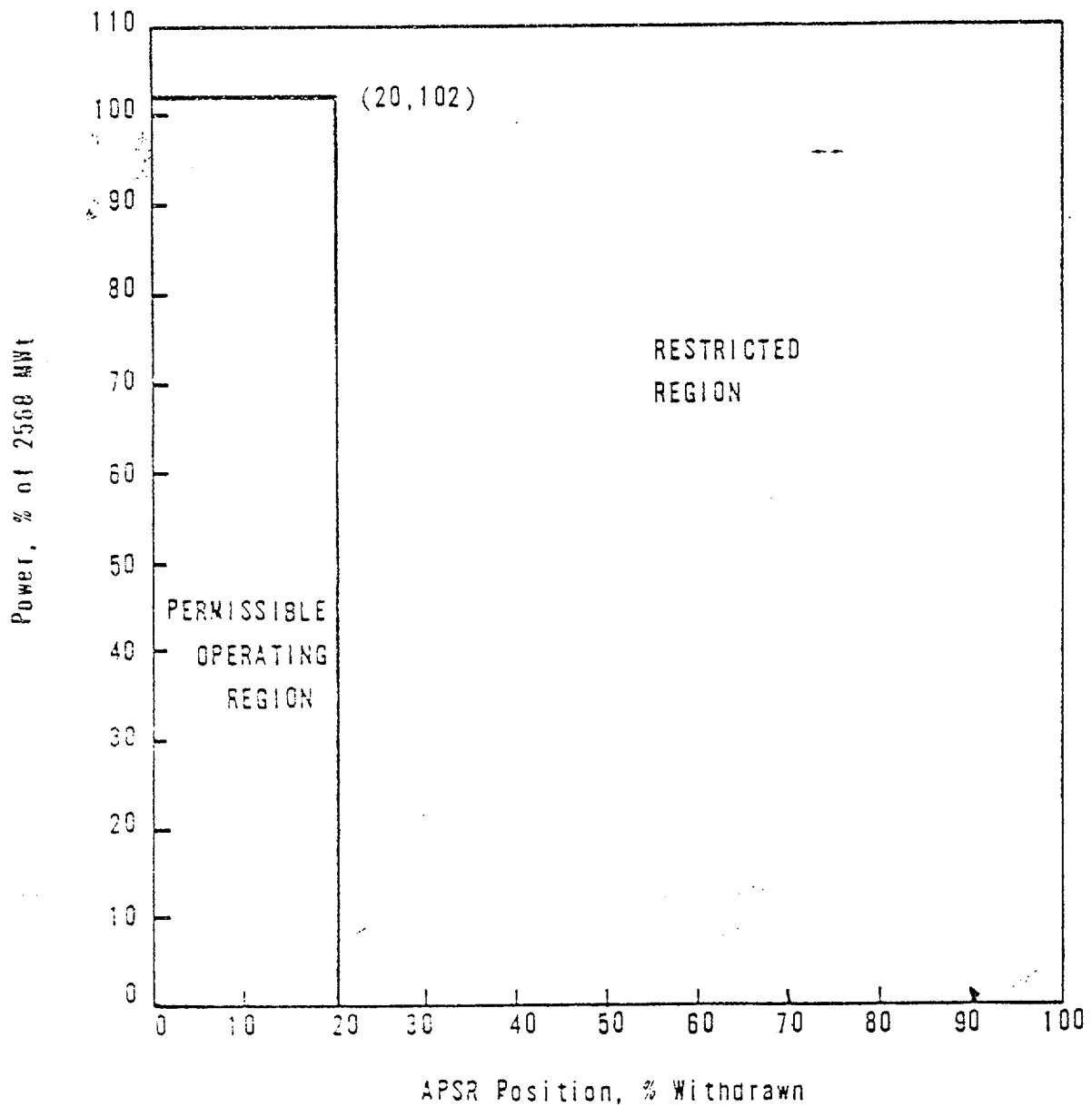
ROD POSITION LIMITS FOR TWO-PUMP OPERATION FROM 400 ± 10 TO 455 ± 10
EEP3-ANO-1, CYCLE 5
(TECH SPEC FIGURE 3.5.2-2H)



OPERATIONAL POWER IMBALANCE ENVELOPE FOR
 OPERATION FROM 400 ± 10 TO 455 ± 10 EFPD-
 ANO-1, CYCLE 5
 (TECH SPEC FIGURE 3.5.2-3D)



APSR POSITION LIMITS FOR OPERATION FROM 400 ± 10
TO 455 ± 10 EFPD - ANO-1, CYCLE 5
(TECH SPEC FIGURE 3.5.2-4D)





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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO.68 TO
FACILITY OPERATING LICENSE NO. DPR-51

ARKANSAS POWER AND LIGHT COMPANY

ARKANSAS NUCLEAR ONE, UNIT NO. 1

DOCKET NO. 50-313

1.0 Introduction

By letter dated July 15, 1982 (Ref. 1), Arkansas Power & Light Company (the licensee or AP&L) requested amendment to the Technical Specifications (TSs) appended to Facility Operating License No. DPR-51 for Arkansas Nuclear One, Unit No. 1 (ANO-1). The amendment would allow the extension of Cycle 5 from 435 ± 10 Effective Full Power Days (EFPD) to 455 ± 10 EFPD and operation from 400 ± 10 EFPD to the end of cycle (EOC) with the Axial Power Shaping Rods (APSRs) fully inserted. The core would continue to be operated in the feed-and-bleed mode.

2.0 Discussion and Evaluation

2.1 Fuel System Design

The licensee has submitted a revised version (Ref. 2) of the Cycle 5 Reload Report to support their current application. The analyses of the fuel system design are identical to those originally submitted with the exception of extending those analyses to higher exposures to support the cycle extension. We have examined those areas of the submittal which are exposure dependent, including cladding stress, cladding strain, creep collapse and end-of-life rod pressure and find that they continue to meet the design and application limits described in our original Safety Evaluation (Ref. 3) supporting Amendment No. 52. We conclude that the proposed Cycle 5 extension presents no unreviewed safety issues.

2.2 Conditions of Previous Evaluation

As part of our review of the proposed ANO-1 cycle extension, we have also reexamined the conditions of our original approval (Ref. 3) of the Cycle 5 submittal. As discussed in that evaluation, the licensee proposed to initiate Cycle 5 with a number of known leaking fuel assemblies. Reinsertion of leaking fuel assemblies is not normally performed, so this proposed action was reviewed carefully. We found the Cycle 5 operation acceptable so long as the licensee would: a) notify the NRC of any additional failures and b) conduct a thorough and timely investigation of the cause of the failures. The licensee agreed to these conditions and further committed to report the results of their investigation to the NRC within six months. This report has been submitted, as discussed below.

For Cycle 5 operation to date, the licensee has continued to keep the NRC staff informed as to the status of the equilibrium reactor coolant system activity levels. Based upon these activity level measurements, no significant additional failures have occurred. In addition, AP&L has submitted a report (Ref. 4) of their investigation into the fuel failure problem. Although the licensee was unsuccessful in identifying the cause of the Cycle 4 ANO-1 fuel failures, we concluded (Ref. 5) that the failure episode was followed up in an acceptable manner. Furthermore, we have no expectation of additional fuel failures during the proposed extension to Cycle 5 and conclude that conditions of our previous evaluation have, and will continue to be met.

2.3 Nuclear Design

There are no significant nuclear parameter differences between the original Cycle 5 design and that proposed for extended Cycle 5 operation. All of the important safety analysis parameters remain bounded by the values used in the Final Safety Analysis Report (FSAR) or previous cycle safety analyses. Analysis of shutdown margin shows that 2.74 percent $\Delta k/k$ exists at EOC compared to the required 1.0 percent $\Delta k/k$ for hot shutdown.

Based on the fact that approved methods have been used to obtain the revised Cycle 5 core characteristics, that margin exists to limiting values of the parameters, and that startup testing was used at the beginning of Cycle 5 to verify important parameters, we find the revised physics parameters for proposed modified Cycle 5 operation acceptable.

2.4 Technical Specification Changes

We have reviewed the proposed TS revisions for the proposed modified operation of Cycle 5 which include the following changes in limiting conditions of operation:

1. Regulating Rod Insertion Limits from 400 to 455 EFPD for four, three, and two-pump operation.
2. Axial Power Shaping Rod Insertion Limits from 400 to 455 EFPD.
3. Axial Power Imbalance Envelope from 400 to 455 EFPD.

Since minor warpage could conceivably cause difficulties in fully inserting the APSRs at EOC in preparation for refueling, the proposed operation during the last 55 EFPD with the APSRs fully inserted is a precautionary measure. All of the APSRs will be replaced at the EOC 5. There would be no loss of shutdown margin since the APSRs are not relied upon and do not automatically insert during a reactor trip. Based on this and the fact that the same techniques and models were used to derive the TSs as were used to derive those for the previous cycles, we conclude that the modified TSs required to operate to 455 EFPD with the full insertion of the APSRs during the last 55 EFPD are acceptable.

Based on our review of the fuel system and nuclear design and of the TS revisions to Cycle 5, we find the extended operation to 455 ± 10 EFPD with insertion of the APSRs during the last 55 EFPD is acceptable.

3.0 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.

4.0 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 an accident previously evaluated, does not create the possibility of an accident of a type different from any evaluated previously, and does not involve a significant reduction in a margin of safety, 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: September 8, 1982

The following NRC personnel have contributed to this Safety Evaluation:
G. Vissing, L. Kopp, J. Vogelwede.

REFERENCES

1. W. Cavanaugh (AP&L) letter to J. F. Stolz (NRC) on "Request to Extend Cycle 5", dated July 15, 1982.
2. "Arkansas Nuclear One, Unit 1, Cycle 5 Reload Report", Babcock and Wilcox Company Report BAW-1658, Revision 2, May 1982.
3. Robert W. Reid (NRC) letter to William Cavanaugh (AP&L) forwarding Amendment 52 to Facility Operating License DPR-51, dated March 9, 1981.
4. D. S. Trimble (AP&L) letter to J. F. Stolz (NRC) on "Failed Fuel Evaluation Final Report", dated January 15, 1982.
5. C. H. Berlinger (NRC) memorandum for J. F. Stolz (NRC) on "Completion of ANO-1 Failed Fuel Investigation", dated March 30, 1982.

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NO. 50-313ARKANSAS POWER & LIGHT COMPANYNOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 68 to Facility Operating License No. DPR-51, issued to Arkansas Power and Light Company (the licensee), which revised the Technical Specifications (TSs) for operation of Arkansas Nuclear One, Unit 1 (ANO-1) located in Pope County, Arkansas. The amendment is effective as of the date of issuance.

The amendment modifies the ANO-1 TSs to allow the extension of Cycle 5 from 435 ± 10 Effective Full Power Days (EFPD) to 455 ± 10 EFPD and operation from 400 ± 10 EFPD to end of cycle with the Axial Power Shaping Rods fully inserted.

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.

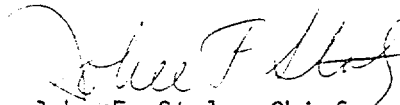
The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §1.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

-2-

For further details with respect to this action, see (1) the licensee's application dated July 15, 1982, (2) Amendment No. 68 to License No. DPR-51, 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 Tech University, Russellville, Arkansas. 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 8th day of September 1982.

FOR THE NUCLEAR REGULATORY COMMISSION



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