

OCT 02 1975

DISTRIBUTION

Docket
NRC PDR
Local PDR
ORB #2 Reading
Attorney, OELD
OI&E (3)
NDube
EJones (4)
JMcGough
JSaltzman, OAI
RMDiggs
WEConverse
DLziemann
KRGoller
SKari
BScharf (15)
TJCarter
EP LA - GWilliams
EP PM - Mirgalia
PCollins
Svarga

CHebron
AESteen
DEisenhut
ACRS (16)
Tabernathy, DTIE

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. 6 to Facility License No. DPR-51 for Arkansas Nuclear One - Unit 1. This amendment includes Change No. 6 to the Technical Specifications and is in response to your request dated August 15, 1975.

This amendment (1) modifies the rod withdrawal limit curves to include limitations associated with maintaining potential ejected control rod worth within previously established limits (including following control rod interchange) and limitations associated with maintaining shutdown margin, (2) deletes the separate specification on maximum inserted control rod worths, but includes the limits and bases therefor in (1) above, (3) incorporates an additional restriction on the regulating control rod positions prior to criticality to assure that the ejected rod worth does not exceed 1% delta k/k at hot zero power, and (4) permits the rod withdrawal limit curves associated with ejected rod limits to be exceeded for a maximum period of four hours, provided that shutdown margin requirements are maintained and corrective measures are taken immediately to achieve a rod pattern consistent with the limit curves.

The cover letter to your August 15, 1975 submittal requesting this amendment to the Technical Specifications stated that the proposed changes were based on the Interim Acceptance Criteria (IAC) for the Emergency Core Cooling System analysis. The issuance of this amendment does not nullify our December 27, 1974 Order regarding interim operation with the IAC-based Technical Specifications and the Final Acceptance Criteria-based Technical Specifications proposed in your submittal of August 2, 1974. Arkansas Nuclear One - Unit 1 shall continue to operate as stated in the December 27, 1974 Order with the specifications issued in this amendment replacing the IAC-based specifications presently in use.

HA-2
2/4

OCT 02 1975

Copies of the related Safety Evaluation and the Federal Register Notice are also enclosed.

Sincerely,

Original Signed by
Bartholomew C. Buckley

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

Enclosures:

- 1. Amendment No. 6 to DPR-51
w/Change No. 6
- 2. Safety Evaluation
- 3. Federal Register Notice

cc w/enclosures:
See next page

OFFICE ➤	RL:ORB #2 <i>RMD</i>	RL:ORB #2 <i>WCC</i>	<i>WELD</i>	RL:ORB #2 <i>Buckley</i>	
SURNAME ➤	RMDiggs	WEConverse:ah	<i>GIMNER</i>	DLZiemann (Buckley)	
DATE ➤	9/24/75	9/26/75	9/1/75	9/2/75	

OCT 02 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. 8/15/75:

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. 6
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 August 15, 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. 6."

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

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed by
Bartholomew C. Buckley

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

Attachment:
Change No. 6 to the
Technical Specifications

Date of Issuance: OCT 02 1975

ATTACHMENT TO LICENSE AMENDMENT NO. 6

CHANGE NO. 6 TO THE TECHNICAL SPECIFICATIONS

FACILITY OPERATING LICENSE NO. DPR-51

DOCKET NO. 50-313

Replace existing pages 21, 22, 47, 48, 48a, 48b, 48c and 48d of the Appendix A Technical Specifications with the attached revised pages bearing the same numbers and additional pages 48dd and 48ddd. Changed areas on the revised pages are reflected by marginal lines. Also, page 48aa is enclosed as a matter of convenience in updating the Technical Specifications. There are not changes on this page.

OFFICE						
SURNAME						
DATE						

3.1.3 Minimum Conditions For Criticality

Specification

- 3.1.3.1 The reactor coolant temperature shall be above 525 F except for portions of low power physics testing when the requirements of Specification 3.1.8 shall apply.
- 3.1.3.2 Reactor coolant temperature shall be above DTT + 10 F.
- 3.1.3.3 When the reactor coolant temperature is below the minimum temperature specified in 3.1.3.1 above, except for portions of low power physics testing when the requirements of Specification 3.1.8 shall apply, the reactor shall be subcritical by an amount equal to or greater than the calculated reactivity insertion due to depressurization.
- 3.1.3.4 The reactor shall be maintained subcritical by at least 1 percent $\Delta k/k$ until a steam bubble is formed and an indicated water level between 45 and 305 inches is established in the pressurizer.
- 3.1.3.5 Except for physics tests and as limited by 3.5.2.1, safety rod groups shall be fully withdrawn and the regulating rods shall be positioned within their position limits as defined by Specification 3.5.2.5 prior to any other reduction in shutdown margin by deboration or regulating rod withdrawal during the approach to criticality.

Bases

At the beginning of life of the initial fuel cycle, the moderator temperature coefficient is expected to be slightly positive at operating temperatures with the operating configuration of control rods.(1) Calculations show that above 525 F the positive moderator coefficient is acceptable.

Since the moderator temperature coefficient at lower temperatures will be less negative or more positive than at operating temperature,(2) startup and operation of the reactor when reactor coolant temperature is less than 525 F is prohibited except where necessary for low power physics tests.

The potential reactivity insertion due to the moderator pressure coefficient(2) that could result from depressurizing the coolant from 2100 psia to saturation pressure of 900 psia is approximately 0.1 percent $\Delta k/k$.

During physics tests, special operating precautions will be taken. In addition, the strong negative Doppler coefficient(1) and the small integrated $\Delta k/k$ would limit the magnitude of a power excursion resulting from a reduction of moderator density.

The requirement that the reactor is not to be made critical below DTT + 10 F provides increased assurances that the proper relationship between primary coolant pressure and temperatures will be maintained relative to the NDTT of the primary coolant system. Heatup to this temperature will be accomplished by operating the reactor coolant pumps.

If the shutdown margin required by Specification 3.5.2 is maintained, there is no possibility of an accidental criticality as a result of a decrease of coolant pressure.

The requirement for pressurizer bubble formation and specified water level when the reactor is less than 1 percent subcritical will assure that the reactor coolant system cannot become solid in the event of a rod withdrawal accident or a start-up accident and that the water level is above the minimum detectable level.

The requirement that the safety rod groups be fully withdrawn before criticality ensures shutdown capability during startup. This does not prohibit rod latch confirmation, i.e., withdrawal by group to a maximum of 3 inches withdrawn of all seven groups prior to safety rod withdrawal.

The requirement for regulating rods being within their rod position limits ensures that the shutdown margin and ejected rod criteria at hot zero power are not violated.

6

REFERENCES

- (1) FSAR, Section 3
- (2) FSAR, Section 3.2.2.1.5

6. If a control rod in the regulating or axial power shaping groups is declared inoperable per Specification 4.7.1.2, operation above 60 percent of the thermal power allowable for the reactor coolant pump combination may continue provided the rods in the group are positioned such that the rod that was declared inoperable is maintained within allowable group average position limits of Specification 4.7.1.2 and the withdrawal limits of Specification 3.5.2.5.3.
- 3.5.2.3 The worth of single inserted control rods during criticality are limited by the restrictions of Specification 3.1.3.5 and the Control Rod Position Limits defined in Specification 3.5.2.5. | 6
- 3.5.2.4 Quadrant tilt:
1. Except for physics tests, if quadrant tilt exceeds 4%, power shall be reduced immediately to below the power level cutoff (see Figures 3.5.2-1A, 3.5.2-1B, and 3.5.2-1C). Moreover, the power level cutoff value shall be reduced 2% for each 1% tilt in excess of 4% tilt. For less than 4 pump operation, thermal power shall be reduced 2% of the thermal power allowable for the reactor coolant pump combination for each 1% tilt in excess of 4%. | 6
 2. Within a period of 4 hours, the quadrant power tilt shall be reduced to less than 4%, except for physics tests, or the following adjustments in setpoints and limits shall be made:
 - a. The protection system maximum allowable setpoints (Figure 2.3-2) shall be reduced 2% in power for each 1% tilt.
 - b. The control rod group withdrawal limits (Figures 3.5.2-1A, 3.5.2-1B, and 3.5.2-1C) shall be reduced 2% in power for each 1% tilt in excess of 4%. | 6
 - c. The operational imbalance limits (Figure 3.5.2-3) shall be reduced 2% in power for each 1% tilt in excess of 4%.
 3. If quadrant tilt is in excess of 25%, except for physics tests or diagnostic testing, the reactor will be placed in the hot shutdown condition. Diagnostic testing during power operation with a quadrant power tilt is permitted provided the thermal power allowable for the reactor coolant pump combination is restricted as stated in 3.5.2.4.1 above.
 4. Quadrant tilt shall be monitored on a minimum frequency of once every two hours during power operation above 15% of rated power.
- 3.5.2.5 Control rod positions:
1. Technical Specification 3.1.3.5 (safety rod withdrawal) does not prohibit the exercising of individual safety rods as required by Table 4.1-2 or apply to inoperable safety rod limits in Technical Specification 3.5.2.2.
 2. Operating rod group overlap shall be 25% +5 between two sequential groups, except for physics tests.

3. Except for physics tests or exercising control rods, the control rod withdrawal limits are specified on Figures 3.5.2-1A, 3.5.2-1B, and 3.5.2-1C for four pump operation and on Figure 3.5.2-2 for three or two pump operation. If the control rod position limits are exceeded, corrective measures shall be taken immediately to achieve an acceptable control rod position. Acceptable control rod positions shall be attained within four hours.
4. Except for physics tests, power shall not be increased above the power level cutoff (see Figures 3.5.2-1) unless the xenon reactivity is within 10 percent of the equilibrium value for operation at rated power and asymptotically approaching stability.

3.5.2.6 Reactor Power Imbalance shall be monitored on a frequency not to exceed two hours during power operation above 40 percent rated power. Except for physics tests, imbalance shall be maintained within the envelope defined by Figure 3.5.2-3. If the imbalance is not within the envelope defined by Figure 3.5.2-3, corrective measures shall be taken to achieve an acceptable imbalance. If an acceptable imbalance is not achieved within four hours, reactor power shall be reduced until imbalance limits are met.

3.5.2.7 The control rod drive patch panels shall be locked at all times with limited access to be authorized by the superintendent.

Bases

The power-imbalance envelope defined in Figure 3.5.2-3 is based on LOCA analyses which have defined the maximum linear heat rate (see Figure 3.5.2-4) such that the maximum clad temperature will not exceed the Interim Acceptance Criteria. Corrective measures will be taken immediately should the indicated quadrant tilt, rod position, or imbalance be outside their specified boundary. Operation in a situation that would cause the Interim Acceptance Criteria to be approached should a LOCA occur is highly improbable because all of the power distribution parameters (quadrant tilt, rod position, and imbalance) must be at their limits while simultaneously all other engineering and uncertainty factors are also at their limits.* Conservatism is introduced by application of:

- a. Nuclear uncertainty factors
- b. Thermal calibration
- c. Fuel densification effects
- d. Hot rod manufacturing tolerance factors

The 25 percent \pm 5 percent overlap between successive control rod groups is allowed since the worth of a rod is lower at the upper and lower part of the stroke. Control rods are arranged in groups or banks defined as follows:

*Actual operating limits depend on whether or not incore or excore detectors are used and their respective instrument and calibration errors. The method used to define the operating limits is defined in plant operating procedures.

<u>Group</u>	<u>Function</u>
1	Safety
2	Safety
3	Safety
4	Safety
5	Regulating
6	Regulating
7	Xenon transient override
8	APSR (axial power shaping bank)

The rod position limits are based on the most limiting of the following three criteria: ECCS power peaking, shutdown margin, and potential ejected rod worth. As discussed above, compliance with the ECCS power peaking criterion is ensured by the rod position limits. The minimum available rod worth, consistent with the rod position limits, provides for achieving hot shutdown by reactor trip at any time, assuming the highest worth control rod that is withdrawn remains in the full out position (1). The rod position limits also ensure that inserted rod groups will not contain single rod worths greater than 0.65% $\Delta k/k$ at rated power. These values have been shown to be safe by the safety analysis (2) of the hypothetical rod ejection accident. A maximum single inserted control rod worth of 1.0% $\Delta k/k$ is allowed by the rod positions limits at hot zero power. A single inserted control rod worth of 1.0% $\Delta k/k$ at beginning of life, hot, zero power would result in a lower transient peak thermal power and, therefore, less severe environmental consequences than a 0.65% $\Delta k/k$ ejected rod worth at rated power.

Control rod groups are withdrawn in sequence beginning with group 1. Groups 5, 6, and 7 are overlapped 25%. The normal position at power is for groups 6 and 7 to be partially inserted.

The quadrant power tilt limits set forth in Specification 3.5.2.4 have been established within the thermal analysis design base using the definition of quadrant power tilt given in Technical Specifications, Section 1.6. These limits in conjunction with the control rod position limits in Specification 3.5.2.5.3 ensure that design peak heat rate criteria are not exceeded during normal operation when including the effects of potential fuel densification.

The quadrant tilt and axial imbalance monitoring in Specifications 3.5.2.4.6 and 3.5.2.5.4, respectively, will normally be performed in the plant computer. The two hour frequency for monitoring these quantities will provide adequate surveillance when the computer is out of service.

During the physics testing program, the high flux trip setpoints are administratively set as follows to ensure that an additional safety margin is provided:

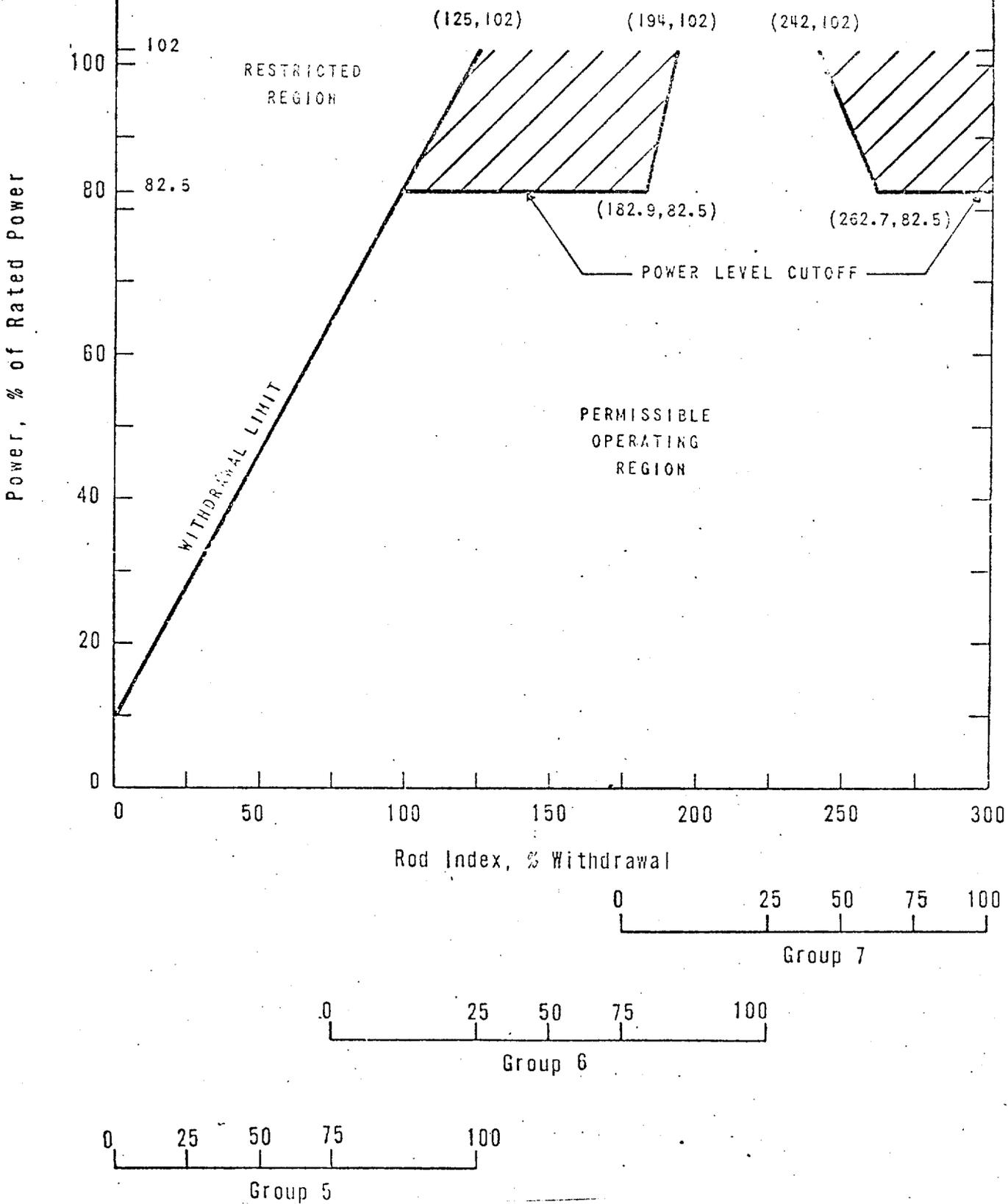
<u>Test Power</u>	<u>Trip Setpoint, %</u>
0	<5
15	50
40	50
50	60
75	85
>75	105.5

REFERENCES

¹FSAR, Section 3.2.2.1.2

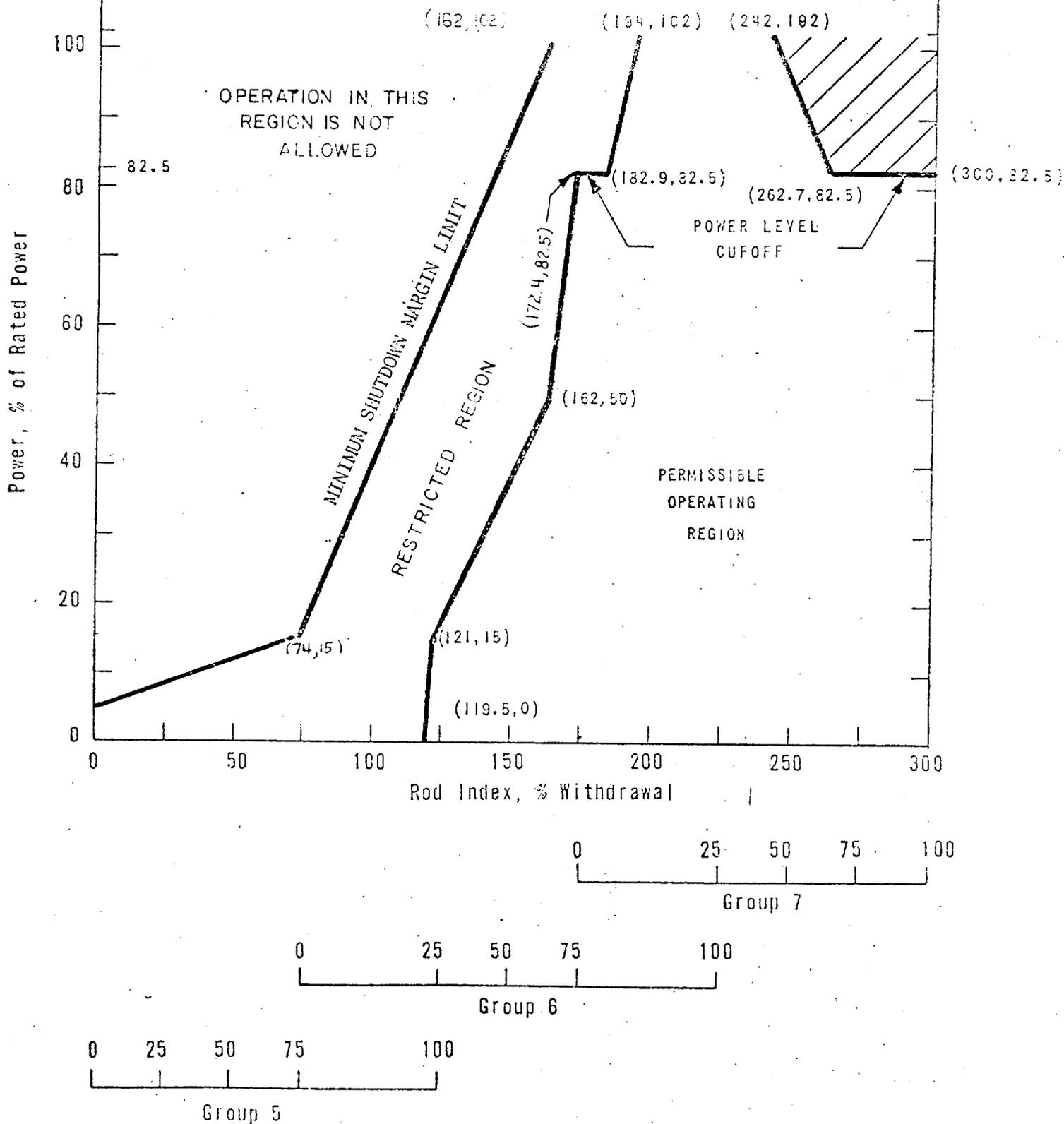
²FSAR, Section 14.2.2.2

1. Rod index is the percentage sum of the withdrawal of the operating groups.
2. Restrictions on withdrawal (hashed areas) are modified after the control rod interchange (See Figure 3.5.2-18)



ARKANSAS POWER & LIGHT CO. ARKANSAS NUCLEAR ONE-UNIT 1	CONTROL ROD GROUP WITHDRAWAL LIMITS FOR 4 PUMP OPERATION	FIG. NO. 3.5.2-1A
---	---	----------------------

1. Rod index is the percentage sum of the withdrawal of the operating groups.
2. The additional restrictions on withdrawal (hatched areas) are in effect after the control rod interchange. The restrictions on withdrawal are further modified after 435 full power days of operation (See Figure 3.5.2-1C).

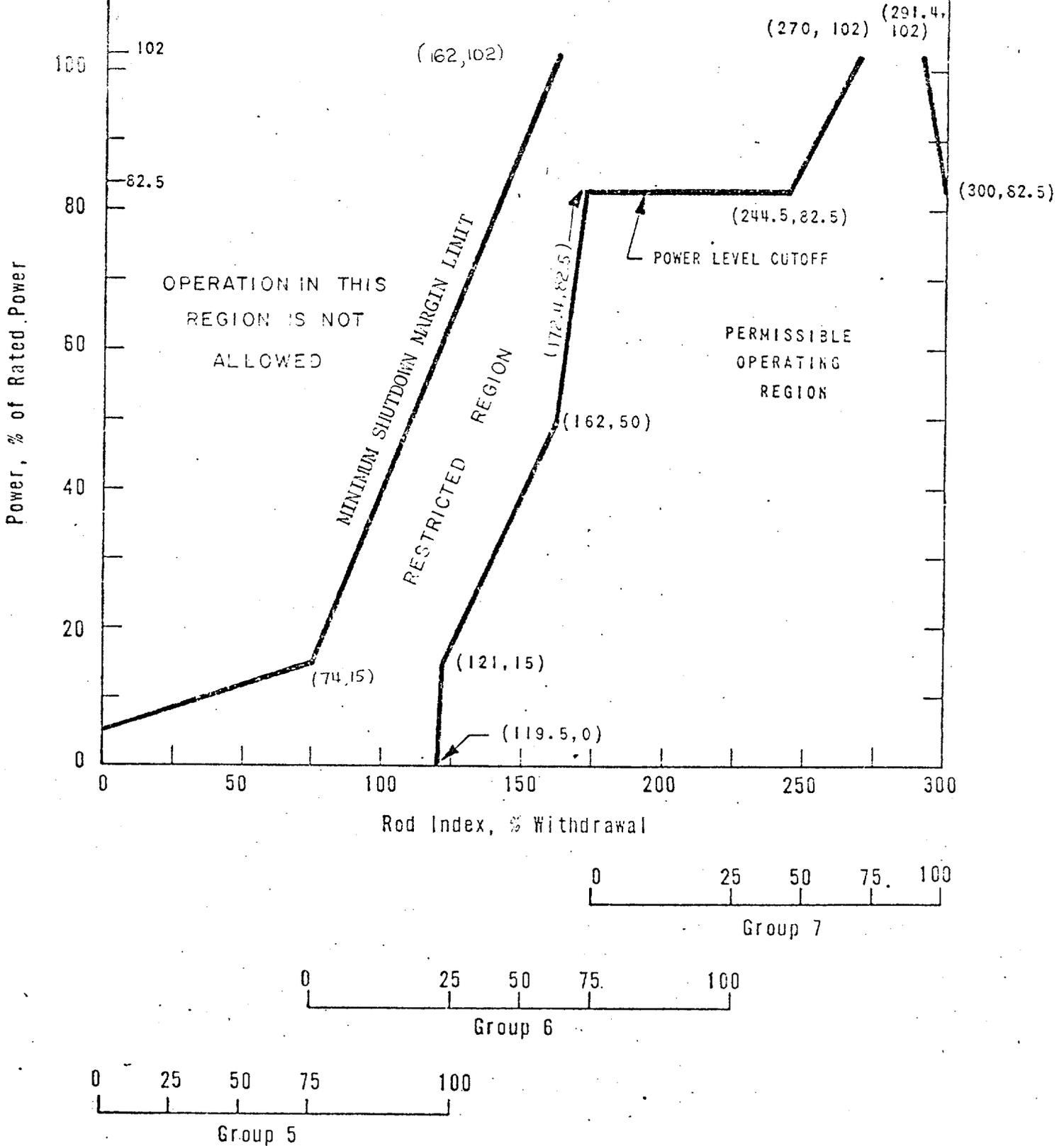


ARKANSAS POWER & LIGHT CO.
ARKANSAS NUCLEAR ONE-UNIT 1

CONTROL ROD GROUP WITHDRAWAL
LIMITS FOR 4 PUMP OPERATION

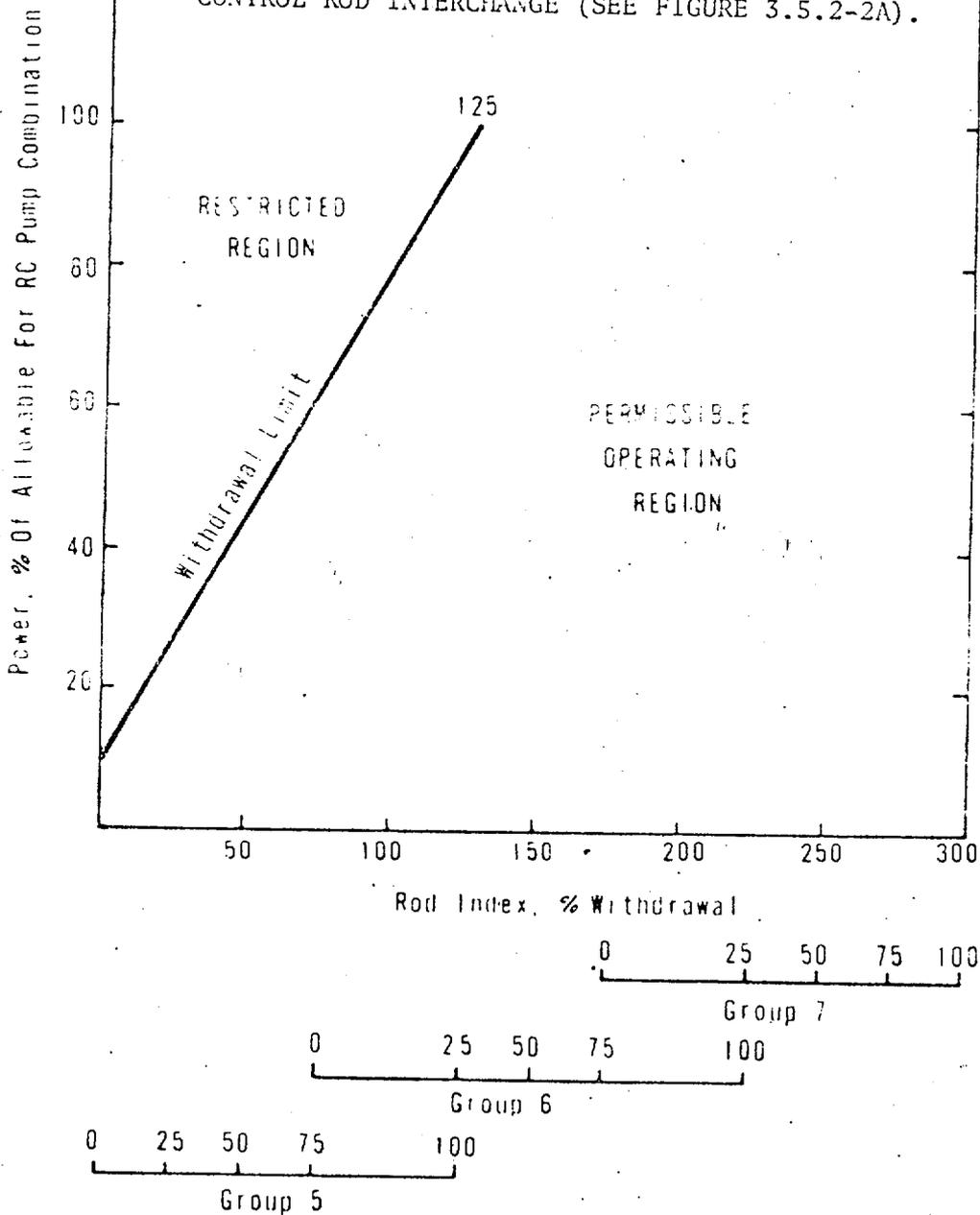
FIG. NO.
3.5.2-1B

1. Rod index is the percentage sum of the withdrawal of the operating group.
2. The additional restrictions on withdrawal are in effect after 435 full power days of operation.



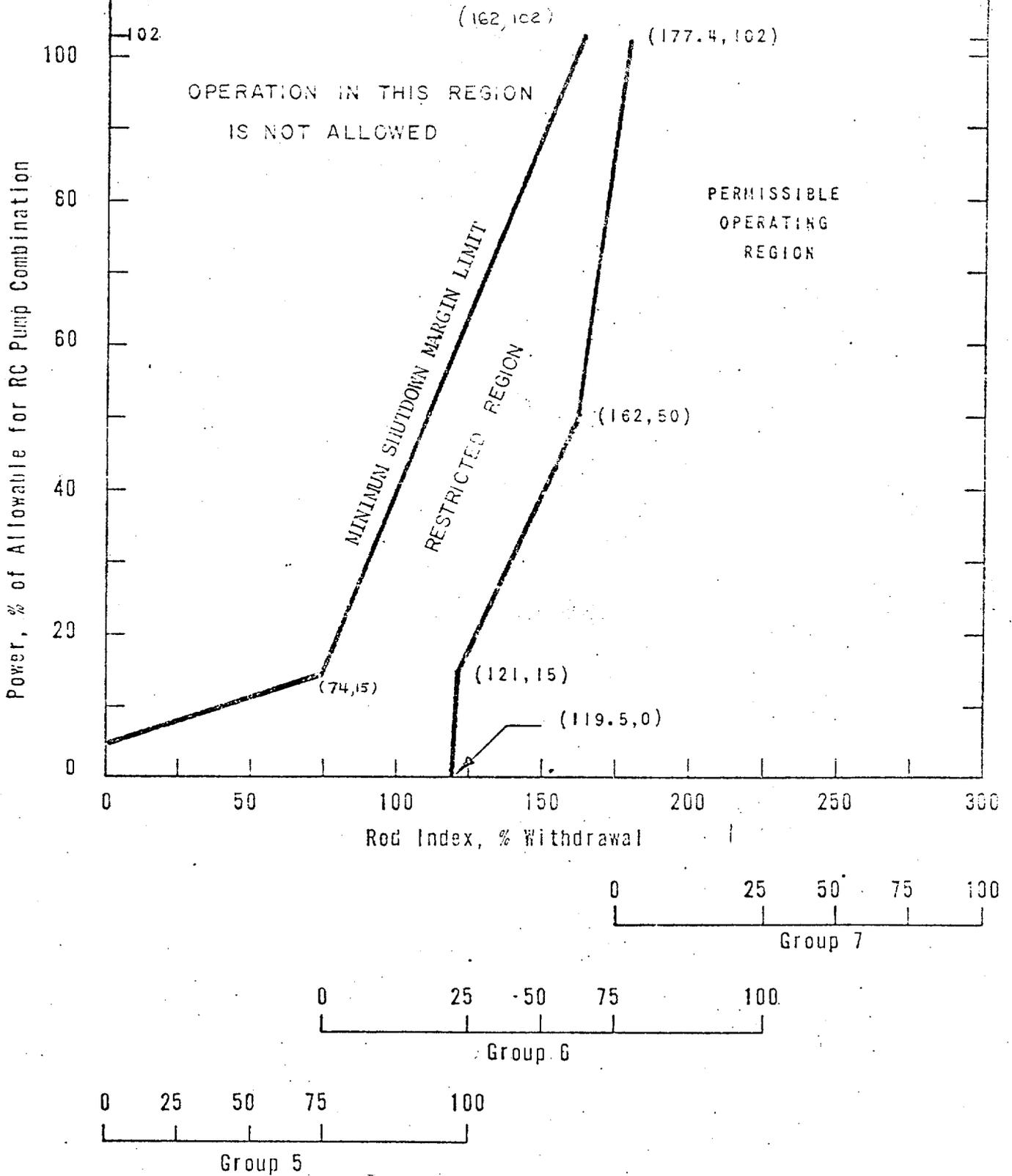
ARKANSAS POWER & LIGHT CO. ARKANSAS NUCLEAR ONE-UNIT 1	CONTROL ROD GROUP WITHDRAWAL LIMITS FOR 4 PUMP OPERATION	FIG. NO. 3.5.2-1C
---	---	----------------------

1. ROD INDEX IS THE PERCENTAGE SUM OF THE WITHDRAWAL OF THE OPERATING GROUPS.
2. ADDITIONAL RESTRICTIONS ARE REQUIRED FOLLOWING CONTROL ROD INTERCHANGE (SEE FIGURE 3.5.2-2A).



ARKANSAS POWER & LIGHT CO. ARKANSAS NUCLEAR ONE-UNIT 1	CONTROL ROD GROUP WITHDRAWAL LIMITS FOR 3 AND 2 PUMP OPERATION	FIG. NO. 3.5.2-2
---	---	---------------------

1. ROD INDEX IS THE PERCENTAGE SUM OF THE WITHDRAWAL OF THE OPERATING GROUPS.
2. THESE RESTRICTIONS APPLY FOLLOWING CONTROL ROD INTERCHANGE.



ARKANSAS POWER & LIGHT CO. ARKANSAS NUCLEAR ONE-UNIT 1	CONTROL ROD GROUP WITHDRAWAL LIMITS FOR 3 AND 2 PUMP OPERATION	FIG. NO. 3.5.2-2A
---	---	----------------------

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 6 TO FACILITY LICENSE NO. DPR-51

CHANGE NO. 6 TO TECHNICAL SPECIFICATIONS

ARKANSAS POWER AND LIGHT COMPANY

ARKANSAS NUCLEAR ONE - UNIT 1

DOCKET NO. 50-313

Introduction

By letter dated March 26, 1975, the Nuclear Regulatory Commission informed Arkansas Power and Light Company (the licensee) that deficiencies had been identified in the ejected rod calculations on which the control rod limits for the Arkansas Nuclear One Station - Unit 1 were based. This letter stated that, following control rod interchange*, potential ejected control rod worths greater than 1% delta k/k could result with the plant in the hot zero power condition, which would exceed the limit specified in Tech. Spec. 3.5.2.3. The licensee was therefore requested to submit either the results of analysis to show that the existing rod withdrawal limits were adequate to assure that ejected rod worths were less than the allowable limits after rod interchange, or submit revised rod position limits in the form of proposed Tech. Specs. to maintain ejected rod worths below these limits.

In response to this request, by letter dated August 15, 1975, the licensee submitted the results of their evaluation, together with proposed changes to the Technical Specifications for Arkansas Nuclear One - Unit 1.

Discussion

The proposed change would (1) incorporate an additional restriction on the regulating control rod positions prior to criticality, (2) delete the separate specification on inserted control rod worth and include these requirements in a set of rod withdrawal limit curves, and

* Control rod interchange is a process in which control rods are resequenced for operation during the latter part of the fuel cycle.

(3) modify the rod withdrawal limits for Arkansas Nuclear One - Unit 1 after control rod interchange to assure that the hot zero power ejected rod worths following interchange do not exceed 1% $\Delta k/k$.

The additional restriction on regulating rod withdrawal during an approach to criticality would require that these rods be positioned within the limits defined by the rod withdrawal limit curves prior to deboration to assure that the shutdown margin and ejected rod worth limits at hot zero power are maintained.

Historically, for Babcock and Wilcox reactors, the rod insertion limits have been derived on the basis of LOCA-limited power peaking considerations. Shutdown margin and ejected rod worth criteria have been addressed in separate specifications which must be met in addition to the rod withdrawal limit specification. In order to provide for a more direct application of the Tech. Specs., revised rod withdrawal limits have been proposed which will assure, by use of the rod withdrawal limits alone, compliance with the three subject criteria (LOCA-limited power peaking, shutdown margin, and ejected rod worth).

Evaluation

We have reviewed the proposed changes to the Arkansas Nuclear One Station - Unit 1 Tech. Specs. Revised rod withdrawal limits have been proposed since the hot zero power ejected rod worths after control rod interchange are predicted to exceed 1% $\Delta k/k$ (the present limit) for certain control rod positions allowed by the present Tech. Spec. 3.5.2.5. The revised rod withdrawal limits have been established such that potential ejected rod worths, including an allowance for calculational uncertainties, will be less than 1% $\Delta k/k$ at zero power and less than 0.65% $\Delta k/k$ at full power. These reactivity values are those previously used in the analysis of a postulated rod ejection accident, including fuel densification effects, and found to have acceptable consequences⁽¹⁾. The revised rod withdrawal limits will maintain potential ejected rod worths below these limiting values, and are therefore acceptable.

The licensee's proposal involves operating limits in a different form than presently existing (i.e., a revised insertion limit curve), but does not involve changes to the bases on which safety margins are based or to safety margins themselves. The new curves and limitations will maintain ejected rod worths below the established maximums after control rod interchange, and in addition factor in other current limitations governing shutdown margin and LOCA limited power peaking restrictions.

(1) Supplement No. 1 to the Safety Evaluation, May 9, 1974.

In incorporating the limits on LOCA power peaking, shutdown margin, and ejected rod worth into one new curve, the proposed change would permit rod position limits to be exceeded for a period of up to four hours. This is identical to the existing specification which governs LOCA power peaking limits and was previously found acceptable on the basis of the exceedingly low probability of the occurrence of a LOCA in this limited time interval and the fact that a deliberate, controlled return to the normal insertion limits provides less occasion for further operating error or system malfunction than would alternate responses (e.g., immediate shutdown and startup). The proposed change would make a similar 4-hour allowance for ejected rod worth limits. Normal load demand changes on the electrical system result in control rod motion which is necessary to regulate reactor output in response to the load changes. This is done either automatically by the rod drive control system or manually by the operator. Following load changes, the reactor coolant boron concentration is adjusted, if necessary, in order to allow control rods to be placed in the desired position. For slower load changes, boron concentration can be adjusted coincident with the load change, and thus control rod position can be maintained where desired. For more rapid load changes in which boron concentration cannot be changed quickly enough, control rod motion is necessary. This could result in temporarily crossing the rod withdrawal limit due to normal control action, and can be subsequently corrected by dilution or boration of the reactor coolant to restore proper rod position. Crossing of the limit line is thus not intentional, but results from normal and necessary control action to avoid other operating limits. If this should occur, the licensee is required by Tech. Specs. to undertake corrective action immediately, and achieve compliance with the limit curve within four hours. The four hour period is sufficient to allow a careful, controlled return to the normal limits, and the amount of deviation is limited by the requirement that the shutdown margin be continuously maintained.

In consideration of the above, and the fact that the very low probability of a rod ejection accident occurring in this limited time is similar to that of a LOCA (for which the 4-hour allowance was previously approved), we find that the proposed maximum 4-hour exception to the rod withdrawal limit requirement to be 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: OCT 02 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. 6 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.

This amendment (1) modifies the rod withdrawal limit curves to include limitations associated with maintaining potential ejected control rod worth within previously established limits (including following control rod interchange) and limitations associated with maintaining shutdown margin, (2) deletes the separate specification on maximum inserted control rod worths, but includes the limits and bases therefor in (1) above, (3) incorporates an additional restriction on the regulating control rod positions prior to criticality to assure that the ejected rod worth does not exceed 1% delta k/k at hot zero power, and (4) permits the rod limits to be exceeded for a maximum period of four hours, provided that shutdown margin requirements are maintained and corrective measures are taken immediately to achieve a rod pattern consistent with the limit curves.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and

OFFICE ➤						
SURNAME ➤						
DATE ➤						

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.

For further details with respect to this action, see (1) the application for amendment dated August 15, 1975, (2) Amendment No. 6 to License No. DPR-51, with Change No. 6, and (3) the Commission's concurrently issued 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 *2nd day of October, 1975.*

FOR THE NUCLEAR REGULATORY COMMISSION
Original Signed by
Bartholomew C. Buckley

B. C. Buckley, Acting Chief
Operating Reactors Branch #2
Division of Reactor Licensing

OFFICE >						
SURNAME >						
DATE >						

PRELIMINARY DETERMINATION

NOTICING OF PROPOSED LICENSING AMENDMENT

Licensee: Arkansas Power and Light Company (AP&L)

Request for: Arkansas Nuclear One - Unit 1 Tech Spec change to (1) modify the rod withdrawal limit curves to include limitations associated with maintaining potential ejected control rod worth within previously established limits (including following control rod interchange) and limitations associated with maintaining shutdown margin, (2) delete the separate specification on maximum inserted control rod worths, but include the limits and bases therefore in (1) above, (3) incorporate (cont'd on attached page)

Request Date: August 15, 1975

Proposed Action: () Pre-notice Recommended
(x) Post-notice Recommended
() Determination delayed pending completion of Safety Evaluation

Basis for Decision: This change is being made in response to our letter of March 26, 1975, informing AP&L of a deficiency in the Babcock & Wilcox (B&W) ejected rod worth calculational model. A new B&W model has been approved by the NRC staff. Changes similar to that requested by AP&L and based on the new model have been approved (without pre-notice) for Three Mile Island and Oconee 1,2,3 nuclear units. The requested change is a result of the application of a small refinement of a previously used calculational model and represents no relaxation of safety limits or limiting safety system settings. There is also no relaxation of a limiting condition for operation except to permit reactor operation for four hours with control rods in the newly defined "restricted region" based on the ejected rod accident. Such operation was previously found acceptable where the rod limits were based on a LOCA. This situation was considered in the Oconee package and found acceptable.

CONCURRENCES:

DATE:

1. WEConverse W.E. Converse 9/18/75
2. DLZiemann D. Ziemann 9/18/75
3. K. R. Goller Karl R. Goller 9/18/75
4. Office of Executive Legal Director Blair M. Ford 9/24/75

ATTACHMENT 1

Continuation of Request for:

an additional restriction on the regulating control rod positions prior to criticality to assure that the ejected rod worth does not exceed 1% delta k/k at hot zero power conditions, and (4) permit the rod withdrawal limit curves associated with ejected rod limits to be exceeded for a maximum period of four hours, provided that shutdown margin requirements are maintained and corrective measures are taken immediately to achieve a rod pattern consistent with the limit curves.