



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

ARKANSAS POWER & LIGHT COMPANY

DOCKET NO. 50-368

ARKANSAS NUCLEAR ONE, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 37
License No. NPF-6

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Arkansas Power & Light Company (the licensee) dated July 8, 1982, as supplemented October 6, 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.

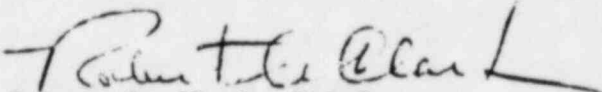
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-6 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 37, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, except where otherwise stated in specific license conditions.

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

FOR THE NUCLEAR REGULATORY COMMISSION



Robert A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing

Attachment:
Changes to the
Technical Specifications

Date of Issuance: November 5, 1982

ATTACHMENT TO LICENSE AMENDMENT NO. 37

FACILITY OPERATING LICENSE NO. NPF-6

DOCKET NO. 50-368

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. Corresponding overleaf pages are provided to maintain document completeness.

Remove Pages

III
3/4 1-25
3/4 1-26
3/4 1-27
-
-
3/4 10-2
B 3/4 1-5

Insert Pages

III
3/4 1-25
3/4 1-26
3/4 1-27
3/4 1-28
3/4 1-29
3/4 10-2
B 3/4 1-5

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

<u>SECTION</u>	<u>PAGE</u>
3/4.0 APPLICABILITY.....	3/4 0-1
3/4.1 REACTIVITY CONTROL SYSTEMS	
3/4.1.1 BORATION CONTROL	
Shutdown Margin - $T_{avg} > 200^{\circ}\text{F}$	3/4 1-1
Shutdown Margin - $T_{avg} \leq 200^{\circ}\text{F}$	3/4 1-3
Boron Dilution	3/4 1-4
Moderator Temperature Coefficient	3/4 1-5
Minimum Temperature for Criticality.....	3/4 1-6
3/4.1.2 BORATION SYSTEMS	
Flow Paths - Shutdown.....	3/4 1-7
Flow Paths - Operating.....	3/4 1-8
Charging Pump - Shutdown.....	3/4 1-9
Charging Pumps - Operating.....	3/4 1-10
Boric Acid Makeup Pumps - Shutdown.....	3/4 1-11
Boric Acid Makeup Pumps - Operating.....	3/4 1-12
Borated Water Sources - Shutdown.....	3/4 1-13
Borated Water Sources - Operating.....	3/4 1-15
3/4.1.3 MOVABLE CONTROL ASSEMBLIES	
CEA Position.....	3/4 1-17
Position Indicator Channels - Operating.....	3/4 1-20
Position Indicator Channels - Shutdown.....	3/4 1-22
CEA Drop Time.....	3/4 1-23
Shutdown CEA Insertion Limit.....	3/4 1-24
Regulating CEA Insertion Limits.....	3/4 1-25
Part Length CEA Insertion Limits.....	3/4 1-28

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

<u>SECTION</u>	<u>PAGE</u>
<u>3/4.2 POWER DISTRIBUTION LIMITS</u>	
3/4.2.1 LINEAR HEAT RATE	3/4 2-1
3/4.2.2 RADIAL PEAKING FACTORS	3/4 2-4
3/4.2.3 AZIMUTHAL POWER TILT	3/4 2-5
3/4.2.4 DNBR MARGIN	3/4 2-7
3/4.2.5 RCS FLOW RATE	3/4 2-11
3/4.2.6 REACTOR COOLANT COLD LEG TEMPERATURE	3/4 2-12
3/4.2.7 AXIAL SHAPE INDEX	3/4 2-13
3/4.2.8 PRESSURIZER PRESSURE	3/4 2-14
<u>3/4.3 INSTRUMENTATION</u>	
3/4.3.1 REACTOR PROTECTIVE INSTRUMENTATION	3/4 3-1
3/4.3.2 ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION	3/4 3-10
3/4.3.3 MONITORING INSTRUMENTATION	
Radiation Monitoring Instrumentation	3/4 3-24
Incore Detectors	3/4 3-28
Seismic Instrumentation	3/4 3-30
Meteorological Instrumentation	3/4 3-33
Remote Shutdown Instrumentation	3/4 3-36
Post-Accident Instrumentation	3/4 3-39
Chlorine Detection Systems	3/4 3-42
Fire Detection Instrumentation	3/4 3-43
3/4.3.4 TURBINE OVERSPEED PROTECTION	3/4 3-45

REACTIVITY CONTROL SYSTEMS

REGULATING CEA INSERTION LIMITS

LIMITING CONDITION FOR OPERATION

3.1.3.6 The regulating CEA groups shall be limited to the withdrawal sequence and to the insertion limits shown on Figure 3.1-2 with:

- a. CEA insertion between the Long Term Steady State Insertion Limit and the Transient Insertion Limit restricted to:
 1. ≤ 5 Effective Full Power Days per 30 Effective Full Power Day intervals, and
 2. ≤ 14 Effective Full Power Days per calendar year.
- b. CEA insertion between the Short Term Steady State Insertion Limit and the Transient Insertion Limit shall be restricted to ≤ 4 hours per 24 hour interval.

APPLICABILITY: MODES 1* and 2*#.

ACTION:

- a. With the regulating CEA groups inserted beyond the Transient Insertion Limit, except for surveillance testing pursuant to Specification 4.1.3.1.2, within two hours either:
 1. Restore the regulating CEA groups to within the limits, or
 2. Reduce THERMAL POWER to less than or equal to that fraction of RATED THERMAL POWER which is allowed by the CEA group position using the above figure.
- b. With the regulating CEA groups inserted between the Long Term Steady State Insertion Limit and the Transient Insertion Limit for intervals > 5 EFPD per 30 EFPD interval or > 14 EFPD per calendar year, either:
 1. Restore the regulating groups to within the Long Term Steady State Insertion Limit within two hours, or
 2. Be in at least HOT STANDBY within 6 hours.

* See Special Test Exceptions 3.10.2 and 3.10.4.

With $K_{eff} \geq 1.0$.

REACTIVITY CONTROL SYSTEMS

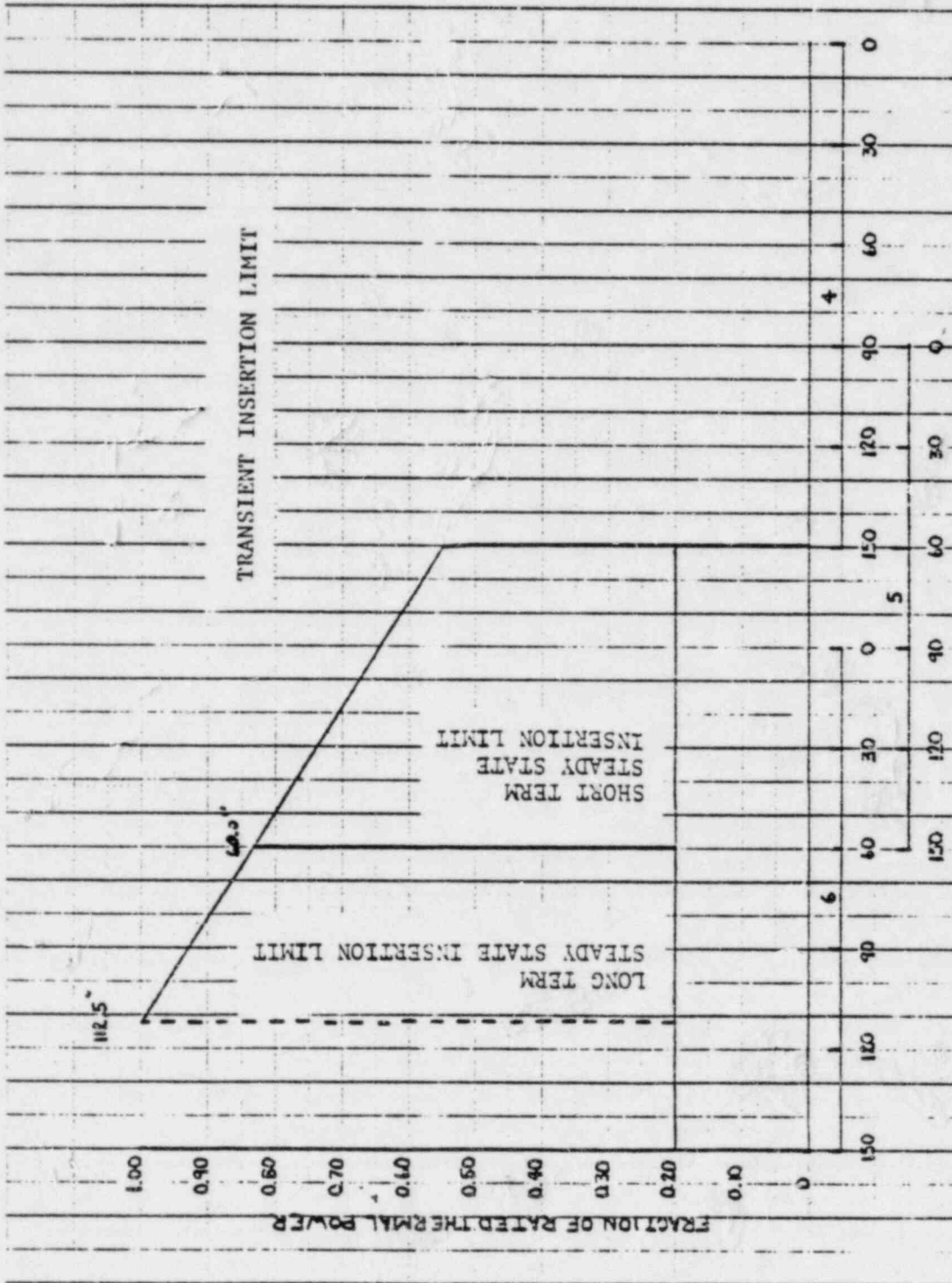
LIMITING CONDITION FOR OPERATION

ACTION: (Continued)

- c. With the regulating CEA groups inserted between the Short Term Steady State Insertion Limit and the Transient Insertion Limit for intervals > 4 hours per 24 hour interval, operation may proceed provided any subsequent increase in thermal power is restricted to $\leq 5\%$ of rated thermal power per hour.

SURVEILLANCE REQUIREMENTS

4.1.3.6 The position of each regulating CEA group shall be determined to be within the Transient Insertion Limit at least once per 12 hours except during time intervals when the PDIL Alarm is inoperable, then verify the individual CEA positions at least once per 4 hours. The accumulated times during which the regulating CEA groups are inserted beyond the Long Term Steady State Insertion Limit or the Short Term Steady State Insertion Limit but within the Transient Insertion Limit shall be determined at least once per 24 hours.



CEA WITHDRAWAL - INCHES

FIGURE 3.1-2

CEA Insertion Limits vs THERMAL POWER

REACTIVITY CONTROL SYSTEMS

PART LENGTH CEA INSERTION LIMITS

LIMITING CONDITION FOR OPERATION

3.1.3.7 The part length CEA group shall be limited to the insertion limits shown on Figure 3.1-3 with PLCEA insertion between the Long Term Steady State Insertion Limit and the Transient Insertion Limit restricted to:

- a. ≤ 5 Effective Full Power Days per 30 Effective Full Power Day Interval, and
- b. ≤ 14 Effective Full Power Days per calendar year.

APPLICABILITY: MODE 1*.

ACTION:

- a. With the part length CEA groups inserted beyond the Transient Insertion Limit, except for surveillance testing pursuant to Specification 4.1.3.1.2, within two hours either:
 1. Restore the part length CEA group to within the limits, or
 2. Reduce THERMAL POWER to less than or equal to that fraction of RATED THERMAL POWER which is allowed by the PLCEA group position using figure 3.1-3.
- b. With the part length CEA groups inserted between the Long Term Steady State Insertion Limit and the Transient Insertion Limit for intervals > 5 EFPD per 30 EFPD interval or > 14 EFPD per calendar year, either:
 1. Restore the part length group to within the Long Term Steady State Insertion Limits within two hours, or
 2. Be in at least HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENT

4.1.3.7 The position of the part length CEA group shall be determined to be within the Transient Insertion Limit at least once per 12 hours. The accumulated time during which the part length CEA group is inserted beyond the Long Term Steady State Insertion Limit but within the Transient Insertion Limit shall be determined at least once per 24 hours.

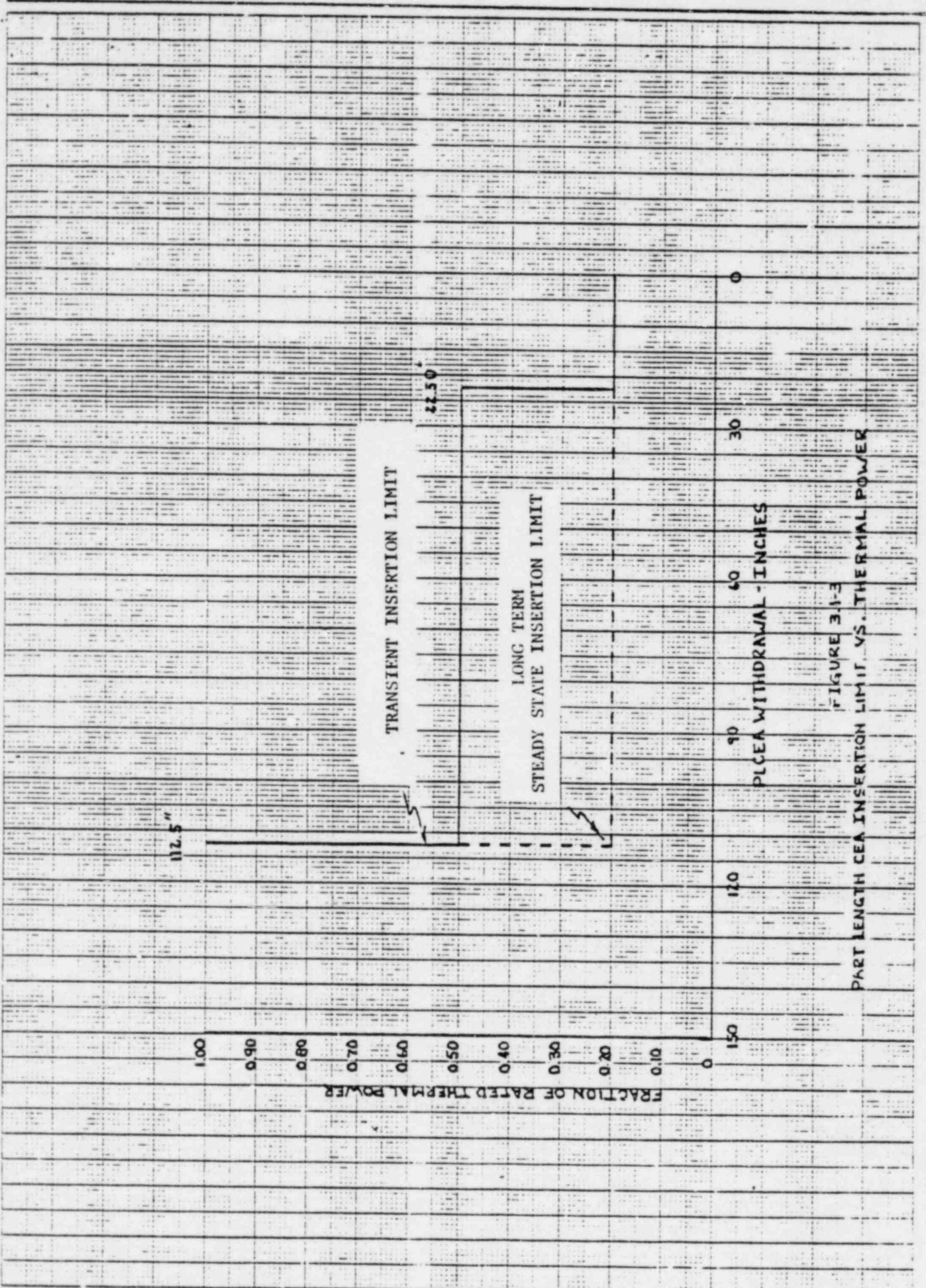


FIGURE 3-1-3
PART LENGTH CEA INSERTION LIMIT VS. THERMAL POWER
PLATE WITHDRAWAL - INCHES

3/4.10 SPECIAL TEST EXCEPTIONS

SHUTDOWN MARGIN

LIMITING CONDITION FOR OPERATION

3.10.1 The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 may be suspended for measurement of CEA worth and shutdown margin provided reactivity equivalent to at least the highest estimated CEA worth is available for trip insertion from OPERABLE CEA(s).

APPLICABILITY: MODE 2.

ACTION:

- a. With any full length CEA not fully inserted and with less than the above reactivity equivalent available for trip insertion, immediately initiate and continue boration at > 40 gpm of 1731 ppm boric acid solution or its equivalent until the SHUTDOWN MARGIN required by Specification 3.1.1.1 is restored.
- b. With all full length CEAs inserted and the reactor subcritical by less than the above reactivity equivalent, immediately initiate and continue boration at > 40 gpm of 1731 ppm boric acid solution or its equivalent until the SHUTDOWN MARGIN required by Specification 3.1.1.1 is restored.

SURVEILLANCE REQUIREMENTS

4.10.1.1 The position of each full length CEA required either partially or fully withdrawn shall be determined at least once per 2 hours.

4.10.1.2 Each CEA not fully inserted shall be demonstrated capable of full insertion when tripped from at least the 50% withdrawn position within 24 hours prior to reducing the SHUTDOWN MARGIN to less than the limits of Specification 3.1.1.1.

SPECIAL TEST EXCEPTIONS

GROUP HEIGHT, INSERTION AND POWER DISTRIBUTION LIMITS

LIMITING CONDITION FOR OPERATION

3.10.2 The group height, insertion and power distribution limits of Specifications 3.1.1.4, 3.1.3.1, 3.1.3.5, 3.1.3.6, 3.1.3.7, 3.2.2, 3.2.3, 3.2.7 and the Minimum Channels OPERABLE requirement of Functional Unit 15 of Table 3.3-1 may be suspended during the performance of PHYSICS TESTS provided:

- a. The THERMAL POWER is restricted to the test power plateau which shall not exceed 85% of RATED THERMAL POWER, and
- b. The limits of Specification 3.2.1 are maintained and determined as specified in Specification 4.10.2.2 below.

APPLICABILITY: During startup and PHYSICS TESTS.

ACTION:

With any of the limits of Specification 3.2.1 being exceeded while any of the above requirements are suspended, either:

- a. Reduce THERMAL POWER sufficiently to satisfy the requirements of Specification 3.2.1, or
- b. Be in HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.10.2.1 The THERMAL POWER shall be determined at least once per hour during PHYSICS TESTS in which any of the above requirements are suspended and shall be verified to be within the test power plateau.

4.10.2.2 The linear heat rate shall be determined to be within the limits of Specification 3.2.1 by monitoring it continuously with the Incore Detector Monitoring System pursuant to the requirements of Specifications 4.2.1.3 and 3.3.3.2 during PHYSICS TESTS above 5% of RATED THERMAL POWER in which any of the above requirements are suspended.

REACTIVITY CONTROL SYSTEMS

BASES

CEA positions and OPERABILITY of the CEA position indicators are required to be verified on a nominal basis of once per 12 hours with more frequent verifications required if an automatic monitoring channel is inoperable. These verification frequencies are adequate for assuring that the applicable LCOs are satisfied.

The maximum CEA drop time restriction is consistent with the assumed CEA drop time used in the accident analyses. Measurement with $T_{avg} \geq 525^{\circ}\text{F}$ and with all reactor coolant pumps operating ensures that the measured drop times will be representative of insertion times experienced during a reactor trip at operating conditions.

The establishment of LSSS and LCOs require that the expected long and short term behavior of the radial peaking factors be determined. The long term behavior relates to the variation of the steady state radial peaking factors with core burnup and is affected by the amount of CEA insertion assumed, the portion of a burnup cycle over which such insertion is assumed and the expected power level variation throughout the cycle. The short term behavior relates to transient perturbations to the steady-state radial peaks due to radial xenon redistribution. The magnitudes of such perturbations depend upon the expected use of the CEAs during anticipated power reductions and load maneuvering. Analyses are performed based on the expected mode of operation of the NSSS (base load, load following, etc.) and from these analyses CEA insertions are determined and a consistent set of radial peaking factors are defined. The Long Term Steady State and Short Term Insertion Limits are determined based upon the assumed mode of operation used in the analyses and provide a means of preserving the assumptions on CEA insertions used. The limits specified serve to limit the behavior of the radial peaking factors within the bounds determined from analysis. The actions specified serve to limit the extent of radial xenon redistribution effects to those accommodated in the analyses. The Long and Short Term Insertion Limits of Specifications 3.1.3.6 and 3.1.3.7 are specified for the plant which has been designed for primarily base loaded operation but which has the ability to accommodate a limited amount of load maneuvering.

The Transient Insertion Limits of Specification 3.1.3.6 and the Shutdown CEA Insertion Limit of Specification 3.1.3.5 ensure that 1) the minimum SHUTDOWN MARGIN is maintained, and 2) the potential effects of a CEA ejection accident are limited to acceptable levels. Long term operation at the Transient Insertion Limits is not permitted since such operation could have effects on the core power distribution which could invalidate assumptions used to determine the behavior of the radial peaking factors.