November 12, 1985

Docket No. 50-368

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Mr. John M. Griffin
Senior Vice President
Energy Supply
Arkansas Power & Light Company
P. O. Box 551
Little Rock, Arkansas 72203

Dear Mr. Griffin:

The Commission has issued the enclosed Amendment No. 70 to Facility Operating License No. NPF-6 for Arkansas Nuclear One, Unit No. 2. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated August 30, 1985.

The amendment changes the TS related to the Control Element Assemblies (CEA) to desensitize the CEA Calculator's response to CEA inward deviation events and to require a reduction in core power after the detection of a CEA deviation. In addition, a redundant surveillance requirement in TS 4.1.3.1.1 is being deleted.

A copy of the Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's next monthly Federal Register Notice.

Sincerely,

/S/

Robert Lee, Project Manager
Operating Reactors Branch #3
Division of Licensing

Enclosures:
1. Amendment No. 70 to NPF-6
2. Safety Evaluation

cc w/enclosures:
See next page

No legal Objection

ORB#3:DL	ORB#3:DL	ORB#3:DL	OELD	AD:OR:DL
for PMKreutzer	RSLee	EButcher	MCBunson	GCLainas
10/31/85	10/31/85	10/31/85	11/4/85	11/7/85

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Arkansas Nuclear One
Unit No. 2

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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. 70
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 August 30, 1985, 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. 70, 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

Edward J. Butcher, Acting Chief
Operating Reactors Branch #3
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 12, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 70

FACILTIY 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 areas of change. The corresponding overlead pages are also provided to maintain document completeness.

Remove Pages	Insert Pages
3/4 1-17	3/4 1-17
3/4 1-18	3/4 1-18
3/4 1-19	3/4 1-19
-	3/4 1-19a
3/4 2-10	3/4 2-10

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

CEA POSITION

LIMITING CONDITION FOR OPERATION

3.1.3.1 All full length (shutdown and regulating) CEAs, and all part length CEAs which are inserted in the core, shall be OPERABLE with each CEA of a given group positioned within 7 inches (indicated position) of all other CEAs in its group.

APPLICABILITY: MODES 1* and 2*.

ACTION:

a. With one or more full length CEAs inoperable due to being immovable as a result of excessive friction or mechanical interference or known to be untrippable, determine that the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied within 1 hour and be in at least HOT STANDBY within 6 hours.

b. With one full length CEA inoperable due to causes other than addressed by ACTION a, above, and inserted beyond the Long Term Steady State Insertion Limits but within its above specified alignment requirements, operation in MODES 1 and 2 may continue pursuant to the requirements of Specification 3.1.3.6.

c. With one full length CEA inoperable due to causes other than addressed by ACTION a, above, but within its above specified alignment requirements and either fully withdrawn or within the Long Term Steady State Insertion Limits if in full length CEA group 6, operation in MODES 1 and 2 may continue.

d. With one or more full length or part length CEAs misaligned from any other CEAs in its group by more than 7 inches but less than or equal to 19 inches, operation in MODES 1 and 2 may continue, provided that core power is reduced in accordance with Figure 3.1-1A and within 1 hour the misaligned CEA(s) is either:

   1. Restored to OPERABLE status within its above specified alignment requirements, or

*See Special Test Exceptions 3.10.2 and 3.10.4.

ACTION: (Continued)

2. Declared inoperable and the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied. After declaring the CEA inoperable, operation in MODES 1 and 2 may continue pursuant to the requirements of Specification 3.1.3.6 provided:

   a) Within one hour the remainder of the CEAs in the group with the inoperable CEA shall be aligned to within 7 inches of the inoperable CEA while maintaining the allowable CEA sequence and insertion limits shown on Figure 3.1-2; the THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.6 during subsequent operation.

   b) The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is determined at least once per 12 hours.

Otherwise, be in at least HOT STANDBY within 6 hours.

e. With one full length or part length CEA misaligned from any other CEA in its group by more than 19 inches, operation in MODES 1 and 2 may continue, provided that core power is reduced in accordance with Figure 3.1-1A within one hour the misaligned CEA is either:

   1. Restored to OPERABLE status within its above specified alignment requirements, or

   2. Declared inoperable and the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied. After declaring the CEA inoperable, operation in MODES 1 and 2 may continue pursuant to the requirements of Specification 3.1.3.6 provided:

      a) Within one hour the remainder of the CEAs in the group with the inoperable CEA shall be aligned to within 7 inches of the inoperable CEA while maintaining the allowable CEA sequence and insertion limits shown on Figure 3.1-2; the THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.6 during subsequent operation.

      b) The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is determined at least one per 12 hours.

Otherwise, be in at least HOT STANDBY within 6 hours.

ACTION: (Continued)

f. With one part length CEA inoperable and inserted in the core, operation may continue provided the alignment of the inoperable PLCEA is maintained within 7 inches (indicated position) of all other PLCEAs in its group.

g. With more than one full length or part length CEA inoperable or misaligned from any other CEA in its group by more than 19 inches (indicated position), be in at least HOT STANDBY within 6 hours.

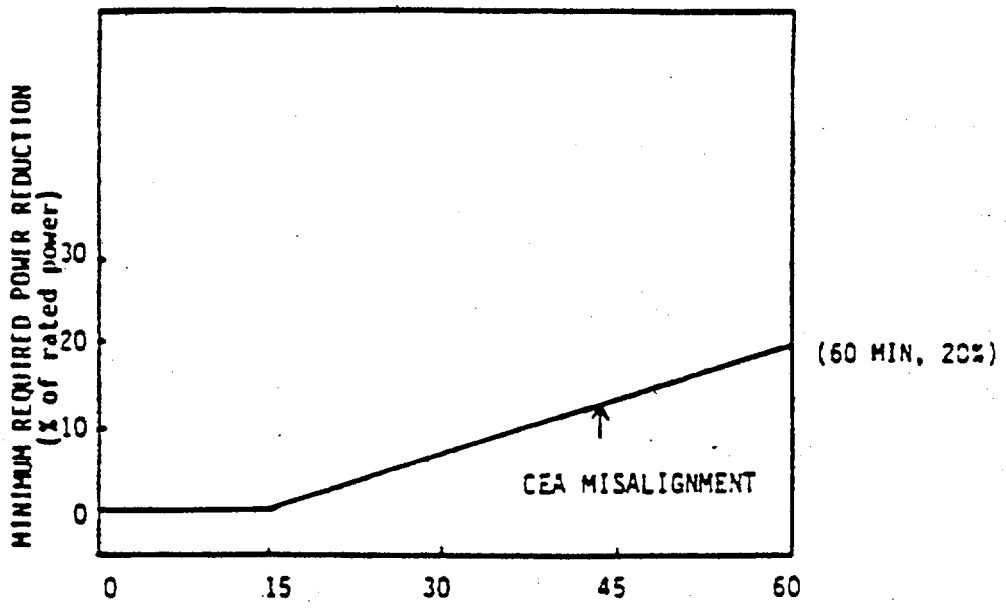
SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The position of each full length and part length CEA shall be determined to be within 7 inches (indicated position) of all other CEAs in its group at least once per 12 hours,

4.1.3.1.2 Each full length CEA not fully inserted and each part length CEA which is inserted in the core shall be determined to be OPERABLE by movement of at least 5 inches in any one direction at least once per 31 days.

FIGURE 3.1 - 1A

Required Power Reduction After CEA Deviation*



* When core power is reduced to 60% of rated power per this limit curve, further reduction is not required by this specification.

REACTIVITY CONTROL SYSTEMS

POSITION INDICATOR CHANNELS - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.3.2 At least two of the following three CEA position indicator channels shall be OPERABLE for each CEA:

a. CEA Reed Switch Position Transmitter (RSPT 1) with the capability of determining the absolute CEA positions within 5 inches,

b. CEA Reed Switch Position Transmitter (RSPT 2) with the capability of determining the absolute CEA positions within 5 inches, and

c. The CEA pulse counting position indicator channel.

APPLICABILITY: MODES 1 and 2.

ACTION:

With a maximum of one CEA per CEA group having only one of the above required CEA position indicator channels OPERABLE, within 6 hours either:

a. Restore the inoperable position indicator channel to OPERABLE status, or

b. Be in at least HOT STANDBY, or

c. Position the CEA group(s) with the inoperable position indicator(s) at its fully withdrawn position while maintaining the requirements of Specifications 3.1.3.1 and 3.1.3.6. Operation may then continue provided the CEA group(s) with the inoperable position indicator(s) is maintained fully withdrawn, except during surveillance testing pursuant to the requirements of Specification 4.1.3.1.2, and each CEA in the group(s) is verified fully withdrawn at least once per 12 hours thereafter by its "Full Out" limit.

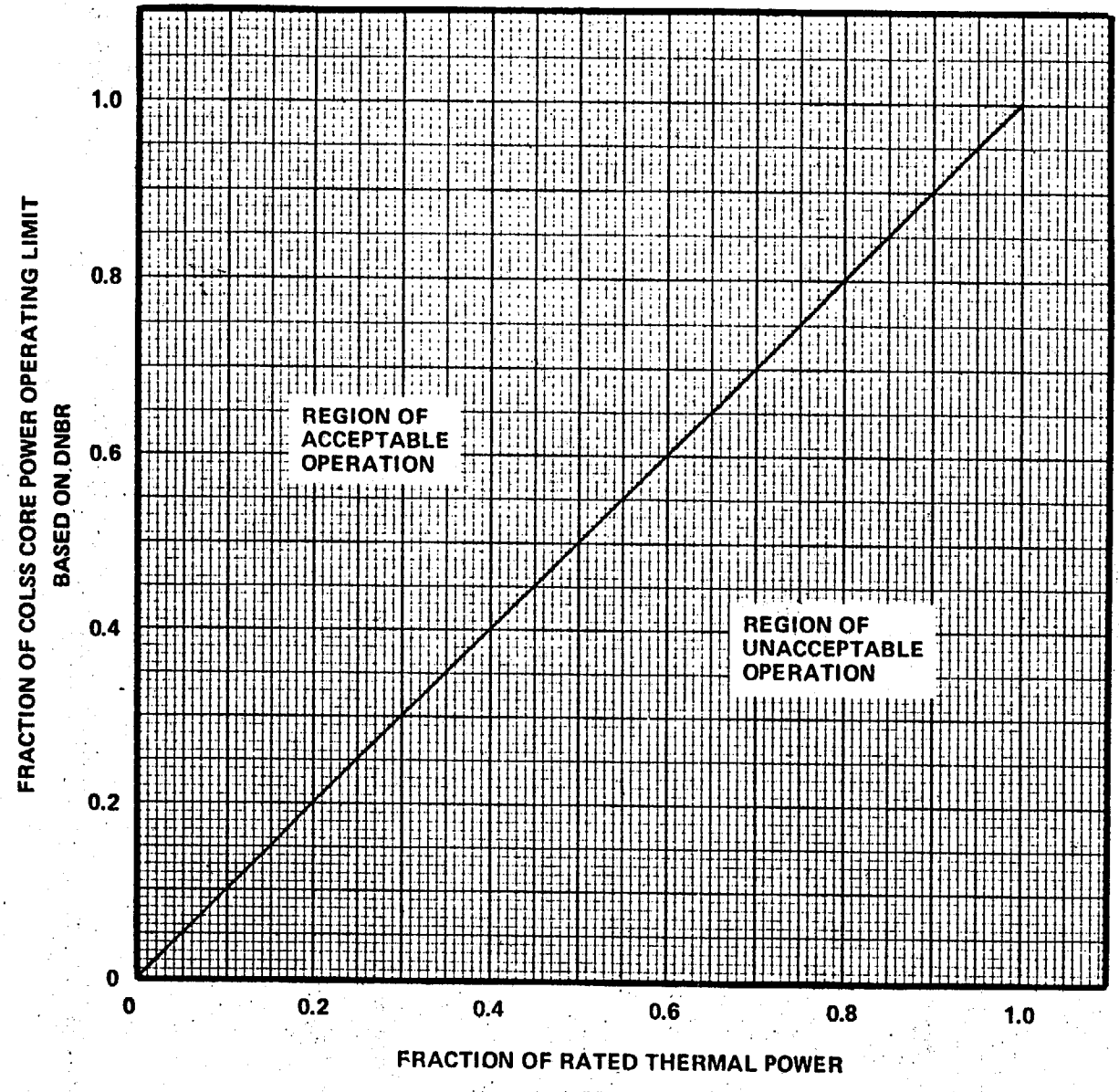


Figure 3.2-3

DNBR Margin Operating Limit Based on COLSS

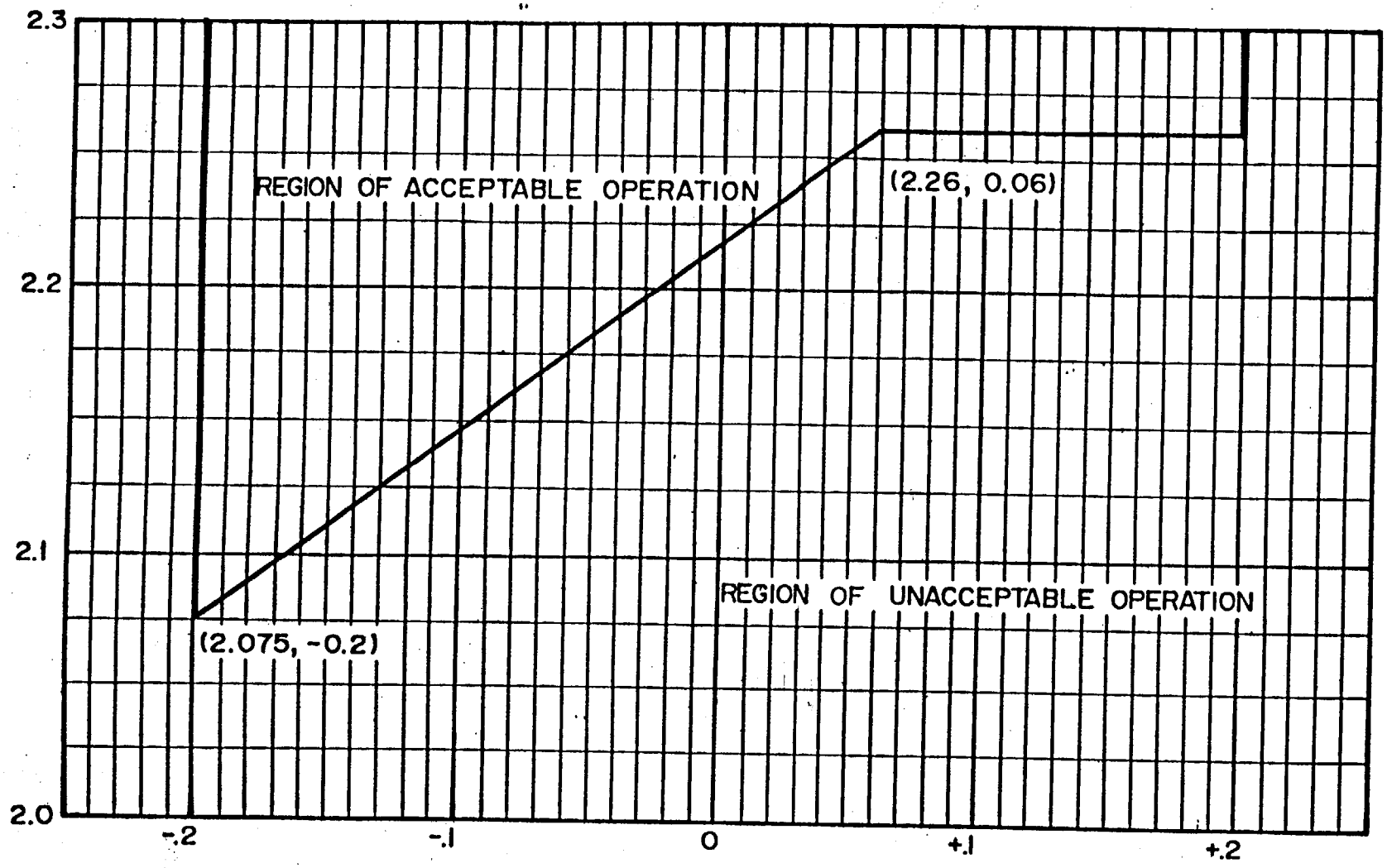


FIGURE 3.2-4
DNBR MARGIN OPERATING LIMIT BASED ON CORE PROTECTION CALCULATORS
(COLSS OUT OF SERVICE)

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 70 TO FACILITY OPERATING LICENSE NO. NPF-6

ARKANSAS POWER & LIGHT COMPANY

ARKANSAS NUCLEAR ONE, UNIT 2

DOCKET NO. 50-368

1. INTRODUCTION

By letter dated August 30, 1985 (Ref. 1), Arkansas Power and Light Company requested changes to the Technical Specifications for Arkansas Nuclear One, Unit 2. These changes are:

(1) Revision of Technical Specification 3.1.3.1 by adding a new Figure 3.1-1A which requires a power reduction when one or more full length or part length CEA's is misaligned from other CEA's in its group by a certain length.

(2) Revision of Figure 3.2-4 in Technical Specification 3.2.4, Limiting Condition for Operation on DNBR Margin, by increasing the DNBR margin operating limit by 0.1 in DNBR.

(3) Deletion of a redundant requirement in Surveillance Requirement 4.1.3.1.1 which required the CEA position to be verified once per 4 hours when one or two CEAC's are inoperable.

These changes are related to an ongoing Core Protection Calculator (CPC) Improvement Program to be implemented by the CE Oversight Committee formed by the utilities having CE plants equipped with CPC's. A part of the proposed CPC improvement is to desensitize the CEAC's response to electrical noise which has been interpreted by the CEAC's logic as a significant inward CEA deviation and has resulted in unnecessary reactor trips due to the application of large inward CEA deviation penalty factors (PF) to the CPC calculations of DNBR and local power density. The CPC improvement program requires that the inward CEA deviation PFs be reduced to 1.0 to avoid the unnecessary trips. The safety margin of the power operation limit is credited to compensate for the reduction in CEA deviation PFs and, if necessary, a reactor power reduction is required per Technical Specifications. This CPC inward CEA deviation PF reduction has been approved and implemented in the San Onofre Units 2 and 3. The first two changes are necessary to accommodate the planned reduction of the inward CEA deviation PFs in the ANO-2 CPCs. The third change is merely to eliminate a redundancy in the Surveillance Requirement. Our evaluation of these Technical Specification changes follows.

2.0 STAFF EVALUATION

Technical Specification 3.1.3.1, Limiting Condition for Operation on Movable Control Assemblies, will be revised. The revision is to add a new Figure 3.1-1A and add an additional requirement in Actions d and e for a power reduction in accordance with Figure 3.1-1A for the reactor operation to be continued when one or more full length or part length CEA's are misaligned from other CEA's in its group by the specified length. This revision in essence is more restrictive than the existing Technical Specification. However, since the purpose of this additional restriction is to compensate for the planned reduction in the CPC inward CEA deviation PFs to 1.0, the increased operating safety margin resulting from this added restriction must be large enough to compensate for the safety margin degradation resulting from the reduction of the inward CEA deviation PFs. Even though the same approach has been made and approved for San Onofre Units 2 and 3, the staff requested an analysis specific to ANO-2. In response to a staff question, the licensee provided a brief analysis (Ref. 2). It shows that the required overpower margin reserved by the COLSS (Core Operating Limit Supervisory System) power operating limit provides sufficient margin to compensate for the penalty factors required for the first 15 minutes after a CEA deviation. After 15 minutes, the ROPM is not large enough to compensate for the required CEA deviation PF resulting from the dynamic xenon redistribution and therefore a power reduction is required. The analysis also shows that the combination of the COLSS ROPM and the power reduction in accordance with Figure 3.1-1A is large enough to compensate for the required PFs beyond 15 minutes of the CEA deviation. Therefore, continued operation in accordance with the proposed Technical Specification change to LCO 3.1.3.1 provides assurance that the specific acceptable fuel design limits will not be exceeded subsequent to an inward CEA deviation event. The proposed change to Technical Specification 3.1.3.1 is thus acceptable.

Technical Specification 3.2.4, Limiting Condition for Operation on DNBR margin, will be revised by modifying Figure 3.2.4. Figure 3.2.4, DNBR margin Operating Limit based on CPCs, specifies the minimum allowable DNBR calculated by CPC as a function of axial shape index (ASI) when COLSS is out of service. The modification increases the minimum allowable DNBR by 0.1. This revision, in essence, imposes a more stringent limit on the LCO. However, this additional restriction is necessary since the COLSS required overpower margin is not available when the COLSS is out of service. The licensee has determined that limiting the reactor operation in accordance with the new Figure 3.2-4, provides sufficient margin to compensate for the required inward CEA deviation PFs, and therefore the SAFDLs will not be exceeded for an inward CEA deviation event. Therefore, we conclude that the proposed change to Figure 3.2.4 is acceptable.

Surveillance Requirement 4.1.3.1.1 will be revised by deleting a statement which requires that the CEA position be verified once per 4 hours during the time intervals when one or both CEACs are inoperable. However, Action 5 in Table 3.3-1, Reactor Protective Instrumentation, also requires that with one or both CEAC's inoperable, at least once per 4 hours, all full length and part length CEAs be verified to be within 7 inches of all other CEAs in its group. Therefore, the statement in SR 4.1.3.1.1 is redundant and the deletion of this statement is acceptable based on the evaluations presented in the preceding section.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes in a surveillance requirement. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously published a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR §51.22(c)(9). Pursuant to 10 CFR §51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

4.0 CONCLUSION

We have concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: November 12, 1985

Principal Contributor:
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