



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

January 9, 1985

Docket Nos. 50-361 and 50-362

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Mr. James C. Holcombe
Vice President - Power Supply
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Gentlemen:

Subject: Issuance of Amendment No. 30 to Facility Operating License NPF-10
and Amendment No. 19 to Facility Operating License NPF-15
San Onofre Nuclear Generating Station, Units 2 and 3

The Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 30 to Facility Operating License No. NPF-10 and Amendment No. 19 to Facility Operating License No. NPF-15 for the San Onofre Nuclear Generating Station, Units 2 and 3, located in San Diego County, California. The amendments modify the Technical Specification 3.1.3, "Movable Control Element Assemblies," to (1) require a reduction in core power after the detection of a CEA deviation, (2) require that the regulating CEA groups be limited to the withdrawal sequence and to the insertion limits of Figure 3.1-2 when COLSS is in service and to the short term steady state insertion limits when COLSS is out of service, and (3) restrict part length CEA positions to the core power dependent insertion limits.

These amendments were requested by your letters of April 10, August 1 and August 7, 1984, and are covered by proposed changes numbered 138.

A copy of the Safety Evaluation supporting the amendments is also enclosed.

Sincerely,

8502050482 850109
PDR ADOCK 05000361
P PDR

George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing

Enclosures:

1. Amendment No. 30 to NPF-10
2. Amendment No. 19 to NPF-15
3. Safety Evaluation

cc w/enclosures: See next page

DL:LB#3
JLee:yt
12/17/84

DL:LB#3
HRood
12/17/84

OELD
12/16/84

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

SOUTHERN CALIFORNIA EDISON COMPANY

SAN DIEGO GAS AND ELECTRIC COMPANY

THE CITY OF RIVERSIDE, CALIFORNIA

THE CITY OF ANAHEIM, CALIFORNIA

DOCKET NO. 50-361

SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 30
License No. NPF-10

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The applications for amendment to the license for San Onofre Nuclear Generating Station, Unit 2 (the facility) filed by the Southern California Edison Company on behalf of itself and San Diego Gas and Electric Company, The City of Riverside and The City of Anaheim, California (licensees) dated April 10, August 1 and August 7, 1984, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations as set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the applications, as amended, the provisions of the Act, and the 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 set forth in 10 CFR Chapter I;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public;

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PDR ADOCK 05000361
PDR

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-10 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 30, are hereby incorporated in the license. SCE shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION



George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 9, 1985

- 3 -

ATTACHMENT TO LICENSE AMENDMENT NO. 30FACILITY OPERATING LICENSE NO. NPF-10DOCKET NO. 50-361

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. Also to be replaced are the following overleaf pages to the amended pages.

<u>Amendment Pages</u>	<u>Overleaf Pages</u>
3/4 1-15	-
3/4 1-16	-
3/4 1-17a	3/4 1-17
3/4 1-22	3/4 1-21
3/4 1-23	3/4 1-24
3/4 1-25	-
3/4 1-26	-

Pages 3/4 1-18 and 3/4 1-19 are reissued without change.

REACTIVITY CONTROL SYSTEMS

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 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.
- c. 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 and that 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 once per 12 hours.

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

* See Special Test Exceptions 3.10.2 and 3.10.4.

REACTIVITY CONTROL SYSTEMS

ACTION: (Continued)

- 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 that within one hour the misaligned CEA(s) 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 once per 12 hours.
- Otherwise, be in at least HOT STANDBY within 6 hours.
- e. 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.
- f. 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 withdrawn to greater than or equal to 145 inches or within the Long Term Steady State Insertion Limits if in full length CEA group 6, operation in MODES 1 and 2 may continue.
- g. With one part length CEA inoperable and inserted in the core, operation may continue provided the alignment of the inoperable part length CEA is maintained within 7 inches (indicated position) of all other part length CEAs in its group.

REACTIVITY CONTROL SYSTEMS

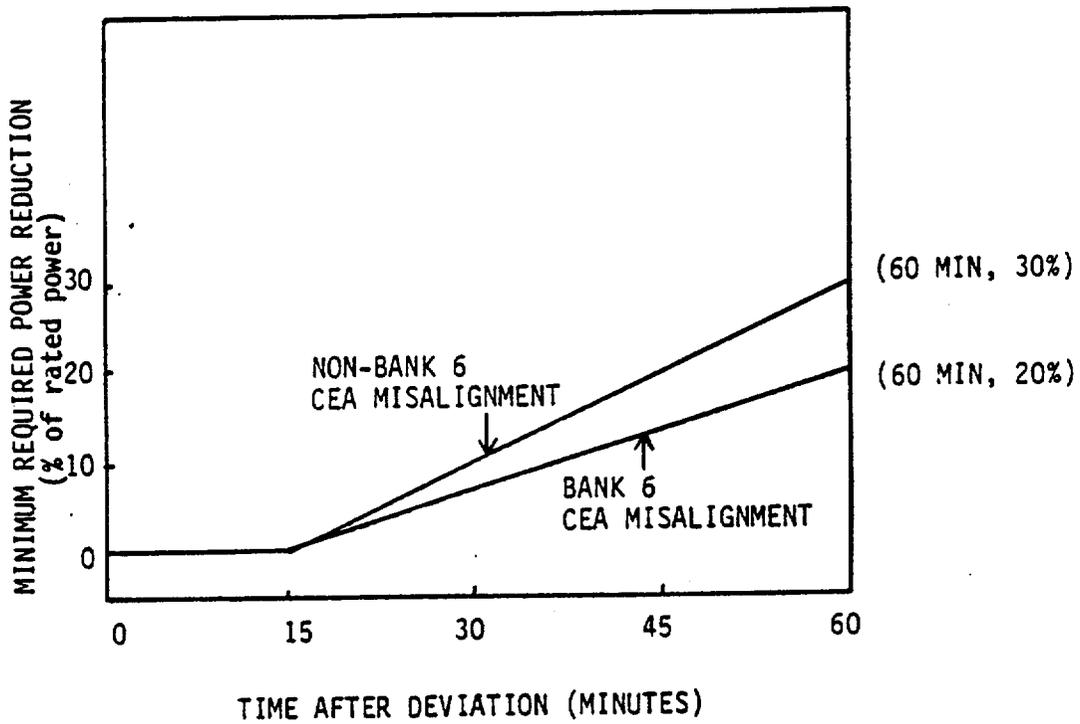
SURVEILLANCE REQUIREMENTS

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 except during time intervals when one CEAC is inoperable or when both CEACs are inoperable, then verify the individual CEA positions at least once per 4 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.

SURVEILLANCE REQUIREMENTS

4.1.3.2 Each of the above required position indicator channels shall be determined to be OPERABLE by verifying that for the same CEA, the position indicator channels agree within 5 inches of each other at least once per 12 hours.

REACTIVITY CONTROL SYSTEMS

POSITION INDICATOR CHANNEL - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.3.3 At least one CEA Reed Switch Position Transmitter indicator channel shall be OPERABLE for each shutdown, regulating or part length CEA not fully inserted.

APPLICABILITY: MODES 3*, 4* and 5*.

ACTION:

With less than the above required position indicator channel(s) OPERABLE, immediately open the reactor trip breakers.

SURVEILLANCE REQUIREMENTS

4.1.3.3 Each of the above required CEA Reed Switch Position Transmitter indicator channel(s) shall be determined to be OPERABLE by performance of a CHANNEL FUNCTIONAL TEST at least once per 18 months.

* With the reactor trip breakers in the closed position.

REACTIVITY CONTROL SYSTEMS

SHUTDOWN CEA INSERTION LIMIT

LIMITING CONDITION FOR OPERATION

3.1.3.5 All shutdown CEAs shall be withdrawn to greater than or equal to 145 inches.

APPLICABILITY: MODES 1 and 2*#.

ACTION:

With a maximum of one shutdown CEA withdrawn to less than 145 inches, except for surveillance testing pursuant to Specification 4.1.3.1.2, within one hour either:

- a. Withdraw the CEA to greater than or equal to 145 inches, or
- b. Declare the CEA inoperable and apply Specification 3.1.3.1.

SURVEILLANCE REQUIREMENTS

4.1.3.5 Each shutdown CEA shall be determined to be withdrawn to greater than or equal to 145 inches:

- a. Within 15 minutes prior to withdrawal of any CEAs in regulating groups during an approach to reactor criticality, and
- b. At least once per 12 hours thereafter.

* See Special Test Exception 3.10.2.

With K_{eff} greater than or equal to 1.0.

REACTIVITY CONTROL SYSTEMS

REGULATING CEA INSERTION LIMITS

LIMITING CONDITION FOR OPERATION

3.1.3.6

- a. When COLSS is in-service, the regulating CEA groups shall be limited to the withdrawal sequence and to the insertion limits shown on Figure 3.1-2. The CEA insertion between the Long Term Steady State Insertion Limits and the Transient Insertion Limits is restricted to:
1. Less than or equal to 4 hours per 24 hour interval,
 2. Less than or equal to 5 Effective Full Power Days per 30 Effective Full Power Day Interval, and
 3. Less than or equal to 14 Effective Full Power Days per calendar year.
- b. When COLSS is out-of-service, the regulating CEA groups shall be limited to the Short Term Steady State Insertion Limit shown on Figure 3.1-2. The CEA insertion between the Long Term Steady State Insertion Limits and the Short Term Steady State Insertion Limits is restricted to:
1. Less than or equal to 4 hours per 24 hour interval,
 2. Less than or equal to 5 Effective Full Power Days per 30 Effective Full Power Day Interval, and
 3. Less than or equal to 14 Effective Full Power Days per calendar year.

APPLICABILITY: MODES 1* and 2*#.

ACTION:

When COLSS is in service and

- a. With the regulating CEA groups inserted beyond the Transient Insertion Limits, 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.

* See Special Test Exceptions 3.10.2 and 3.10.4.

With K_{eff} greater than or equal to 1.0.

REACTIVITY CONTROL SYSTEMS

ACTION: (Continued)

- b. With the regulating CEA groups inserted between the Long Term Steady State Insertion Limits and the Transient Insertion Limits for intervals greater than 4 hours per 24 hour interval, operation may proceed provided either:
 1. The Short Term Steady State Insertion Limits of Figure 3.1-2 are not exceeded, or
 2. Any subsequent increase in THERMAL POWER is restricted to less than or equal to 5% of RATED THERMAL POWER per hour.
- c. With the regulating CEA groups inserted between the Long Term Steady State Insertion Limits and the Transient Insertion Limits for intervals greater than 5 EFPD per 30 EFPD interval or greater than 14 EFPD per calendar year, either:
 1. Restore the regulating groups to within the Long Term Steady State Insertion Limits within two hours, or
 2. Be in at least HOT STANDBY within 6 hours.

When COLSS is out of service and the regulating CEA groups are inserted beyond the Short Term Steady State Insertion Limit except for Surveillance testing pursuant to Specification 4.1.3.1.2, within two hours either:

- a. Restore the regulating CEA group to within the limit, or
- b. Reduce thermal power to less than or equal to the fraction of Rated Thermal Power which is allowed by the CEA group position and the Short Term Steady State Insertion Limit.

SURVEILLANCE REQUIREMENTS

4.1.3.6 The position of each regulating CEA group shall be determined to be within the Transient Insertion Limits at least once per 12 hours except during time intervals when the PDIL Auctioneer Alarm Circuit 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 Limits but within the Transient Insertion Limits shall be determined at least once per 24 hours.

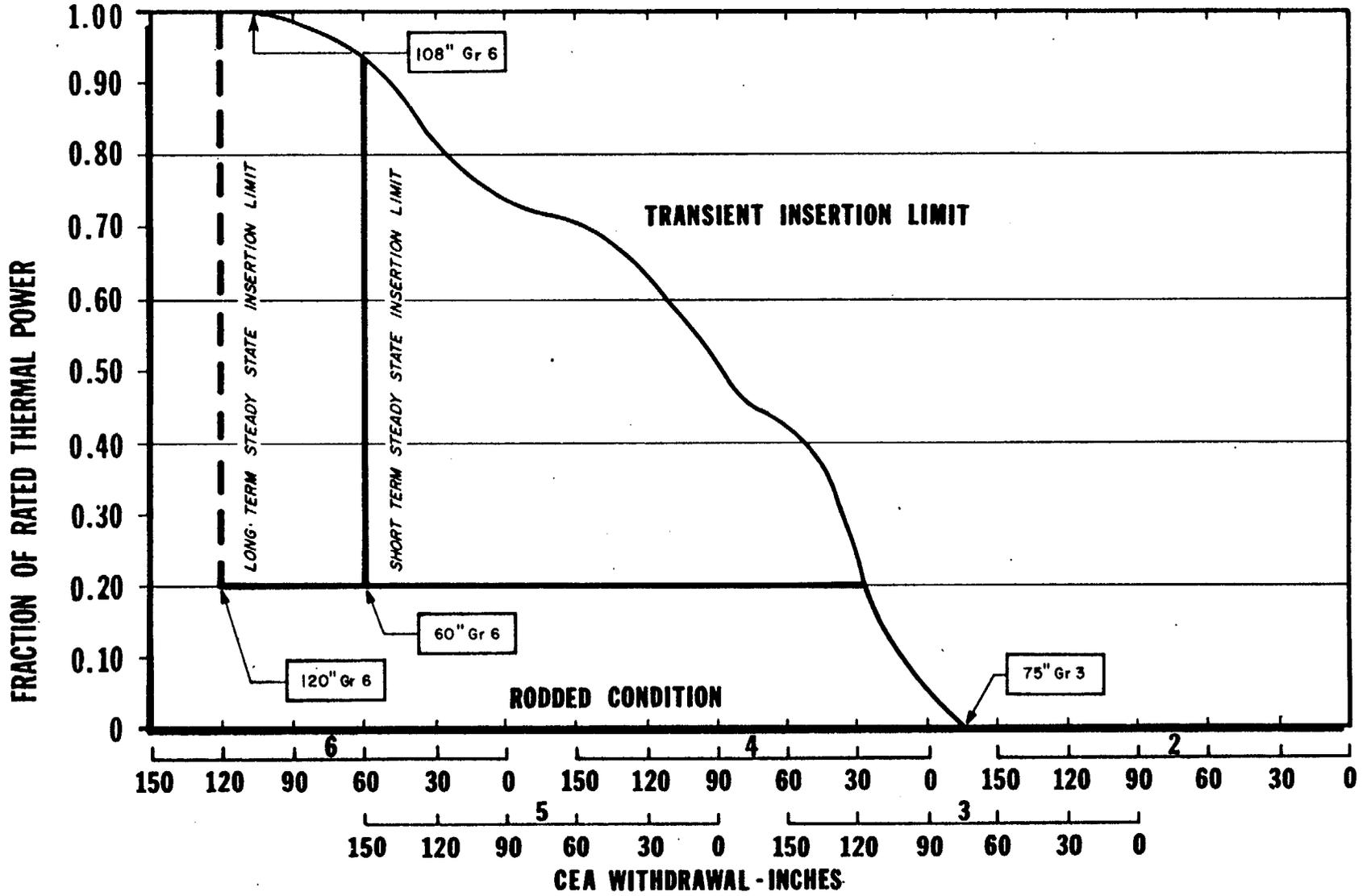


Figure 3.1-2

REACTIVITY CONTROL SYSTEMS

PART LENGTH CEA INSERTION LIMITS

LIMITING CONDITION FOR OPERATION

3.1.3.7 The position of the part length CEA group shall be restricted to prevent the neutron absorber section of the part length CEA group from covering the same axial segment of the fuel assemblies for a period in excess of 7 EFPD out of any 30 EFPD period. The position of the part length CEA group shall also be limited to the insertion limits shown on Figure 3.1-3.

APPLICABILITY: MODES 1 and 2.

ACTION:

With the neutron absorber section of the part length CEA group covering any same axial segment of the fuel assemblies for a period exceeding 7 EFPD out of any 30 EFPD period, either:

- a. Reposition the part length CEA group to ensure no neutron absorber section of the part length CEA group is covering the same axial segment of the fuel assemblies within 2 hours, or
- b. Be in at least HOT STANDBY within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.7 The position of the part length CEA group shall be determined at least once per 12 hours.

Figure 3.1-3 PART 1 CEA INSERTION LIMIT vs. THERMAL POWER

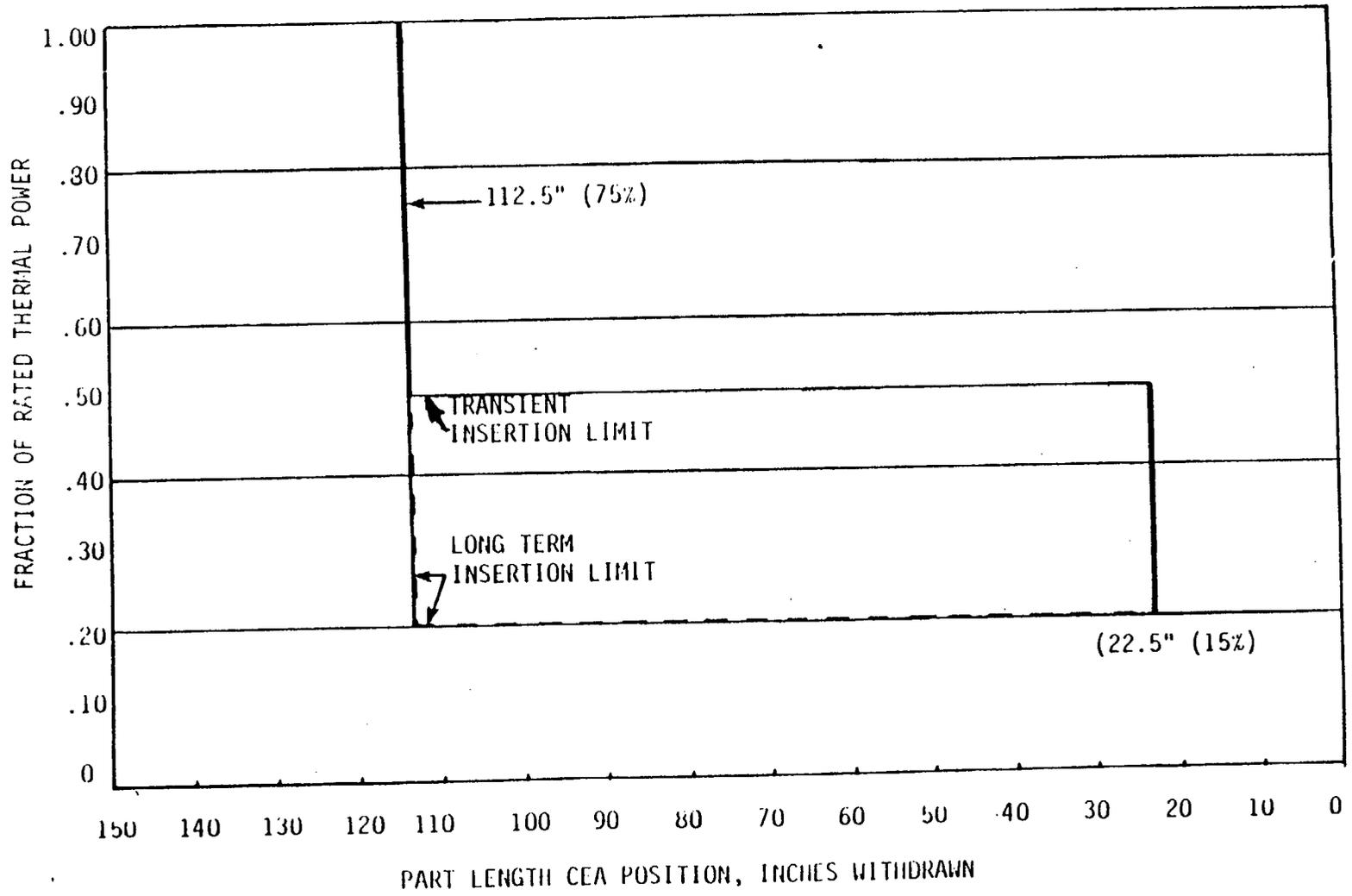


Figure 3.1-3



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

SOUTHERN CALIFORNIA EDISON COMPANY

SAN DIEGO GAS AND ELECTRIC COMPANY

THE CITY OF RIVERSIDE, CALIFORNIA

THE CITY OF ANAHEIM, CALIFORNIA

DOCKET NO. 50-362

SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 19
License No. NPF-15

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The applications for amendment to the license for San Onofre Nuclear Generating Station, Unit 3 (the facility) filed by the Southern California Edison Company on behalf of itself and San Diego Gas and Electric Company, The City of Riverside and The City of Anaheim, California (licensees) dated April 10, August 1 and August 7, 1984, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations as set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the applications, as amended, the provisions of the Act, and the 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 set forth in 10 CFR Chapter I;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public;

- 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-15 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 19, are hereby incorporated in the license. SCE shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION



George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 9, 1985

- 3 -

ATTACHMENT TO LICENSE AMENDMENT NO. 19FACILITY OPERATING LICENSE NO. NPF-15DOCKET NO. 50-362

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. Also to be replaced are the following overleaf pages to the amended pages.

<u>Amendment Pages</u>	<u>Overleaf Pages</u>
3/4 1-15	-
3/4 1-16	-
3/4 1-17a	3/4 1-17
3/4 1-22	3/4 1-21
3/4 1-23	3/4 1-24
3/4 1-25	-
3/4 1-26	-

Page 3/4 1-18 is reissued without change.

REACTIVITY CONTROL SYSTEMS

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 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.
- c. 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 and that 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 once per 12 hours.

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

* See Special Test Exceptions 3.10.2 and 3.10.4.

REACTIVITY CONTROL SYSTEMS

ACTION: (Continued)

- 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 that within one hour the misaligned CEA(s) 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 once per 12 hours.
- Otherwise, be in at least HOT STANDBY within 6 hours.
- e. 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.
- f. 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 withdrawn to greater than or equal to 145 inches or within the Long Term Steady State Insertion Limits if in full length CEA group 6, operation in MODES 1 and 2 may continue.
- g. With one part length CEA inoperable and inserted in the core, operation may continue provided the alignment of the inoperable part length CEA is maintained within 7 inches (indicated position) of all other part length CEAs in its group.

REACTIVITY CONTROL SYSTEMS

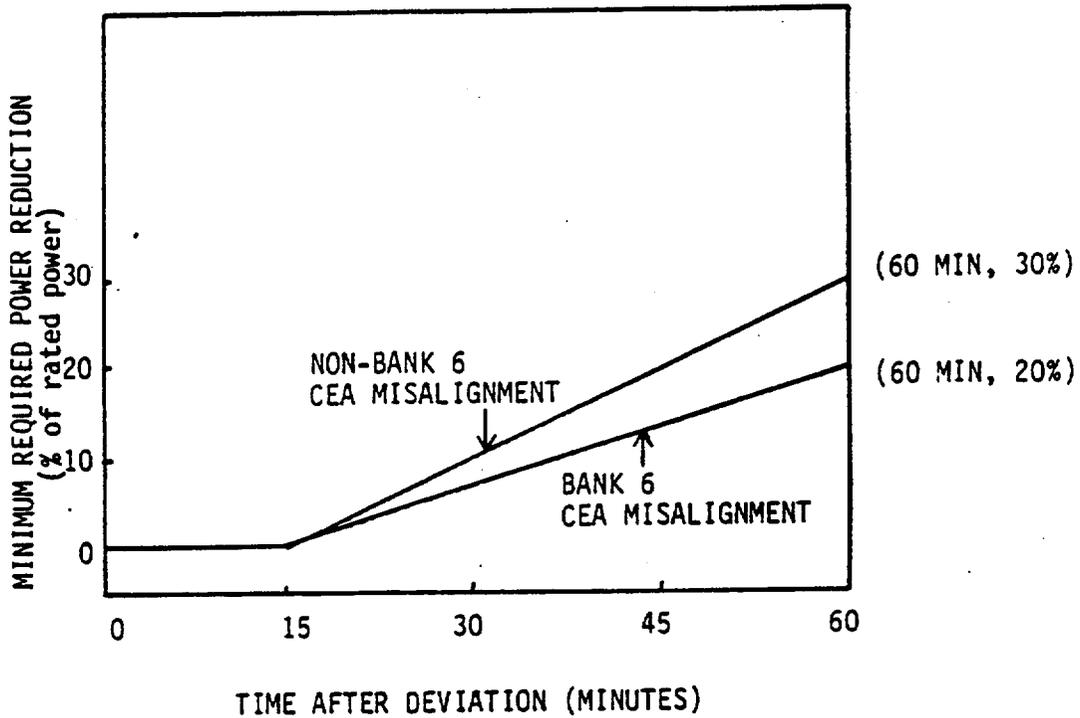
SURVEILLANCE REQUIREMENTS

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 except during time intervals when one CEAC is inoperable or when both CEACs are inoperable, then verify the individual CEA positions at least once per 4 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.

SURVEILLANCE REQUIREMENTS

4.1.3.2 Each of the above required position indicator channels shall be determined to be OPERABLE by verifying that for the same CEA, the position indicator channels agree within 5 inches of each other at least once per 12 hours.

REACTIVITY CONTROL SYSTEMS

SHUTDOWN CEA INSERTION LIMIT

LIMITING CONDITION FOR OPERATION

3.1.3.5 All shutdown CEAs shall be withdrawn to greater than or equal to 145 inches.

APPLICABILITY: MODES 1 and 2*#.

ACTION:

With a maximum of one shutdown CEA withdrawn to less than 145 inches, except for surveillance testing pursuant to Specification 4.1.3.1.2, within one hour either:

- a. Withdraw the CEA to greater than or equal to 145 inches, or
- b. Declare the CEA inoperable and apply Specification 3.1.3.1.

SURVEILLANCE REQUIREMENTS

4.1.3.5 Each shutdown CEA shall be determined to be withdrawn to greater than or equal to 145 inches:

- a. Within 15 minutes prior to withdrawal of any CEAs in regulating groups during an approach to reactor criticality, and
- b. At least once per 12 hours thereafter.

* See Special Test Exception 3.10.2.

With K_{eff} greater than or equal to 1.0.

REACTIVITY CONTROL SYSTEMS

REGULATING CEA INSERTION LIMITS

LIMITING CONDITION FOR OPERATION

3.1.3.6

- a. When COLSS is in-service, the regulating CEA groups shall be limited to the withdrawal sequence and to the insertion limits shown on Figure 3.1-2. The CEA insertion between the Long Term Steady State Insertion Limits and the Transient Insertion Limits is restricted to:
 - 1. Less than or equal to 4 hours per 24 hour interval,
 - 2. Less than or equal to 5 Effective Full Power Days per 30 Effective Full Power Day interval, and
 - 3. Less than or equal to 14 Effective Full Power Days per calendar year.

- a. When COLSS is out-of-service, the regulating CEA groups shall be limited to the Short Term Steady State Insertion Limit shown on Figure 3.1-2. The CEA insertion between the Long Term Steady State Insertion Limits and the Short Term Steady State Insertion Limits is restricted to:
 - 1. Less than or equal to 4 hours per 24 hour interval,
 - 2. Less than or equal to 5 Effective Full Power Days per 30 Effective Full Power Day interval, and
 - 3. Less than or equal to 14 Effective Full Power Days per calendar year.

APPLICABILITY: MODES 1* and 2*#.

ACTION:

When COLSS is in service and

- a. With the regulating CEA groups inserted beyond the Transient Insertion Limits, 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.

* See Special Test Exceptions 3.10.2 and 3.10.4.

With K_{eff} greater than or equal to 1.0.

REACTIVITY CONTROL SYSTEMS

ACTION: (Continued)

- b. With the regulating CEA groups inserted between the Long Term Steady State Insertion Limits and the Transient Insertion Limits for intervals greater than 4 hours per 24 hour interval, operation may proceed provided either:
 1. The Short Term Steady State Insertion Limits of Figure 3.1-2 are not exceeded, or
 2. Any subsequent increase in THERMAL POWER is restricted to less than or equal to 5% of RATED THERMAL POWER per hour.
- c. With the regulating CEA groups inserted between the Long Term Steady State Insertion Limits and the Transient Insertion Limits for intervals greater than 5 EFPD per 30 EFPD interval or greater than 14 EFPD per calendar year, either:
 1. Restore the regulating groups to within the Long Term Steady State Insertion Limits within two hours, or
 2. Be in at least HOT STANDBY within 6 hours.

When COLSS is out of service and the regulating CEA groups are inserted beyond the Short Term Steady State Insertion Limit except for surveillance testing pursuant to Specification 4.1.3.1.2, within two hours either:

- a. Restore the regulating CEA group to within the limit, or
- b. Reduce thermal power to less than or equal to that fraction of Rated Thermal Power which is allowed by the CEA group position and the Short Term Steady State Insertion Limit.

SURVEILLANCE REQUIREMENTS

4.1.3.6 The position of each regulating CEA group shall be determined to be within the Transient Insertion Limits at least once per 12 hours except during time intervals when the PDIL Auctioneer Alarm Circuit 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 Limits but within the Transient Insertion Limits shall be determined at least once per 24 hours.

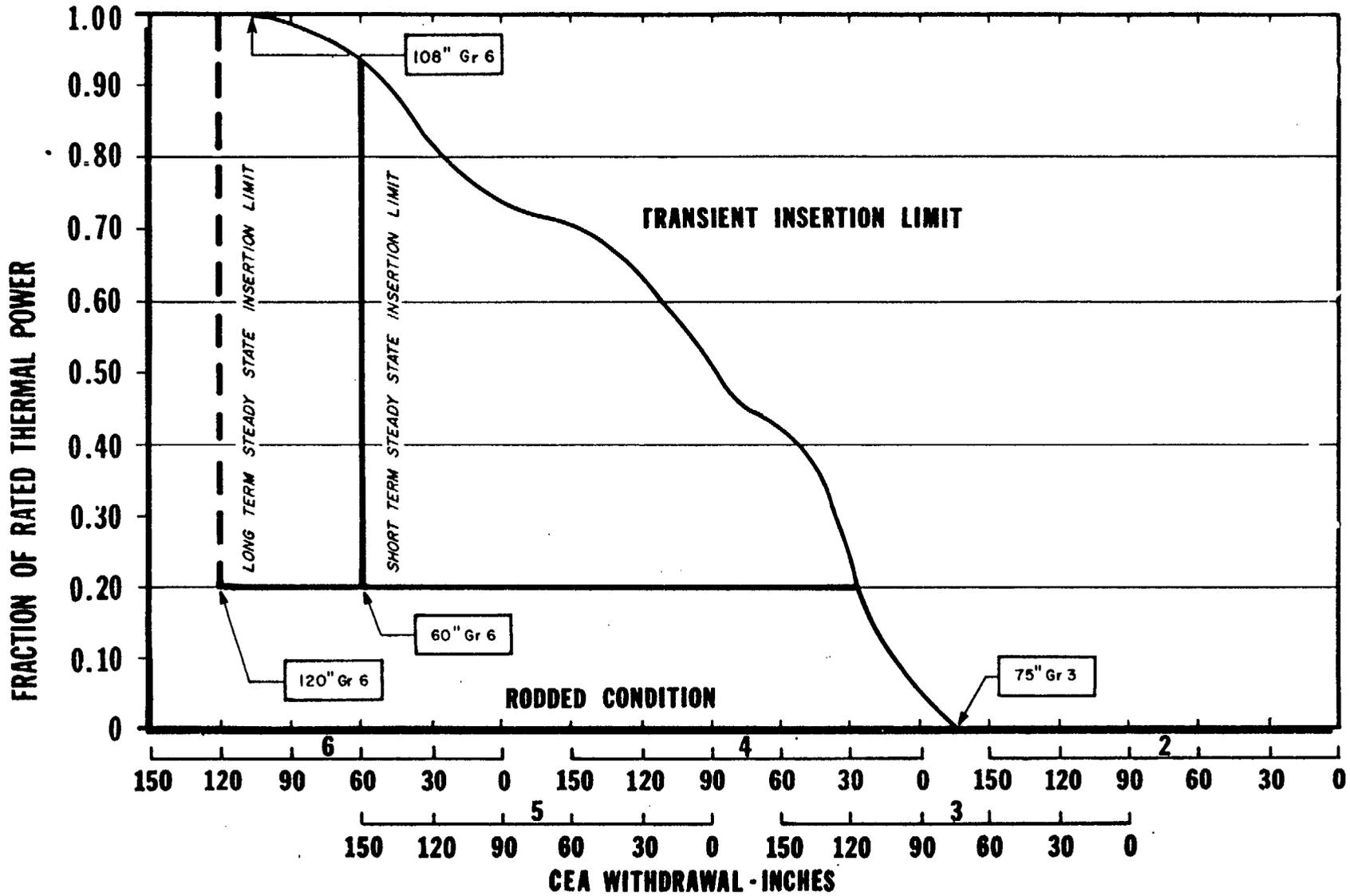


Figure 3.1-2
CEA insertion limits vs fraction
of allowable thermal power

REACTIVITY CONTROL SYSTEMS

PART LENGTH CEA INSERTION LIMITS

LIMITING CONDITION FOR OPERATION

3.1.3.7 The position of the part length CEA group shall be restricted to prevent the neutron absorber section of the part length CEA group from covering the same axial segment of the fuel assemblies for a period in excess of 7 EFPD out of any 30 EFPD period. The position of the part length CEA group shall also be limited to the insertion limits shown in Figure 3.1-3.

APPLICABILITY: MODES 1 and 2.

ACTION:

With the neutron absorber section of the part length CEA group covering any same axial segment of the fuel assemblies for a period exceeding 7 EFPD out of any 30 EFPD period, either:

- a. Reposition the part length CEA group to ensure no neutron absorber section of the part length CEA group is covering the same axial segment of the fuel assemblies within 2 hours, or
- b. Be in at least HOT STANDBY within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.7 The position of the part length CEA group shall be determined at least once per 12 hours.

FIGURE 3.1-3 Part Length CEA Insertion Limit Vs. Thermal Power

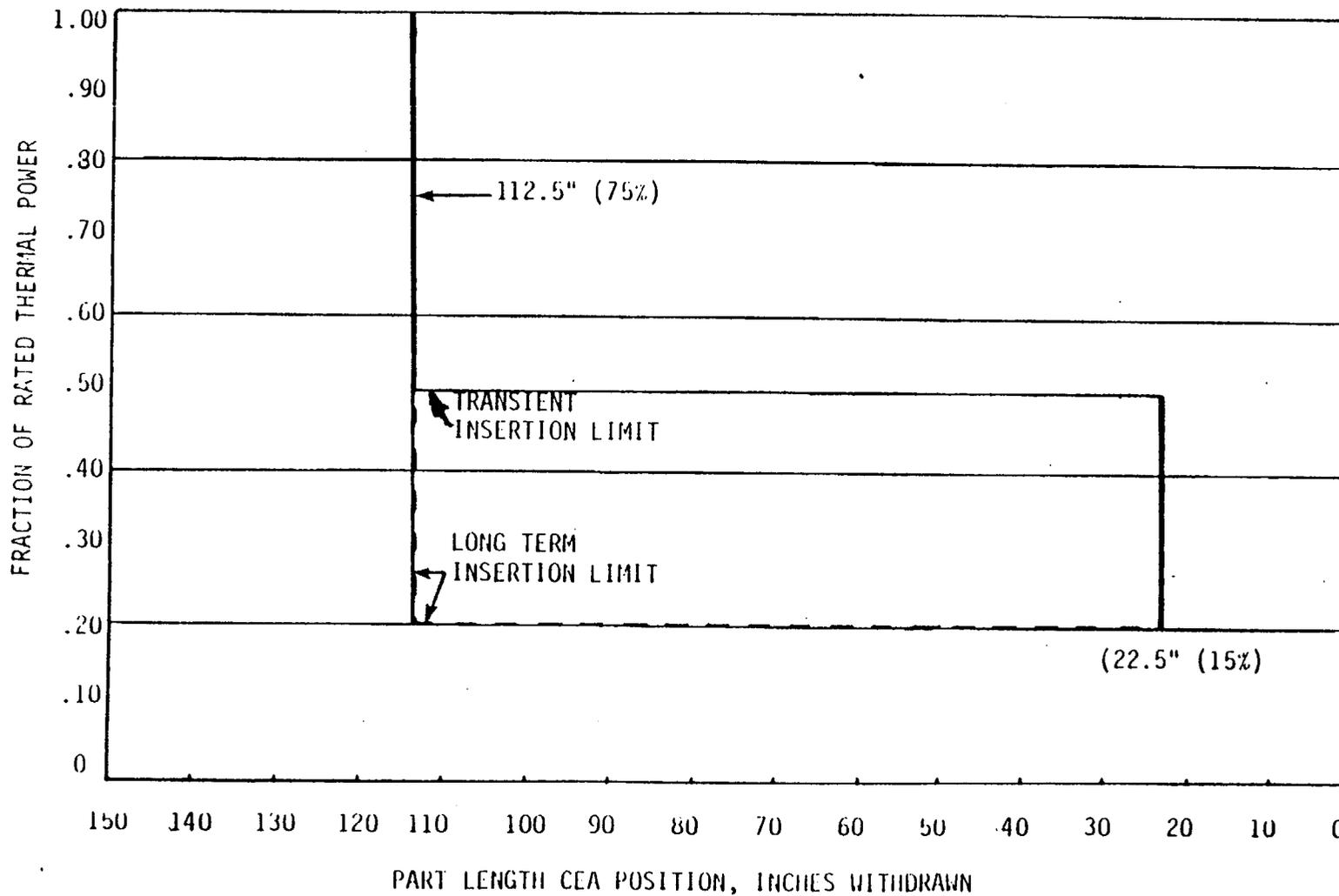


Figure 3.1-3



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

SAFETY EVALUATION

AMENDMENT NO. 30 TO NPF-10

AMENDMENT NO. 19 TO NPF-15

SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 & 3

DOCKET NOS. 50-361 AND 50-362

1. INTRODUCTION

Southern California Edison Company (SCE), on behalf of itself and the other licensees, San Diego Gas and Electric Company, the City of Riverside, California, and The City of Anaheim, California has submitted an application for license amendments for San Onofre Nuclear Generating Station, Units 2 and 3 (SONGS 2 and 3).

By letter dated April 10, August 1, and August 7, 1984, Southern California Edison Company requested changes (proposed change 138, or PCN-138) to the technical specifications for San Onofre Units 2 and 3. Additional, clarifying information was provided by SCE in letters dated October 2 and 24, 1984. The purpose of these technical specification changes is to accommodate the proposed modifications to the SONGS 2 and 3 core protection calculators (CPCs) and control element assembly calculators (CEACs) to reduce their sensitivity to electronic noise. Instances have occurred where control element assembly (CEA) position sensor noise has been interpreted in the CEAC logic as a significant inward CEA deviation. In this case, overly conservative penalty factors (PFs) are used by the CPC to calculate the departure from nucleate boiling ratio (DNBR) and local power density (LPD). This has resulted in unnecessary reactor scrams. In order to avoid the unnecessary scrams, SCE proposed to reduce the inward CEA deviation PFs to 1.0 (the outward CEA deviation PFs remain unchanged) and, at the same time, change the technical specifications to impose more restrictions on the movable control assemblies. Therefore, the NRC staff's review of the proposed technical specification changes must be linked to the proposed reduction of the inward CEA deviation PFs to ensure that the safety of plant operation is not adversely affected. Our evaluation of the proposed changes follows.

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2. STAFF EVALUATION

(1) Technical Specification Changes

The proposed technical specification changes are related to the limiting conditions for operation (LCO) for the movable control element assemblies as follows:

- (a) Technical Specification 3.1.3.1, LCO for CEA position, is revised to include a new restriction that requires a core power reduction within 15 minutes after the detection of a CEA deviation;
- (b) Technical Specification 3.1.3.6, LCO for regulating CEA insertion limit, is revised to include a restriction that limits the regulating CEA group to the short term steady state insertion limit when the core operating limit supervisory system (COLSS) is out of service; and
- (c) Technical Specification 3.1.3.7, LCO for part length CEA insertion limit, is revised to impose a new insertion limit for the part length CEA group as shown in an added Figure 3.1-3.

Although all of these changes involve imposing new restrictions on CEA Positions, these changes are necessary in order to maintain safe reactor operation with the proposed reduction of the inward CEA deviation PFs used by the CPC. The objective of the PF reduction is to avoid an unnecessary reactor scram for those events where CEA sensor noise is interpreted by the CEAC as a significant inward CEA deviation. However, the PF reduction in the CPC must not result in failure to provide the necessary reactor trip when conditions dictate. To accommodate the margin degradation for an inward CEA deviation event such as a full length CEA drop, a power reduction and CEA maneuvering restrictions are imposed in the proposed technical specification changes.

In a plant with an analog protection system rather than a CPC, the single full length CEA drop is a design basis event which does not require a reactor trip. Rather, the required overpower margin (ROPM) is provided in the determination of limiting conditions for operation (LCO) to prevent the single CEA drop transient from violating the specified acceptable fuel design limits (SAFDL) of minimum DNBR and fuel melting. For a plant with CPCs, the CEA deviation PFs are applied to the CPC DNBR and LPD calculations to determine if the SAFDLs will be violated and, therefore, if a reactor trip is necessary to prevent the violation. The PFs consist of two components: a static component whose magnitude is dependent upon the CEA deviation configuration and magnitude, and a dynamic xenon component which is a linear function of time after CEA drop to account for the xenon redistribution effect. SCE has determined that the thermal margin maintained using COLSS operating limits is sufficient to accommodate the PF that is needed immediately after the CEA deviation. For some specific combinations of the initial CEA configuration and dropped CEA where the required PF exceeds the minimum ROPM maintained via COLSS, a power reduction is necessary to accommodate the residual PF. The magnitude of the power reduction as a function of time after CEA drop is specified in the new Figure 3.1-1A added to Technical Specification 3.1.3.1. This figure was determined from the worst PF (combination of the static and xenon components) that can occur for any specified CEA deviation from any initial CEA bank configuration to assure that the worst deviation while operating within the LCO space monitored by the COLSS will not cause a violation of the SAFDL. Since a power reduction in accordance with Figure 3.1-1A provides assurance that the SAFDLs are not exceeded subsequent to a CEA drop event, we conclude that the proposed change to Technical Specification 3.1.3.1 is acceptable.

The existing Technical Specification 3.1.3.6 specifies that the regulating CEA groups shall be limited to the withdrawal sequence and insertion limits shown on Figure 3.1-2, with the CEA insertion between the long term steady state insertion limits and the transient insertion limits (TIL) restricted to a specified duration within a specified time interval. This specification

does not vary the CEA insertion limits whether the COLSS is in service or out of service. The proposed technical specification change will restrict the regulating CEA groups to the short term steady state insertion limit (STSSIL) when the COLSS is out of service. In other words, when the COLSS is out of service, CEA locations in the region between the STSSIL and TIL in Figure 3.1-2 are not permissible. Since the COLSS thermal margin includes a power dependent power operating limit (POL) bias to accommodate CEA drop and deviation from lower power CEA configurations, this POL bias must be compensated for when the COLSS is out of service. However, the limiting condition for operation of Technical Specifications 3.2.4 specifies the DNBR margin operating limit based on CPC calculation for COLSS out of service. This DNBR operating limit preserves the ROPM when COLSS is out of service. The proposed technical specification change imposes an additional power dependent insertion limit (PDIL) by restricting CEA motion to the short term insertion limit. SCE provided an analysis to show that the operating limit imposed in Technical Specification 3.2.4 and the proposed PDIL provide sufficient margin to compensate for the POL bias term and CEA deviation PFs when COLSS is out of service. On this basis we conclude that the addition of this restriction provides assurance that no SAFDL will be violated when COLSS is out of service and therefore we find this change to be acceptable.

The proposed change to Technical Specification 3.1.3.7 will restrict the part length CEA insertion to less than 25 percent for power levels greater than 50 percent of rated power as specified in the PDIL shown in the new Figure 3.1-3. The part length rods (PLR) are unique among the CEAs in that a PLR drop can cause a reactivity increase under the wrong set of circumstances. This reactivity increase will cause a temporary power excursion until the feedback mechanisms return the core to approximately its initial power. SCE has determined that the proposed restriction of PLR to less than 25 percent insertion will prevent a PLR drop from inserting positive reactivity for power levels above 50 percent of the rated power. For power levels below 50 percent, the long term insertion limit of 25 percent will still prevent a positive reactivity insertion on a PLR drop. However, operation between the long term and the transient insertion limits shown in Figure 3.1-3 could result in a

positive reactivity insertion on a PLR drop. The licensee provided an analysis to show that the ROPM available at those power levels is sufficient to accommodate a power increase from a PLR drop with positive reactivity insertion. We therefore conclude that the proposed change to Technical Specification 3.1.3.7 is acceptable.

SCE provided an evaluation of the overall impact of the proposed technical specification changes and the reduction of the inward CEA deviation PFs on a CEA drop event. A safety analysis of a CEA drop event is provided in SCE's Cycle 2 reload report, dated September 28, 1984. This analysis is performed with the inward CEA deviation PF equal to 1.0 and the operating limits in accordance with the proposed technical specification changes. The result shows that no reactor trip is necessary and that the minimum DNBR during the transient is greater than the DNBR limit. Although the Cycle 2 analysis is performed with the method of statistical combination of uncertainties, which results in a higher DNBR limit and calculated DNBR than those resulting from the deterministic treatment of uncertainties used in Cycle 1, the Cycle 2 safety analysis provides a typical system response for a CEA drop event. Based on the above considerations, we conclude that there is reasonable assurance that the SAFDLs for DNB and fuel melt will not be exceeded for a CEA drop event, and therefore we find proposed changes in technical specifications and inward CEA deviation PFs to be acceptable.

(2) CPC/CEAC Software Modification

The implementation of the reduction of the inward CEA deviation PF requires no changes in the CPC software in either its calculational algorithm or data base constants. The only modification is the change in the values of those data base constants related to the inward CEA deviation PF. SCE in its letter of August 1, 1984 submitted the San Onofre - Unit 2 Cycle 1 CPC and CEAC data base, and CPC/CEAC phase I and phase II test results. The staff has reviewed the values of the data base constants of the arrays designated XE, XEC, LPDCON and DNBCON for the entries related to the inward CEA deviation PFs and has confirmed

that they have the correct value of 1.0. In addition, SCE has also confirmed that the CPC/CEAC modifications were done in accordance with the approved procedure described in CEN-39(A), Revision 2, "CPC Protection Algorithm Software Change Procedure". The software verification tests as described in the phases I and II test result reports have determined that no error is detected in the implementation of the data base modifications, and that the operation of the integrated system is consistent with the performance predicted by design analysis. The staff, therefore, concludes that the CPC/CEAC software modification for Cycle 1 Revision 2 is acceptable.

3. SUMMARY OF EVALUATION

The staff has reviewed the changes proposed by SCE to San Onofre Units 2 and 3 Technical Specifications 3.1.3.1, 3.1.3.6 and 3.1.3.7 to accommodate the CPC/CEAC change in which the inward CEA deviation PFs are reduced to 1.0. We conclude that the proposed technical specification changes and the CPC/CEAC change will not result in the SAFDL limits being violated for a CEA drop event. Therefore, the proposed changes are acceptable. We have also reviewed the SONGS-2 Cycle 1 CPC/CEAC data base and phases I and II test reports and conclude that the CPC/CEAC modification and implementation are acceptable.

4. CONTACT WITH STATE OFFICIAL

The NRC staff has advised the Chief of the Radiological Health Branch, State Department of Health Services, State of California, of the proposed determinations of no significant hazards consideration. No comments were received.

5. ENVIRONMENTAL CONSIDERATION

These amendments involve changes in the installation or use of facility components located within the restricted area. The staff has determined that the amendments involve no significant increase in the amounts of any effluents

that may be released offsite and that there is no significant increase in individual or cumulative occupation radiation exposure. The Commission has previously issued proposed findings that the amendments involve no significant hazards consideration, and there has been no public comment on such findings. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR Sec. 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 these amendments.

6. CONCLUSION

Based upon our evaluation of the proposed changes to the San Onofre Units 2 and 3 Technical Specifications, we have concluded that: there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and 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. We, therefore, conclude that the proposed changes are acceptable.

Dated: January 9, 1985

ISSUANCE OF AMENDMENT NO. 30 TO FACILITY OPERATING LICENSE NPF-10
AND AMENDMENT NO. 19 TO FACILITY OPERATING LICENSE NPF-15
SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 AND 3

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