

1997

Mr. C. Randy Hutchins
Vice President, Operations ANO
Entergy Operations, Inc.
1448 S. R. 333
Russellville, AR 72801

May 5, 1997

SUBJECT: ISSUANCE OF AMENDMENT NO. 183 TO FACILITY OPERATING LICENSE
NO. NPF-6 - ARKANSAS NUCLEAR ONE, UNIT NO. 2 (TAC NO. M97532)

Dear Mr. Hutchinson:

The Commission has issued the enclosed Amendment No.183 to Facility Operating License No. NPF-6 for the Arkansas Nuclear One, Unit No. 2 (ANO-2). This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated December 19, 1996.

The amendment changes the Appendix A TSs by revising Table 4.3-1 to change the power calibration requirements for the linear power level, the Core Protection Calculator (CPC) delta T power and the CPC nuclear power signals between 15 and 80 percent power to allow more conservative settings.

A copy of our related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

ORIGINAL SIGNED BY:
George Kalman, Senior Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-368

Enclosures: 1. Amendment No. 183 to NPF-6
2. Safety Evaluation

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 5, 1997

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Vice President, Operations ANO
Entergy Operations, Inc.
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A copy of our related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

A handwritten signature in cursive script that reads "George Kalman".

George Kalman, Senior Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-368

Enclosures: 1. Amendment No. 183 to NPF-6
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cc w/encls: See next page

Mr. C. Randy Hutchinson
Entergy Operations, Inc.

Arkansas Nuclear One, Unit 2

cc:

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

ENERGY OPERATIONS, INC.

DOCKET NO. 50-368

ARKANSAS NUCLEAR ONE, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 183
License No. NPF-6

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Entergy Operations, Inc. (the licensee) dated December 19, 1996, 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 license 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 Appendix A, as revised through Amendment No. 183, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of its date of issuance to be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



George Kalman, Senior Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: May 5, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 183

FACILITY OPERATING LICENSE NO. NPF-6

DOCKET NO. 50-368

Revise the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change.

REMOVE PAGES

3/4 3-8
3/4 3-9

INSERT PAGES

3/4 3-8
3/4 3-9

TABLE 4.3-1 (Continued)

TABLE NOTATIONS

- * - With reactor trip breakers in the closed position and the CEA drive system capable of CEA withdrawal.
- (1) - If not performed in previous 7 days.
- (2) - Heat balance only (CHANNEL FUNCTIONAL TEST not included):
 - a. Between 15% and 80% of RATED THERMAL POWER, compare the Linear Power Level, the CPC ΔT power, and the CPC nuclear power signals to the calorimetric calculation.

If any signal is within -0.5% to +10% of the calorimetric calculation, then do not calibrate except as required during initial power ascension following refueling.

If any signal is less than the calorimetric calculation by more than 0.5%, then adjust the affected signal(s) to within 0.0% to +10.0% of the calorimetric calculation.

If any signal is greater than the calorimetric calculation by more than 10%, then adjust the affected signal(s) to within 8% to 10% of the calorimetric calculation.
 - b. At or above 80% of RATED THERMAL POWER, compare the Linear Power Level, the CPC ΔT power, and CPC nuclear power signals to the calorimetric calculation. If any signal differs from the calorimetric calculation by an absolute difference of > 2%, then adjust the affected signal(s) to within $\pm 2\%$ of the calorimetric calculation.
- During PHYSICS TESTS, these daily calibrations may be suspended provided these calibrations are performed upon reaching each major test power plateau and prior to proceeding to the next major test power plateau.
- (3) - Above 15% of RATED THERMAL POWER, verify that the linear power subchannel gains of the excore detectors are consistent with the values used to establish the shape annealing matrix elements in the Core Protection Calculators.
- (4) - Neutron detectors may be excluded from CHANNEL CALIBRATION.
- (5) - After each fuel loading and prior to exceeding 70% of RATED THERMAL POWER, the incore detectors shall be used to determine the shape annealing matrix elements and the Core Protection Calculators shall use these elements.
- (6) - This CHANNEL FUNCTIONAL TEST shall include the injection of simulated process signals into the channel as close to the sensors as practicable to verify OPERABILITY including alarm and/or trip functions.

- (7) - Above 70% of RATED THERMAL POWER, verify that the total RCS flow rate as indicated by each CPC is less than or equal to the actual RCS total flow rate determined by either using the reactor coolant pump differential pressure instrumentation (conservatively compensate for measurement uncertainties) or by calorimetric calculations (conservatively compensated for measurement uncertainties) and if necessary, adjust the CPC addressable constant flow coefficients such that each CPC indicated flow is less than or equal to the actual flow rate. The flow measurement uncertainty may be included in the BERR1 term in the CPC and is equal to or greater than 4%.
- (8) - Above 70% of RATED THERMAL POWER, verify that the total RCS flow rate as indicated by each CPC is less than or equal to the actual RCS total flow rate determined by calorimetric calculations (conservatively compensated for measurement uncertainties).
- (9) - The correct values of addressable constants shall be verified to be installed in each OPERABLE CPC.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 183 TO

FACILITY OPERATING LICENSE NO. NPF-6

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT NO. 2

DOCKET NO. 50-368

1.0 INTRODUCTION

By letter dated December 19, 1996, Entergy Operations, Inc. (the licensee) submitted a request for changes to the Arkansas Nuclear One, Unit No. 2 (ANO-2) Technical Specifications (TS). The requested changes would change Notation 2 of TS Table 4.3-1 to require adjustment of the linear power level, the core protection calculator (CPC) delta T power, and CPC nuclear power signals to match or be greater than the calorimetric calculation if, from 15 percent to 80 percent of rated thermal power (RTP), the difference is less than -0.5 percent or greater than 10 percent. At or above 80 percent RTP, adjustment would be required if the absolute difference is greater than 2 percent. The staff's evaluation of the proposed request follows.

2.0 EVALUATION

A daily calibration (heat balance) is currently performed when thermal power is greater than 15 percent of RTP. In accordance with Note 2 of TS Table 4.3-1, the calibration consists of adjusting the linear power level signals and the CPC addressable constant multipliers to make the CPC delta T power and the CPC nuclear power calculations agree with the calorimetric calculation if the absolute difference is greater than 2 percent. These checks and, if necessary, the adjustment of the linear power level signal and the CPC addressable constant coefficients, are made to ensure that the accuracy of these CPC calculations is maintained within the analyzed error margins. The power level must be greater than 15 percent RTP to obtain accurate data since the accuracy of the calorimetric data is questionable at lower power levels.

In order to reduce the number of adjustments required as the power level increases, the licensee has proposed to change Note 2 of Table 4.3-1 to require the CPC calculations to agree within ± 2 percent of the calorimetric calculation when thermal power is greater than or equal to 80 percent of RTP, and to agree within -0.5 percent to +10 percent when thermal power is between 15 percent and 80 percent of RTP, based on the reduced accuracy of the calorimetric data inputs at low power levels.

Performing a calorimetric calibration when CPC power is less than the calorimetric by more than 0.5 percent would allow a small tolerance for operator convenience and would gain thermal margin relative to the current value of 2.0 percent. The wider tolerance of +10 percent when CPC power is conservatively indicating a higher than actual power would minimize the number of required adjustments and yet would allow the CPC to conservatively determine linear power density and departure from nucleate boiling ratio.

The staff has determined that these proposed changes to Note 2 of TS Table 4.3-1 are acceptable because they ensure that the power indications are conservative relative to the plant safety analyses while reducing the required number of adjustments to these power indications at power levels below 80 percent of RTP.

Based on the review described above, the staff concludes that the proposed TS changes to revise the tolerance range between the CPC signals and the calorimetric calculation to -0.5 percent to +10 percent between 15 percent and 80 percent RTP are acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Arkansas State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC 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 issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (62 FR 4348). 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.

5.0 CONCLUSION

The Commission has 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, (2) such

activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: T. Polich

Date: May 5, 1997