

October 22, 2001

Mr. Craig G. Anderson
Vice President, Operations ANO
Entergy Operations, Inc.
1448 S. R. 333
Russellville, AR 72801

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT NO. 2 - ISSUANCE OF AMENDMENT RE:
ALLOWANCE TO ELIMINATE MOVEMENT OF CONTROL ELEMENT
ASSEMBLY #43 FOR THE REMAINDER OF CYCLE 15 (TAC NO. MB2779)

Dear Mr. Anderson:

The Commission has issued the enclosed Amendment No. 235 to Facility Operating License No. NPF-6 for Arkansas Nuclear One, Unit No. 2 (ANO-2). This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated August 23, 2001, as supplemented by letter dated September 25, 2001.

The amendment revises the TSs to eliminate the requirement to move control element assembly #43 for the remainder of Cycle 15.

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

Sincerely,

/RA/

Thomas W. Alexion, Project Manager, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-368

Enclosures:

1. Amendment No. 235 to NPF-6
2. Safety Evaluation

cc w/encls: See next page

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L.Hurley,RIV

D. Bujol,RIV

**No legal objection

*no substantive change from SE input

Accession No.: ML012960550

OFFICE	PDIV-1/PM	PDIV-1/LA	SRXB/SC	EEIB/SC	OGC/NLO*	PDIV-1/SC
NAME	TAlexion	DJohnson	RCaruso*	CHolden	AFernandez	RGramm
DATE	10/09/01	10/10/01	10/02/01	10/09/01	10/19/01	10/22/01

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ENERGY OPERATIONS, INC.

DOCKET NO. 50-368

ARKANSAS NUCLEAR ONE, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 235
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 August 23, 2001, as supplemented by letter dated September 25, 2001, 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. 235, 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 and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Robert A. Gramm, Chief, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: October 22, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 235

FACILITY OPERATING LICENSE NO. NPF-6

DOCKET NO. 50-368

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove

3/4 1-19

Insert

3/4 1-19

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 235 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 August 23, 2001, as supplemented by letter dated September 25, 2001, Entergy Operations, Inc. (the licensee), submitted a request to change Arkansas Nuclear One, Unit No. 2 (ANO-2), Technical Specifications (TSs). The requested change would revise the TSs to eliminate the requirement to move Control Element Assembly (CEA) #43 for the remainder of Cycle 15.

The September 25, 2001, supplemental letter provided clarifying information that did not change the scope of the original *Federal Register* notice (66 FR 46478, September 5, 2001) or the initial no significant hazards consideration determination.

2.0 BACKGROUND

By letter dated August 23, 2001, the licensee proposed changes to TS Surveillance Requirement (SR) 4.1.3.1.2 to eliminate the requirement to move CEA #43 for the remainder of the current fuel cycle, Cycle 15. The SR requires that each CEA not fully 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 92 days. The proposed change will add a Note to SR 4.1.3.1.2 stating: "Movement of CEA #43 is not required for the remainder of cycle 15. If an outage of sufficient duration occurs prior to the end of Cycle 15, maintenance activities will be performed to restore the CEA." Additional information and clarification was provided to the staff by supplemental letter dated September 25, 2001.

During the April 2001 surveillance, CEA #43 had abnormal traces for the lift and upper gripper coils, and it was determined that the lift coil for CEA #43 was missing one of three phases. During the July 2001 surveillance, CEA #43 dropped approximately 145 inches into the core, requiring the plant to down power to less than 80%. The cause of this CEA drop event was the missing phases on the coils, which caused the individual CEA breaker for CEA #43 to trip. The ANO-2 Control Element Drive Mechanism Control System (CEDMCS) simulator demonstrated that the missing phase would cause the rod to drop.

The dropped rod event showed that CEA #43 is fully operable (i.e., it is moveable, trippable and free from mechanical binding). Movement of CEA #43 in this degraded condition could result in it dropping fully into the core. The proposed TS change will allow maintaining CEA #43 in the fully withdrawn position for the remainder of the cycle, which is approximately 8 months. Thus, CEA #43 would not be tested for at most three surveillances. Although repairs to a CEA power supply can be made at power, there is a potential for a plant trip associated with the repairs, and consequently, it is preferred to make the repairs while the plant is shutdown. In addition, maintenance to restore CEA #43 to normal operation will be performed if an outage of sufficient duration occurs prior to the end of Cycle 15.

3.0 EVALUATION

ANO-2 has 81 CEAs that are used for reactivity control. The CEAs are divided into 9 control groups, of which 2 are Shutdown Groups designated Groups A and B, 6 are Regulating Groups designated Groups 1 through 6, and one group is designated as Group P. CEA #43 is in Group 1. The shutdown groups are the first withdrawn during startup and the last inserted during a planned shutdown. On a reactor startup, Groups 1 through 5 must be withdrawn in a prescribed sequence and with the prescribed overlap. Groups 6 and P are the last groups to be withdrawn during reactor startup. During power operations, insertion of Groups 1 through 5 and Groups A and B is prohibited, except for SR 4.1.3.1.2. Thus, during power operations, CEA #43 is required to be fully withdrawn, except for performance of SR 4.1.3.1.2.

The purpose of SR 4.1.3.1.2 is to verify that the CEAs are operable, which is defined as moveable, trippable and free from mechanical binding. The possibility of warped CEAs, which could result in mechanical binding, is minimal since the CEAs in ANO-2 were replaced in 1995. In addition, the five finger design of the CEAs ensures relatively free movement. Because of the design of the CEDMCS, electrical problems will not prevent insertion of a CEA into the core when the reactor trip breakers are opened. However, mechanical failures, which would result in less than full insertion of a CEA upon reactor trip, could be significant, but are much less common and have not been found during testing. ANO-2 has not experienced any mechanical binding. There are only two documented instances of individual CEAs failing to insert fully when dropped. In both cases, the CEA dropped to approximately 11 inches above the bottom of the core. The cause in each case was debris in the fuel assembly, not mechanical binding. SR 4.1.3.1.2 would not detect this type of problem, since the CEAs were trippable and moved freely in the upper portion of the core.

In December 1995, the Nuclear Regulatory Commission (NRC or the Commission) approved changing the surveillance period from monthly to quarterly in recognition of the good mechanical performance of the CEAs. Furthermore, as shown from the surveillance on July 28, 2001, CEA #43 is capable of movement, trippable and free of mechanical binding. Thus, along with the remaining CEAs, CEA #43 would drop into the core in response to a reactor trip signal.

Since CEA #43 is operable, no additional reactivity considerations need to be taken into consideration. However, to further demonstrate the appropriateness of eliminating the surveillance for the remainder of the cycle, the licensee has evaluated the remainder of Cycle 15 to determine if shutdown margin would be maintained if CEA #43 failed to insert into the core during a reactor trip. This evaluation has shown that shutdown margin in excess of the Core Operating Limits Report limit will be present at all times for the remaining portion of Cycle 15, even if CEA #43 fails to insert into the core.

Since Group 1, to which CEA #43 belongs, is not permitted to be inserted into the core during power operations, control rod misalignment due to CEA #43 not being moved for the remainder of Cycle 15 does not need to be considered.

4.0 EVALUATION SUMMARY

Based on our review, the staff concludes that the change to SR 4.1.3.1.2 to eliminate the requirement to move CEA #43 for the remainder of the current fuel cycle, Cycle 15, is acceptable. This conclusion is based on the following: 1) CEA #43 has been demonstrated to be operable (i.e., it is moveable, trippable and free from mechanical binding), 2) CEA #43 and its Group are required to be fully withdrawn during power operations and therefore will not cause any control rod misalignment problems, 3) no mechanical binding of the CEAs has been found at ANO-2, and 4) shutdown margin will be maintained even if CEA #43 fails to insert.

5.0 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.

6.0 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 (66 FR 46478, dated September 5, 2001). 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.

7.0 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: M. Chatterton

Date: October 22, 2001

Arkansas Nuclear One

cc:

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