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

January 26, 1999

SUBJECT: ISSUANCE OF AMENDMENT NO. 200 TO FACILITY OPERATING LICENSE NO. NPF-6 - ARKANSAS NUCLEAR ONE, UNIT NO. 2 (TAC NO. MA2224)

Dear Mr. Hutchinson:

The Commission has issued the enclosed Amendment No. 200 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 June 29, 1998 (2CAN069805).

The amendment approves a change to the TS to provide a range of acceptable values for the 4 kV bus loss of voltage relays. The present TS Table 3.3-4, "Engineered Safety Feature Actuation System Instrumentation," provides a single value for both the trip and allowable values for the 4 kV bus loss of voltage requirements. In addition, minor adjustments were made to the trip time delay.

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:

M. Christopher Nolan, 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. 200 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

January 26, 1999

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cc:

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

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-368

ARKANSAS NUCLEAR ONE, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 200
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 June 29, 1998, 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. 200 , 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 prior to the facility's restart from refueling outage 2R13.

FOR THE NUCLEAR REGULATORY COMMISSION

M. Christopher Nolan, 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: January 26, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 200

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. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE PAGES	INSERT PAGES
3/4 3-17	3/4 3-17
3/4 3-18	3/4 3-18

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

FUNCTIONAL UNIT	TRIP VALUE	ALLOWABLE VALUES
4. MAIN STEAM AND FEEDWATER ISOLATION (MSIS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Steam Generator Pressure - Low	≥ 712 psia (2)	≥ 699.6 psia (2)
5. CONTAINMENT COOLING (CCAS)		
a. Manual (Trip Buttons)	Not Applicable	Not applicable
b. Containment Pressure - High	≤ 18.3 psia	≤ 18.490 psia
c. Pressurizer Pressure - Low	≥ 1717.4 psia (1)	≥ 1686.3 psia (1)
6. RECIRCULATION (RAS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Refueling Water Tank - Low	54,400 ± 2,370 gallons (equivalent to 6.0 ± 0.5% indicated level)	between 51,050 and 58,600 gallons (equivalent to between 5.111% and 6.889% indicated level)
7. LOSS OF POWER		
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	(4)	2300 ± 699 volts with a 0.64 ± 0.34 second time delay
b. 460 volt Emergency Bus Undervoltage (Degraded Voltage)	423 ± 2.0 volts with an 8.0 ± 0.5 second time delay	423 ± 4.0 volts with an 8.0 ± 0.8 second time delay

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

FUNCTIONAL UNIT	TRIP VALUE	ALLOWABLE VALUES
8. EMERGENCY FEEDWATER (EFAS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Steam Generator (A&B) Level-Low	≥ 23% (3)	≥ 22.111% (3)
c. Steam Generator ΔP-High (SG-A > SG-B)	≤ 90 psi	≤ 99.344 psi
d. Steam Generator ΔP-High (SG-B > SG-A)	≤ 90 psi	≤ 99.344 psi
e. Steam Generator (A&B) Pressure - Low	≥ 712 psia (2)	≥ 699.6 psia (2)

(1) Value may be decreased manually, to a minimum of ≥ 100 psia, during a planned reduction in pressurizer pressure, provided the margin between the pressurizer pressure and this value is maintained at ≤ 200 psi; the setpoint shall be increased automatically as pressurizer pressure is increased until the trip setpoint is reached. Trip may be manually bypassed below 400 psia; bypass shall be automatically removed before pressurizer pressure exceeds 500 psia.

(2) Value may be decreased manually during a planned reduction in steam generator pressure, provided the margin between the steam generator pressure and this value is maintained at ≤ 200 psi; the setpoint shall be increased automatically as steam generator pressure is increased until the trip setpoint is reached.

(3) % of the distance between steam generator upper and lower level instrument nozzles.

(4) The trip value for this function is listed in the surveillance test procedures. The trip value will ensure that adequate protection is provided when all the applicable calibration tolerances, channel uncertainties, and time delays are taken into account.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 200 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 June 29, 1998, 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 provide a range of acceptable values for the 4 kV bus loss of voltage relays. The present TS Table 3.3-4, "Engineered Sefety Feature Actuation System Instrumentation," provides a single value for both the trip and allowable values for the 4 kV bus loss of voltage requirements. This change would provide a tolerance band for allowable values for the loss of voltage relay setting and allow for the control of the actual trip value in the licensee's surveillance test procedures. In addition, minor adjustments would be made to the trip time delay.

2.0 BACKGROUND

There are two redundant and independent 4160 V safety buses and each safety bus has two levels of undervoltage protection: (a) loss of voltage, and (b) degraded voltage. The loss of voltage protection is provided by two inverse time undervoltage relays on each of the 4160 V safety buses. The loss of voltage relays set at 3120 V (approximately 78% of motor rated voltage) initiates load shedding and the starting of the associated diesel generator within approximately one second of a total loss of voltage at the safety bus. The isolation of the safety buses will be delayed approximately two seconds (for a total of approximately three seconds) to permit the offsite power to supply the safety related loads in the event of a failure of the fast transfer to an alternate source. The second level of undervoltage protection is provided by two undervoltage relays on each 480 V safety bus for degraded voltage conditions. This second level of undervoltage protection is not affected by this change.

TS Table 3.3-4, Item 7.a, "4.16 kV Emergency Bus Undervoltage (Loss of Voltage)," specifies a trip value of 3120 V and allowable value of 3120 V. The table entry has a Note (4) which reads: "Inverse time relay set value, not a trip value. The zero voltage trip will occur in 0.75±0.075 seconds." By letter dated June 29, 1998, Entergy Operations Inc. requested approval of the proposed TS change to provide a range of acceptable values for the 4 kV bus loss of voltage condition instead of a single trip and allowable value for the loss of voltage relays.

3.0 EVALUATION

Currently, the trip setpoint for the loss of voltage relays on each 4160 V safety bus is set at a single value of 3120 V (approximately 78% of the motor base voltage of 4000 V). Entergy Operations, Inc. determined through operating experience that such single values (for the trip setpoint as well as for allowable value) do not take into account applicable margins, channel uncertainties and calibration tolerances. Therefore, the licensee has proposed to remove the specific value in TS 3/4.3.2, Item 7.a, under the trip value column and replace it by Note (4). The proposed Note (4) reads, "The trip value for this function is listed in the surveillance test procedures. The trip value will ensure that adequate protection is provided when all the applicable calibration tolerances, channel uncertainties, and time delays are taken into account." The licensee has proposed to revise allowable values for the loss of voltage relays in this table from 3120 volts to 2300 ± 699 volts. The proposed setting provides a range of values based on a maximum setting which is below the lowest allowed motor voltage of 75% of motor voltage rating. The licensee also discovered that the present setting provides marginal protection from unnecessary actuations during certain limited potential system transient events. To prevent these transients, the licensee has proposed to reduce the allowable setpoint voltage value from 3120 V to 2999 V (2300 V + 699 V). The staff has determined that allowable values as low as 1601 V (2300 V - 699 V) will still provide the necessary safety function for the loss of voltage protection. Additionally, the licensee has proposed to revise the allowable values for the time delay from "0.75 ± 0.075" second to "0.64 ± 0.34" second. This lower nominal setting and expanded relay time delay setting tolerance band do not affect the safety function since there is no appreciable time difference during a loss of voltage event. The maximum proposed time delay setting is within those used in the ANO-2 safety analysis. The minimum proposed time delay setting provides adequate time to allow the fast transfer of the associated bus to an alternate power source.

The use of a range of allowable values instead of a single fixed trip value for the loss of voltage relays and the change of allowable values for the time delay is equivalent to what is specified in Revision 1 of NUREG-1432, "Standard Technical Specifications for Combustion Engineering Plants."

Based on the above, the staff concludes that the proposed change for the addition of a range of allowable values (2300 ± 699 volts) instead of a fixed trip setpoint (set at 3120 volts) for the loss of voltage relays, and the change "0.64 ±0.34" seconds instead of "0.75 ± 0.075" seconds provides protection from unnecessary actuations during certain system trainsients while still ensuring the necessary safety function for the loss of voltage protection. Therefore, the staff concludes that the proposed change is acceptable.

4.0 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.

5.0 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 Nuclear Regulatory Commission 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 (63 FR 56244). 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.

6.0 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: N. K. Trehan

Date: January 26, 1999