December 4, 2003

Mr. Jeffrey S. Forbes
Site Vice President
Arkansas Nuclear One
Entergy Operations, Inc.
1448 S. R. 333
Russellville, AR 72801

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT NO. 2 - ISSUANCE OF AMENDMENT RE: CONTAINMENT SPRAY SYSTEM (TAC NO. MB8760)

Dear Mr. Anderson:

The Commission has issued the enclosed Amendment No. 252 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 May 1, 2003, as supplemented by letter dated September 30, 2003.

The amendment modifies the surveillance testing requirements for the containment spray system by deleting the requirement to verify the position of valves that are locked, sealed, or otherwise secured in their correct position (and by deleting wording regarding the verified valves being positioned to take suction from the refueling water tank), and by replacing the quantitative allowable pump degradation value with a requirement to verify the pumps perform in accordance with the Inservice Testing Program.

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. 252 to NPF-6
2. Safety Evaluation

cc w/encls: See next page

December 4, 2003

Mr. Jeffrey S. Forbes
Site Vice President
Arkansas Nuclear One
Entergy Operations, Inc.
1448 S. R. 333
Russellville, AR 72801

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT NO. 2 - ISSUANCE OF AMENDMENT RE: CONTAINMENT SPRAY SYSTEM (TAC NO. MB8760)

Dear Mr. Anderson:

The Commission has issued the enclosed Amendment No. 252 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 May 1, 2003, as supplemented by letter dated September 30, 2003.

The amendment modifies the surveillance testing requirements for the containment spray system by deleting the requirement to verify the position of valves that are locked, sealed, or otherwise secured in their correct position (and by deleting wording regarding the verified valves being positioned to take suction from the refueling water tank), and by replacing the quantitative allowable pump degradation value with a requirement to verify the pumps perform in accordance with the Inservice Testing Program.

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. 252 to NPF-6
2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION

PUBLIC	RidsAcrsAcnwMailCenter
PDIV-1 RF	G.Hill(2)
RidsNrrDlpmPdiv (HBerkow)	T.Boyce
RidsNrrDlpmLpdiv1 (RGramm)	R.Goel
RidsNrrPMTAlexion	RidsRgn4MailCenter (AHowell)
RidsNrrLADJohnson	RidsOgcRp

Accession No.:ML033450356 *SE input, **see previous concurrence

OFFICE	PDIV-1/PM	PDIV-1/LA	SPSB/SC	SRXB/SC	EMEB/SC
NAME	TAlexion	DJohnson	JLee for RDennig	JUhle	DTerao
DATE	12/3/03	12/4/03	10/17/03*	10/30/03**	10/23/03**

OFFICE	IROB/SC	OGC	PDIV-1/SC		
NAME	TBoyce	RHoefling	RGramm		
DATE	11/03/03**	11/25/03 (nlo)**	12/4/03		

OFFICIAL RECORD COPY

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-368

ARKANSAS NUCLEAR ONE, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.252
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 May 1, 2003, as supplemented by letter dated September 30, 2003, 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. 252 , 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 60 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: December 4, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 252

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	Insert
3/4 6-10	3/4 6-10

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 252 TO

FACILITY OPERATING LICENSE NO. NPF-6

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT NO. 2

DOCKET NO. 50-368

1.0 INTRODUCTION

By application dated May 1, 2003, as supplemented by letter dated September 30, 2003, Entergy Operations, Inc. (the licensee), requested changes to the Technical Specifications (TSs) for Arkansas Nuclear One, Unit No. 2 (ANO-2). The supplement dated September 30, 2003, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on May 27, 2003 (68 FR 28851).

The licensee proposed to revise the surveillance testing requirements for the containment spray system (CSS) as specified in TS 4.6.2.1.a.1 and 4.6.2.1.b. The proposed revision to TS surveillance requirement (SR) 4.6.2.1.a.1 would delete the requirement to verify the position of valves that are locked, sealed, or otherwise secured in their correct position (and delete wording regarding the verified valves being positioned to take suction from the refueling water tank). The proposed revision to SR 4.6.2.1.b would replace the quantitative allowable pump degradation value with a requirement to verify the pumps performance in accordance with the Inservice Testing (IST) Program. The licensee indicated that the proposed TS changes are consistent with NUREG-1432, Revision 2, "Standard Technical Specifications Combustion Engineering Plants."

2.0 REGULATORY EVALUATION

The CSS and the containment cooling system comprise the containment heat removal system. The functional performance objective of the containment heat removal system is to rapidly reduce the post-accident containment pressure and temperature after a postulated loss-of-coolant accident or main steam line break accident by removing thermal energy from the containment atmosphere. The two systems are both designed with redundant components so that a single failure of a component of either system will not prevent the function from being fulfilled. The CSS also assists in limiting off-site radiation levels by removing fission product iodine from the containment atmosphere and reducing the pressure differential between the containment atmosphere and the outside atmosphere, thereby reducing the driving force for

leakage of fission products from the containment. This is discussed in the ANO-2 Safety Analysis Report (SAR) Chapters 11 and 15.

The containment heat removal system is designed to meet the requirements of 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 38, "Containment Heat Removal," GDC 39, "Inspection of Containment Heat Removal System," and GDC 40, "Testing of Containment Heat Removal System."

Requirements in 10 CFR 50.36, "Technical Specifications," specify that the TSs include items in five specific categories. These categories include 1) safety limits, limiting safety system settings, and limiting control settings, 2) limiting conditions for operation, 3) SRs, 4) design features, and 5) administrative controls. Requirements for monitoring the effectiveness of maintenance at nuclear power plants are specified in 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," (the Maintenance Rule).

The licensee indicated that the proposed change requires no exemptions or reliefs from regulatory requirements (other than the proposed TS changes), and does not affect conformance with any GDC differently than described in the SAR. No CSS functions described in the SAR are impacted by the proposed change. The proposed change will maintain conformance with 10 CFR 50.36 and 10 CFR 50.65.

3.0 TECHNICAL EVALUATION

The staff has reviewed the licensee's regulatory and technical analyses in support of its proposed license amendment which are described in the licensee's application, as supplemented. The detailed evaluation below will support the conclusion 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.

SR 4.6.2.1.a.1 (verification of valve position)

The licensee proposed to revise existing wording of SR 4.6.2.1.a.1 which states "Verifying that each valve (manual, power operated or automatic) in the flow path is positioned to take suction from the RWT [refueling water tank] on a Containment Pressure-High-High test signal" with wording (adopted from NUREG-1432 SR 3.6.6A.1) which states, "Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position." The frequency for SR 4.6.2.1.a.1 will remain once per 31 days.

The licensee stated that the proposed wording of the change regarding verification of valves in the flow path of the CSS is identical to that approved by the NRC in Technical Specification Task Force (TSTF) 45 and, subsequently, NUREG-1432, Revision 2. Additionally, the proposed change is consistent with changes already incorporated in other ANO-2 TSs, e.g., Emergency Core Cooling Systems (SR 4.5.2.b), Emergency Feedwater System (SR 4.7.1.2), and Service Water System (SR 4.7.3.1.a). The SR is intended to ensure verification of valve positions in the main flow path that could be inadvertently repositioned. It is unlikely that

inadvertent repositioning could occur with regards to valves that are locked, sealed, or otherwise secured. The licensee has established a process to determine when system valve position verifications are performed. CSS operability and availability is assured, in part, by verifying CSS valve positions whenever circumstances exist that may call the system alignment into question. This includes valve position verifications following extended operation in conditions where CSS operability is not required, such as in Modes 5 or 6. Verifications are also made on portions of the system that are impacted by significant maintenance, regardless of plant mode. Since it is improbable that a secured valve could be inadvertently re-positioned, and because secured valve positions of important systems are verified at least once each refueling outage, the addition of the phrase, "that is not locked, sealed, or otherwise secured in position," consistent with NUREG-1432, Revision 2, has no significant impact on safety, and is therefore, acceptable.

Deletion of the wording, "to take suction from the RWT on a Containment Pressure-High-High test signal," is also acceptable because such wording draws unnecessary focus to the suction piping of the CSS pump, while the intent of the SR is to verify the entire flow path (i.e., suction and discharge of the CSS pump). The current wording has not been changed or amended since the first issuance of the ANO-2 TSs. The proposed change updates this wording to be consistent with NUREG-1432, Revision 2, and removes ambiguities. The proposed change does not affect conformance with any GDC and will remain in conformance with the requirements of 10 CFR 50.36.

SR 4.6.2.1.b (6.3% allowable pump degradation value)

The licensee proposed to revise existing wording of SR 4.6.2.1.b which states, "By verifying that each pump demonstrates degradation of $\leq$ 6.3% from its original acceptance test pump performance curve when tested pursuant to the Inservice Testing Program," with wording (adopted from NUREG-1432, Revision 2, SR 3.6.6A.5) which states, "Verify each containment spray pump’s developed head at the flow test point is greater than or equal to the required developed head when tested pursuant to the Inservice Testing Program."

The proposed change to the ANO-2 TSs, which is consistent with the approved NUREG-1432, Revision 2, does not remove the responsibility of the licensee to ensure that component performance criteria remain acceptable with regards to the most restrictive limits of either the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code), the TSs, plant-specific safety analyses, or other regulations.

The licensee indicated that the 6.3% allowable pump degradation was developed in an original (1978) design calculation. The calculation used outputs from a 1970's vintage "system resistance" calculation. Containment spray pump “B” was the limiting pump at 6.3% degradation. While the original analysis is less sophisticated than the analytical tools available today, it is conservative. The current TS SR was adopted prior to the application of the Maintenance Rule. This Maintenance Rule requires monitoring and assessing the performance of equipment important to safety and initiation of corrective action prior to degradation reaching operability limits. Requiring verification of adequate pump head in accordance with the IST Program is sufficient to note and track any degradation in pump performance, verify that

operability limits are maintained, and is consistent with NUREG-1432, Revision 2. In addition, the IST Program is required by TS 6.5.8. Therefore, the wording of NUREG-1432, Revision 2, is adopted in lieu of the current TS wording.

In License Amendment No. 225, dated November 13, 2000, the NRC allowed an increase in the ANO-2 containment building design pressure from 54 psig to 59 psig. As a result, the containment spray pump performance requirements were recalculated at the new containment design pressure. The licensee indicated that the reanalysis removed some of the excess conservatism built into the original calculations. Lower containment spray flow rates were assumed in the safety analysis as a consequence of the increase in design pressure. Design basis requirements for containment spray pump performance are based on the assumptions made in the safety analysis. These assumptions are reflected in the "ANO-2 Cycle 15/16 Safety Analysis Groundrules" documents. The assumed spray flow and containment pressure are used in the pump performance evaluation to determine the pump head and flow which would be required in order to meet the safety analysis assumptions for header flow against the containment building backpressure. As a result of the reanalysis, the allowable containment spray pump degradation may be increased above 6.3% without compromising the required containment spray flow that must be delivered to the containment building to satisfy the safety analysis. The reanalysis shows that "A" containment spray pump could degrade by 11.7% and "B" containment spray pump by 9.8%. Section XI of the ASME Code allows pump degradation up to 10%. The reanalyzed value of 9.8% is, therefore, more limiting for pump "B." The ANO-2 IST Program Implementation Procedure OP-5120.260 requires use of the more restrictive test acceptance test criterion of 9.8%. The proposed change would provide additional margin for operation of the containment spray pumps and would remain within the 10% degradation allowance of Section XI of the ASME Code. The proposed change does not involve a significant reduction in a margin of safety.

As discussed above, the staff finds that the proposed change to the TS SR is consistent with NRC-approved NUREG-1432, Revision 2; does not remove the responsibility of the licensee to ensure that component performance criteria remain acceptable with regards to the most restrictive limits of either the ASME Code, the TSs, plant-specific safety analyses or other regulations; and is, therefore, acceptable. The proposed change does not affect conformance with any GDC and will maintain conformance with the requirements of 10 CFR 50.36 and 10 CFR 50.65.

Evaluation Summary

Based on the above evaluation, the staff finds that the proposed changes to revise the ANO-2 surveillance testing requirements for the CSS as specified in proposed TSs 4.6.2.1.a.1 and 4.6.2.1.b are 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 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 (68 FR 28851, published May 27, 2003). 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: R. Goel

Date: December 4, 2003

cc:

Executive Vice President
& Chief Operating Officer
Entergy Operations, Inc.
P. O. Box 31995
Jackson, MS 39286-1995

Director, Division of Radiation
Control and Emergency Management
Arkansas Department of Health
4815 West Markham Street, Slot 30
Little Rock, AR 72205-3867

Winston & Strawn
1400 L Street, N.W.
Washington, DC 20005-3502

Mr. Mike Schoppman
Framatome ANP, Richland, Inc.
Suite 705
1911 North Fort Myer Drive
Rosslyn, VA 22209

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P. O. Box 310
London, AR 72847

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

County Judge of Pope County
Pope County Courthouse
Russellville, AR 72801

Vice President, Operations Support
Entergy Operations, Inc.
P. O. Box 31995
Jackson, MS 39286-1995

Wise, Carter, Child & Caraway
P. O. Box 651
Jackson, MS 39205