

August 2, 2006

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 (ANO-2) RE: ISSUANCE OF  
LICENSE AMENDMENT TO MODIFY MODERATOR TEMPERATURE  
COEFFICIENT SURVEILLANCE REQUIREMENTS (TAC NO. MC8538)

Dear Mr. Forbes:

The Commission has issued the enclosed Amendment No. 265 to Facility Operating License No. NPF-6 for ANO-2. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated September 19, 2005.

The amendment will modify ANO-2 Surveillance Requirement TS 3.1.1.4, "Moderator Temperature Coefficient," and will allow the use of WCAP-16011-P-A, "Startup Test Activity Reduction 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/**

Drew G. Holland, Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-368

Enclosures: 1. Amendment No. 265 to NPF-6  
2. Safety Evaluation

cc w/encls: See next page

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ENTERGY OPERATIONS, INC.

DOCKET NO. 50-368

ARKANSAS NUCLEAR ONE, UNIT NO. 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 265  
Renewed 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 September 19, 2005, 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 Renewed Facility Operating License No. NPF-6.
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/**

David Terao, Chief  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications and Facility Operating License

Date of Issuance: August 2, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 265  
RENEWED FACILITY OPERATING LICENSE NO. NPF-6  
DOCKET NO. 50-368

Replace page 3 of the Facility Operating License with the attached revised page 3.

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

<u>Remove</u> _____	<u>Insert</u>
3/4 1-5	3/4 1-5

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 265 TO

RENEWED 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 September 19, 2006 (Reference 1), Entergy Operations, Inc. (Entergy) requested an amendment to the Operating License and Technical Specifications (TSs) for Arkansas Nuclear One, Unit 2 (ANO-2). The request will modify ANO-2 Surveillance Requirement TS 3.1.1.4, "Moderator Temperature Coefficient" (MTC), utilizing WCAP-16011-P-A, "Startup Test Activity Reduction [(STAR)] Program" (Reference 2). The U.S. Nuclear Regulatory Commission (NRC) staff's original proposed no significant hazards consideration determination was published in the *Federal Register* on December 6, 2005 (70 FR 72671).

WCAP-16011-P-A describes methods to reduce the time required for startup testing. To this end, WCAP-16011-P-A proposes methods to eliminate the control element assembly (CEA) worth and isothermal temperature coefficient (ITC) measurements at hot zero power (HZP). WCAP-16011-P-A includes a method to substitute the measured value of the MTC at HZP with an alternate MTC value consisting of the predicted (calculated) MTC and measured critical boron concentration (CBC) at HZP. WCAP-16011-P-A adds an ITC measurement at intermediate to hot full power, and applicability requirements for core design, fabrication, refueling, startup testing, and CEA lifetime viability requirements. WCAP-16011-P-A methods can only be applied to cores that are well characterized by an existing database.

In Reference 1, the licensee has only requested to substitute the measured value of the MTC at HZP with an alternate MTC value consisting of the predicted (calculated) MTC and measured CBC at HZP. Therefore, the NRC staff's review was limited to this scope.

2.0 REGULATORY EVALUATION

The regulations (Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR Part 50)) do not explicitly prescribe specific post-refueling startup testing. However, the genesis for post-refueling startup testing can be traced to the preoperational testing required to be specified in the final safety analysis report by 10 CFR 50.34. Section 50.36 of 10 CFR specifies surveillance requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met. Part 50 of 10 CFR, Appendix A, "General Design

Criteria” (GDC), apply, in that the GDCs establish the necessary design, fabrication, construction, testing, and performance requirements for structures, systems, and components important to safety. Accordingly, the MTC is a parameter controlled in the licensee’s TS, including surveillance requirements. As a value in the TS, MTC and the applicable surveillance requirements are subject to regulatory oversight.

### 3.0 TECHNICAL EVALUATION

As stated previously WCAP-16011-P-A describes methods to reduce the time required for startup testing. The NRC-approved WCAP-16011-P-A on January 14, 2005, for referencing in license applications to the extent specified and under the limitations stated in the topical report and the NRC safety evaluation (SE). Since the NRC staff found the report acceptable, the review of the licensee’s September 19, 2005, application was to ensure that WCAP-16011-P-A is applicable to ANO-2 and that WCAP-16011-P-A is being implemented appropriately.

Entergy has only requested a partial implementation of WCAP-16011-P-A for ANO-2, that portion that replaces the current MTC Surveillance with an MTC Alternate Surveillance. However, the NRC’s SE and WCAP-16011-P-A make no differentiation between the limitations, conditions, and requirements for partial or full implementation. Nor has the licensee’s application requested any differentiation of the limitations, conditions, or requirements for its partial implementation. Therefore, the licensee’s partial implementation of WCAP-16011-P-A requires the full acceptance of the limitations, conditions, and requirements specified in the NRC’s SE and WCAP-16011-P-A.

In the SE for WCAP-16011-P-A, the NRC identified three conditions and limitations for the application of WCAP-16011-P-A to individual licensees.

1. The STAR program is applicable only to the participating plants as defined in Table 3-1 of WCAP-16011-P-A.
2. Should any of the STAR test results fall outside of the test criteria, either ascertain that the safety analysis and STAR applicability requirements are satisfied, or discontinue use of the STAR program for that fuel cycle.
3. The Staff requires each licensee using STAR to submit a summary report following the first application, either successful or not, of STAR to its plant. The report should (a) identify the core design method used, (b) compare the measured and calculated values and the differences between these values to the corresponding core design method uncertainties and show compliance with the STAR applicability requirements. If the application of STAR is unsuccessful, identify the reasons why the STAR application failed.

With respect to these conditions and limitations, the licensee meets the first as ANO-2 is included in Table 3-1 of WCAP-16011-P-A. The licensee meets the second and third items as licensing commitments. Therefore, it is reasonable to conclude that WCAP-16011-P-A is applicable to ANO-2 and that WCAP-16011-P-A is being implemented appropriately.

The NRC staff reviewed the licensee’s license amendment request (LAR) reports submitted by Entergy, to support ANO-2 TS change to modify ANO-2 SR 4.1.1.4.1 and 4.1.1.4.2 to allow the use of WCAP-16011-P-A. Based on this review, the NRC staff concludes that appropriate documentation was submitted and that the proposed changes satisfy the staff positions and

requirements in these areas. Therefore, on the basis of the above review and justification, the NRC staff concludes that the proposed changes to the TS 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. 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 published December 6, 2005 (70 FR 72671). 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 adverse to the common defense and security or to the health and safety of the public.

#### 7.0 REFERENCES

4. Letter from Jeffery S. Forbes, Arkansas Nuclear One, to U.S. NRC, Re: "License Amendment Request to Modify Technical Specification 3.1.1.4, Surveillance Requirements as Allowed by WCAP-16011-P-A, Startup Test Activity Reduction Program, Arkansas Nuclear One, Unit 2, Docket No. 50-368, License No. NPF-6," dated September 19, 2005, Agencywide Documents Access and Management System (ADAMS) Accession No. ML052760278.
5. WCAP-16011-P-A, "Startup Test Activity Reduction Program," dated February 2005. ADAMS Accession No. ML050660118 (Nonproprietary version).

Principal Contributor: K. Wood

Date: August 2, 2006



Arkansas Nuclear One

cc:

Senior 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  
1700 K Street, N.W.  
Washington, DC 20006-3817

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

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