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

September 18, 2009

Vice President, Operations
Arkansas Nuclear One
Entergy Operations, Inc.
1448 S.R. 333
Russellville, AR 72802

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT NO. 2 - ISSUANCE OF AMENDMENT RE: REVISION TO THE DEPARTURE FROM NUCLEATE BOILING RATIO SAFETY LIMIT (TAC NO. ME1328)

Dear Sir or Madam:

The Commission has issued the enclosed Amendment No. 287 to Renewed Facility Operating License No. NPF-6 for Arkansas Nuclear One, Unit No. 2 (ANO-2). The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated May 13, 2009, and as supplemented by letter dated July 8, 2009.

The amendment changes the TS 2.1.1.1 departure from nucleate boiling ratio safety limit based upon the Combustion Engineering 16 x 16 Next Generation Fuel design and the associated departure from nucleate boiling correlations.

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,

Nicholas D. Jameson for

N. Kaly Kalyanam, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-368

Enclosures:
1. Amendment No. 287 to NPF-6
2. Safety Evaluation

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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 RENEWED FACILITY OPERATING LICENSE

Amendment No. 287
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 May 13, 2009, and as supplemented by letter dated July 8, 2009, 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 is hereby amended to read as follows:

    (2) Technical Specifications

    The Technical Specifications contained in Appendix A, as revised through Amendment No. 287, are hereby incorporated in the renewed 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 after the current cycle (Cycle 20) is completed and prior to startup for operating Cycle 21.

FOR THE NUCLEAR REGULATORY COMMISSION

Michael T. Markley

Michael T. Markley, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility Operating License No. NPF-6 Technical Specifications

Date of Issuance: September 18, 2009

ATTACHMENT TO LICENSE AMENDMENT NO. 287

RENEWED FACILITY OPERATING LICENSE NO. NPF-6

DOCKET NO. 50-368

Replace the following pages of the Renewed Facility Operating License No. NPF-6 and Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Operating License

REMOVE	INSERT
-3-	-3-

Technical Specifications

REMOVE	INSERT
2-1	2-1

(4) EOI, pursuant to the Act and 10 CFR Parts 30, 40 and 70 to receive, possess and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(5) EOI, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

(6) EOI, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed license shall be deemed to contain and is subject to conditions specified in the following Commission regulations in 10 CFR Chapter 1; Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

EOI is authorized to operate the facility at steady state reactor core power levels not in excess of 3026 megawatts thermal. Prior to attaining this power level EOI shall comply with the conditions in Paragraph 2.C.(3).

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 287 are hereby incorporated in the renewed license. The licensee shall operate the facility in accordance with the Technical Specifications.

Exemptive 2nd paragraph of 2.C.2 deleted per Amendment 20, 3/3/81.

(3) Additional Conditions

The matters specified in the following conditions shall be completed to the satisfaction of the Commission within the stated time periods following issuance of the renewed license or within the operational restrictions indicated. The removal of these conditions shall be made by an amendment to the renewed license supported by a favorable evaluation by the Commission.

2.C.(3)(a) Deleted per Amendment 24, 6/19/81.

2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

2.1 SAFETY LIMITS

2.1.1 REACTOR CORE

DNBR

2.1.1.1 The DNBR of the reactor core shall be maintained $\geq$ 1.23.

APPLICABILITY: MODES 1 and 2.

ACTION:

Whenever the DNBR of the reactor core has decreased to less than 1.23, be in HOT STANDBY within 1 hour.

PEAK FUEL CENTERLINE TEMPERATURE

2.1.1.2 The peak fuel centerline temperature shall be maintained < 5080°F (decreasing by 58°F per 10,000 MWD/MTU for burnup and adjusting for burnable poisons per CENPD-275-P, Revision 1-P-A and CENPD-382-P-A).

APPLICABILITY: MODES 1 and 2.

ACTION:

Whenever the peak fuel centerline temperature has equaled or exceeded 5080°F (decreasing by 58°F per 10,000 MWD/MTU for burnup and adjusting for burnable poisons per CENPD-275-P, Revision 1-P-A and CENPD-382-P-A), be in HOT STANDBY within 1 hour.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 287 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 May 13, 2009 (Reference 1) as supplemented by letter dated July 8, 2009 (Reference 2), Entergy Operations, Inc. (Entergy, the licensee), proposed changes to Technical Specification (TS) 2.1.1.1, "DNBR," for Arkansas Nuclear One, Unit 2 (ANO-2). The proposed TS changes would reduce the safety limit of departure from nucleate boiling ratio (SLDNBR) from 1.25 with the CE-1 critical heat flux (CHF) correlation to 1.23 with the WSSV-T and ABB-NV CHF correlations. The changes are to account for the Combustion Engineering (CE) 16x16 Next Generation Fuel (NGF) and different correlations of departure from nucleate boiling (DNB). The supplemental letter dated July 8, 2009, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the U.S. Nuclear Regulatory Commission (NRC) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on June 30, 2009 (74 FR 31321).

The SLDNBR in the current TS 2.1.1.1 is required to be greater than or equal to 1.25. This limit was based on the CE-1 correlation that was developed for the CHF test data applicable to CE's 16x16 fuel design using the TORC code and statistical combination of uncertainties methods. In 2000, the ABB-NV CHF correlation with a smaller SLDNBR was approved by the NRC (Reference 6); nevertheless, ANO-2 used the existing limit of 1.25 based on the CE-1 correlation to simplify the reload analysis.

In 2007, Westinghouse proposed and NRC approved the NGF assembly design (Reference 7). The NRC-approved NGF design includes improving fuel reliability to resolve grid-to-grid fretting failure, improving fuel performance for high-duty operation, and providing enhanced thermal margin for DNB. The NGF design improves heat transfer performance of the fuel design through the following design changes: (1) the addition of intermediate flow mixer (IFM) grids in the fuel assembly; and (2) the addition of side-supported mixing vanes on both the mid grids and IFM grids. For the NGF design, the WSSV-T correlation is used for departure from nucleate boiling ratio (DNBR) calculations in the mixing vane region of the core, while the

ABB-NV correlation is used to calculate the DNBR values in the hot channels in the non-mixing vane region of the core.

ANO-2's current fuel cycle (Cycle 20) has a transitional core, which consists of a partial core of NGF assemblies and the remaining portion of the standard CE fuel design. During the transition to NGF assemblies, ANO-2 has not taken full credit of the enhanced operating margin that is present in the NGF design. ANO-2 will have a complete core of NGF assemblies following the refueling outage for the fall of 2009, and would take credit of the DNB benefit of the NGF mixing vanes for operations of Cycle 21 and beyond. Therefore, ANO-2 proposed changes to TS 2.1.1.1 with incorporation of the SLDNBR associated with the ABB-NV and WSSV-T correlations for NGF assemblies. The SLDNBR value of 1.23 is the more limiting value that was determined using either the WSSV-T or the ABBV-NV correlation. These new correlations and the associated SLDNBR will be used in the safety analyses for the next fuel cycle (Cycle 21) of operation at ANO-2, a plant with core protection calculators (CPCs), which uses the reactor protection system (RPS) that includes the CPCs to avoid violation of the SLDNBR during normal operation and anticipated operational occurrences (AOOs). Because of existing hardware limitations in the CPC system, the licensee proposed to retain the CE-1 correlation in the CPC system. To be consistent with the safety limit of DNBR for the CE-1 correlation, the licensee proposed to use the existing value of 1.25 for CPC low DNBR trip setpoint and Allowable Value in Functional Unit 10 in TS Table 2.2-1 for NGF assemblies.

2.0 REGULATORY EVALUATION

General Design Criterion (GDC) 10, "Reactor design," of Appendix A to Title 10 of the *Code of Federal Regulations*, Part 50 (10 CFR 50) requires that the reactor core and associated coolant, control, and protection systems be designed with appropriate margins to assure that specified acceptable fuel design limits (SAFDLs) are not exceeded during any conditions of normal operation, including the effects of AOOs. In the application of pressurizer water reactors, the SLDNBR is established to assure compliance with SAFDLs. The SLDNBR is the DNBR, which corresponds to a 95 percent probability at a 95 percent confidence level that DNB will not occur.

In 10 CFR 50.36, "Technical specifications," the NRC established its regulatory requirements related to the content of TS. In accordance with the 10 CFR 50.36 requirements, TSs are required to include items in the following five specific categories related to station operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) surveillance requirements (SRs); (4) design features; and (5) administrative controls. Paragraph 50.36(c)(1)(i)(A) defines a safety limit as a limit "upon important process variables that are found to be necessary to reasonably protect the integrity of certain of the physical barriers that guard against the controlled release of radioactivity." Paragraph 50.36(c)(1)(ii)(A) also states that "[l]imiting safety system settings for nuclear reactors are settings for automatic protective devices related to those variables having significant safety functions. Where a limiting safety system setting is specified for a variable on which a safety limit has been placed, the setting must be so chosen that automatic protective action will correct the abnormal situation before a safety limit is exceeded." Following these two paragraphs of 10 CFR 50.36, the SLDNBR and CPC low DNBR setpoint for reactor trip are set in TS 2.1.1.1 and in TS Table 2.2-1 for ANO-2, respectively. In its review, the NRC staff evaluated the effect of the change of the SLDNBR on safe operation to assure that the ANO-2 would remain in compliance with the requirements of GDC 10 and 10 CFR 50.36.

3.0 TECHNICAL EVALUATION

The adequate SLDNBR and setpoint of the CPC low DNBR reactor trip are important to assure that fuel rod failure due to low DNBR would not occur during normal operation and AOOs in meeting the GDC 10 requirements. TS 2.1.1.1 specifies the required SLDNBR and TS Table 2.2-1 specifies the value of the low DNBR setpoint in the CPC for reactor trip. The licensee proposed TS 2.1.1.1 with an SLDNBR applicable to NGF assemblies in the ANO-2 core. It also proposed the existing CPC low DNBR reactor trip setpoint and Allowable Value in TS Table 2.2-1 for operation with a whole core of the NGF.

3.1 Safety Limit of DNBR for the NGF Design

The licensee has proposed to use the ABB-NV and WSSV-T CHF correlations to perform DNBR calculations in the safety analyses of the NGF assemblies in the core. These derivations of CHF correlations are documented in Reference 6 for ABB-NV and Reference 8 for WSSV-T. Both correlations were previously approved by the NRC for use in Westinghouse's TORC and CETOP-D thermal hydraulic codes. The WSSV-T correlation is applicable to the mixing vane regions of the NGF assembly design and the ABB-NV correlation is applicable to both the standard CE fuel and the non-mixing vane regions of the NGF design. The DNBR correlation limits are 1.12 for WSSV-T and 1.13 for ABB-NV.

There are two types of approaches for calculating the minimum DNBR during normal operation conditions and AOOs: (1) the deterministic method, which assumes all adverse system parameters (such as the reactor geometry, pin-by-pin radial power distributions, inlet and exit flow boundary conditions, etc.) to occur simultaneously in the limiting subchannel; and (2) the statistical method, which involves a statistical combination of system parameter uncertainties with the CHF correlation uncertainties to determine an SLDNBR. When the statistical method is applied, a best estimate thermal hydraulic model code (such as TORC) for DNBR calculations. The licensee adopted the statistical method for its DNBR calculations. In support of the proposed safety limit of DNBR in TS 2.1.1.1 for the NGF design, the licensee combined uncertainties in the CHF correlation and system parameter uncertainties statistically to determine an SLDNBR in accordance with the methods previously approved by the NRC staff and documented in References 3 and 5. Based on the statistical methods, the licensee determined an SLDNBR of 1.23 that assures a 95 percent probability at a 95 percent confidence level that DNB would not occur during normal operation and AOOs. This statistical DNBR limit protects the respective CHF correlation safety limits that are 1.12 for the WSSV-T correlation and 1.13 for the ABB-NV correlation.

The derivation of the SLDNBR of 1.23 relies on the methods documented in the following NRC-approved topical reports (TRs): (1) CEN-139(A)-P, Statistical Combination of Uncertainties – Combination of System Parameter Uncertainties in Thermal Margin Analyses for Arkansas Nuclear One Unit 2; (2) CENPD-161-P-A, TORC Code – A Computer Code for Determining the Thermal Margin of a Reactor Core; (3) CEN-356(V)-P-A, Revision 01-P-A, Modified Statistical Combination of Uncertainties; (4) CENPD-387-P-A, Revision 000, ABB Critical Heat Flux Correlations for PWR Fuel; (5) WCAP-16500-P-A, Revision 0, CE 16 x 16 Next Generation Fuel Core Reference Report; and (6) WCAP-16523-P-A, Westinghouse Correlations WSSV and WSSV-T for Predicting Critical Heat Flux in Rod Bundles with Side-Supported Mixing Vanes.

During the course of the review, the NRC staff requested the licensee to address compliance with the conditions and limitations listed in the NRC safety evaluation reports (SERs) approving the TRs that allow application of the ABB-NV and WSSV-T CHF correlations to the NGF design for the ANO-2 core. In response (Reference 2), the licensee declared meeting all of the SER conditions and limitations within each of the SERs approving the TRs discussed above. The NRC staff concluded that all the applicable positions were previously reviewed and approved by the NRC. The bases of the NRC acceptance of the TRs for ANO-2 licensing applications were discussed in: References 9 though 11 for CEN-139(A)-P; Reference 12 for CENPD-161-P-A; Reference 13 for CEN-356(V)-P-A; and Reference 14 for CENPD-387-P-A, WCAP-16500-P-A and WCAP-16532-P-A. Therefore, the NRC staff concludes that the use of the above noted TRs remained acceptable.

On July 20, 2009, the NRC staff conducted a review of proprietary information regarding the derivation of the SLDNBR of 1.23 at the Westinghouse office in Rockville, Maryland. The NRC staff concluded that the computer codes and statistical combination of uncertainties methodologies described in the NRC-approved TRs (References 3 through 8) were adequately applied and the system parameter uncertainties and CHF correlations with associated DNBR limits applicable to the NGF design were adequately used in determining the SLDNBR. Therefore, the NRC staff concludes that the proposed SLDNBR of 1.23 was acceptable for use of the WSSV-T and ABB-NV correlations to perform DNBR calculations in the safety analyses for mixing vane and non-mixing vane regions of the NGF assemblies in the core, respectively.

3.2 Limiting Safety System Setting Reactor Trip Setpoint DNBR - Low

For ANO-2, the CPC system, which is one part of the RPS, is used to provide automatic protection action to assure that SAFDLs are not exceeded during AOOs. Specifically, the CPC system initiates the low DNBR and high local power density trips of the RPS to assure that the DNBR of the most limiting fuel assembly in the reactor core is not less than the SLDNBR specified in TS 2.1.1.1 and the fuel centerline temperature of the most limiting fuel assembly in the core does not exceed the limits specified in TS 2.1.1.2.

Because of existing CPC hardware limitations, the licensee proposed that it would retain in the CPC algorithm the CE-1 correlation, which is an NRC-approved CHF correlation with the associated SLDNBR of 1.25 for the CE standard fuel (Reference 15). Accordingly, the licensee proposed to retain the DNBR - Low trip setpoint and Allowable Value at 1.25 for the trip setpoint listed in TS Table 2.2-1. The CPC power adjustment addressable constant BERR1 is calculated using the WSSV-T and ABB-NV correlation in accordance with the methodology described in an NRC-approved TR (Reference 5). The BERR1 constant is calculated such that a CPC trip at a DNBR of 1.25 using the CE-1 CHF correlation assures that the bounding SLDNBR of 1.23 for the WSSV-T and ABB-NV correlations will not be exceeded during normal operations and AOOs to at least a 95 percent probability with a 95 percent confidence level. This digital setpoints process was previously approved by the NRC (Reference 7) with applicable Condition 5 on the use of the process as follows:

> 5. To compensate for the NRC staff concerns related to the digital setpoints process, an interim margin penalty of 6 percent must be applied to the final addressable constants (e.g., BERR1*1.06, [(1+EPOL2)*1.06 – 1.0])...Removal of this interim margin penalty will be considered after the

> digital setpoints methods have been formalized, documented..., and approved by the NRC....

In a response addressing compliance with Condition 5, the licensee stated that it will apply the 6 percent interim margin penalty to the resultant addressable constants until its removal has been approved by the NRC.

The final digital setpoints method, which will address the removal of the interim margin penalty, is documented in TR WCAP-16500-P, Supplement 1-P, Revision 1-P (Reference 16) that is currently under the NRC staff review. In support of its application of the TR, the licensee made the following commitment:

> Any limitation and condition listed will be evaluated and how they are met will be documented in the implementation package of the revision to the COLSS [Core Operating Limit Support System] and CPC setpoints and the cycle-specific COLR [Core Operating Limits Report], when the SER for WCAP-16500-P, Supplement 1-P, Revision 1-P is issued.

The NRC staff concluded that the licensee's response to the above cited Condition 5 and the associated commitment adequately addressed the condition imposed by the NRC on the use of the current digital setpoints method for determining the setpoint of the CPC low DNBR trip signal. Therefore, the NRC staff concludes that the proposed use of the digital setpoints method and the CPC low DNBR trip setpoint is acceptable.

3.3 Summary

Based on its review, the NRC staff concludes that that (1) the proposed SLDNBR for NGF assemblies and (2) the CPC low DNBR setpoint for reactor trip (listed in TS Table 2.2-1) were calculated in accordance with the NRC-approved methodologies. Therefore, the NRC staff concludes that there is reasonable assurance that ANO-2 has an adequate SLDNBR and CPC low DNBR setpoint for reactor trip to protect fuel rods from failure. In addition, the NRC staff concludes that ANO-2 will continue to meet the GDC 10 requirement regarding SAFDLs and satisfy the 10 CFR 50.36 requirements regarding safety limits and limiting safety system settings in assuring safe operation of nuclear power plants. Since the proposed TS 2.1.1.1 presented in Reference 1 and Functional Unit 10 in existing TS Table 2.2-1 for ANO-2 adequately reflected the acceptable SLDNBR, and CPC low DNBR reactor trip setpoint and associated Allowable Value for the NGF assemblies, respectively, the NRC staff concludes that the proposed TS 2.1.1.1 and Functional Unit 10 in existing TS Table 2.2-1 are acceptable.

4.0 REGULATORY COMMITMENT

In its supplemental letter dated July 8, 2009, the licensee made the following regulatory commitment:

> Any limitation and condition listed will be evaluated and how they are met will be documented in the implementation package of the revision to the COLSS and CPC setpoints and the cycle-specific COLR.

The licensee has scheduled to complete this commitment when the SER for WCAP-16500-P-A, Supplement 1, Revision 1 is issued. The NRC staff concludes that the commitment is acceptable.

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. 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 in the *Federal Register* on June 30, 2009 (74 FR 31321). 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.

8.0 REFERENCES

1. K. T. Walsh, Entergy Operations, Inc., Letter to U.S. Nuclear Regulatory Commission, "License Amendment Request to Revise the Departure from Nucleate Boiling Ratio (DNBR) Safety Limit, Arkansas Nuclear One, Unit 2, Docket No. 50-368, License No. NPF-6," dated May 13, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML091340153).

2. B. L. Berryman, Entergy Operations, Inc., Letter to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information for the Licensee Amendment Request to Revise the Departure from Nucleate Boiling Ratio (DNBR) Safety Limit, Arkansas Nuclear One, Unit 2, Docket No. 50-368, License No. NPF-6," dated July 8, 2009 (ADAMS Accession No. ML092050637).

3. CEN-139(A)-P, "Statistical Combination of Uncertainties – Combination of System Parameter Uncertainties in Thermal Margin Analyses for Arkansas Nuclear One Unit 2," dated November 1980.

4 CENPD-161-P-A, "TORC Code – A Computer Code for Determining the Thermal Margin of a Reactor Core," dated April 1986.

5. CEN-356(V)-P-A, Revision 01-P-A, "Modified Statistical Combination of Uncertainties," dated May 1988.

6. CENPD-387-P-A, Revision 000, "ABB Critical Heat Flux Correlations for PWR Fuel," dated May 2000.

7. WCAP-16500-P-A, Revision 0, "CE 16 x 16 Next Generation Fuel Core Reference Report," dated August 2007.

8. WCAP-16523-P-A, "Westinghouse Correlations WSSV and WSSV-T for Predicting Critical Heat Flux in Rod Bundles with Side-Supported Mixing Vanes," dated August 2007.

9. R. A. Clark, U.S. Nuclear Regulatory Commission, Letter to W. Cavanaugh, Arkansas Power and Light, "Operation of ANO-2 during Cycle 2" (Amendment No. 21 to NPF-6), dated June 19, 1981 (ADAMS Accession No. ML021490407).

10. R. A. Clark, U.S. Nuclear Regulatory Commission, Letter to W. Cavanaugh, Arkansas Power and Light, "Operation of ANO-2 during Cycle 2" (Amendment No. 26 to NPF-6), dated July 21, 1981 (ADAMS Accession No. ML021490394).

11. R. A. Clark, U.S. Nuclear Regulatory Commission, Letter to W. Cavanaugh, Arkansas Power and Light, "Changes to Core Protection Calculator System Technical Specifications" (Amendment No. 27 to NPF-6), dated September 9, 1981 (ADAMS Accession No. ML021490385).

12. G. Kalman, U.S. Nuclear Regulatory Commission, Letter to J. W. Yelverton, Entergy Operations, Inc., "Issuance of Amendment No.164 to Facility Operating License No. NPF-6 Arkansas Nuclear One, Unit No. 2," dated September 19, 1995 (ADAMS Accession No. ML021560476).

13. T. W. Alexion, U.S. Nuclear Regulatory Commission, Letter to C. G. Anderson, Entergy Operations, Inc. "Arkansas Nuclear One, Unit No. 2 – Issuance of Amendment RE: Increase in Licensed Power Level," dated April 24, 2002 (ADAMS Accession No. ML021130826).

14. A. B. Wang, U.S. Nuclear Regulatory Commission, Letter to Entergy Operations, Inc., "Arkansas Nuclear One, Unit No. 2 – Issuance of Amendment RE: Technical Specification 6.6.5, 'Core Operating Limits Report (COLR)'," dated March 26, 2008 (ADAMS Accession No. ML080840015).

15. CENPD-162-P-A, "C-E Critical heat Flux," dated September 1976; Supplement 1-A, dated February 1977; and CENPD-207-P-A, "C-E Critical Heat Flux Part 2 Non-uniform Axial Power Distribution," dated December 1984.

16. WCAP-16500-P, Supplement 1-P, Revision 1-P, "Application of CE Methodology for CE 16X16 Next Generation Fuel (NGF)," dated October 2008 (ADAMS Accession No. ML083050498, not publicly available).

Principal Contributor: S. Sun

Date: September 18, 2009

September 18, 2009

Vice President, Operations
Arkansas Nuclear One
Entergy Operations, Inc.
1448 S.R. 333
Russellville, AR 72802

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT NO. 2 - ISSUANCE OF AMENDMENT RE: REVISION TO THE DEPARTURE FROM NUCLEATE BOILING RATIO SAFETY LIMIT (TAC NO. ME1328)

Dear Sir or Madam:

The Commission has issued the enclosed Amendment No. 287 to Renewed Facility Operating License No. NPF-6 for Arkansas Nuclear One, Unit No. 2 (ANO-2). The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated May 13, 2009, and as supplemented by letter dated July 8, 2009.

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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 by Nicholas J. DiFrancesco for//

N. Kaly Kalyanam, Project Manager
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Docket No. 50-368

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ADAMS Accession No. ML092460118

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	DSS/SRXB/BC	DSS/SNPB/BC	OGC – NLO	NRR/LPL4/BC	NRR/LPL4/PM
NAME	NKalyanam	JBurkhardt	GCranston*	AMendiola	BHarris	MMarkley	NKalyanam NDiFrancesco for
DATE	9/3/09	9/14/09	9/2/09	9/3/09	9/10/09	9/18/09	9/18/09