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

July 20, 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: ONE-TIME EXTENSION TO 10-YEAR FREQUENCY OF INTEGRATED LEAK RATE TEST (TAC NO. MD9502)

Dear Sir or Madam:

The Commission has issued the enclosed Amendment No. 284 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 August 21, 2008.

The amendment modifies Technical Specification (TS) 6.5.16, "Containment Leakage Rate Testing Program," to allow a one-time extension to the 10-year frequency for next containment integrated leakage rate test (ILRT) or Type A test at ANO-2. The amendment permits the existing ILRT frequency to be extended from 10 years (120 months) to 135 months.

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,

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. 284 to NPF-6
2. Safety Evaluation

cc w/encls: Distribution via Listserv

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. 284
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 August 21, 2008, 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. 284, 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 within 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

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: July 20, 2009

(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 I; 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. 284, 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.

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

ATTACHMENT TO LICENSE AMENDMENT NO. 284

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
6-18	6-18

6.5.16 Containment Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995, except that the next Type A test performed after the November 30, 2000 Type A test shall be performed no later than February 29, 2012.

In addition, the containment purge supply and exhaust isolation valves shall be leakage rate tested prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days.

The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a, is 58 psig.

The maximum allowable containment leakage rate, L_a, shall be 0.1% of containment air weight per day at P_a.

Leakage rate acceptance criteria are:

a. Containment leakage rate acceptance criteria is $\leq 1.0\ L_a$. During the first unit startup following each test performed in accordance with this program, the leakage rate acceptance criteria are $< 0.60\ L_a$ for the Type B and Type C tests and $\leq 0.75\ L_a$ for Type A tests.

b. Air lock acceptance criteria are:

   1. Overall air lock leakage rate is $\leq 0.05\ L_a$ when tested at $\geq P_a$.

   2. Leakage rate for each door is $\leq 0.01\ L_a$ when pressurized to ≥ 10 psig.

The provisions of Specification 4.0.2 do not apply to the test frequencies specified in the Containment Leakage Rate Testing Program.

The provisions of Specification 4.0.3 are applicable to the Containment Leakage Rate Testing Program.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 284 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 application dated August 21, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML082380147), Entergy Operations, Inc. (the licensee), requested changes to the Technical Specifications (TSs) for Arkansas Nuclear One, Unit No. 2 (ANO-2).

The proposed changes would modify TS 6.5.16, "Containment Leakage Rate Testing Program," to allow a one-time extension to the 10-year frequency for next containment integrated leakage rate test (ILRT) or Type A test at ANO-2. The change would permit the existing ILRT frequency to be extended from 10 years (120 months) to 135 months.

The proposed revision would avoid the necessity of performing a Type A test 14 months prior to the 10th year anniversary of the completion of the last Type A test (November 30, 2000), and would extend the period from 120 months to no longer than 135 months between the successive tests.

2.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Appendix J, Option B, "Performance-Based Requirements," requires that a Type A test be conducted at a periodic interval based on historical performance of the overall containment system. ANO-2 TS 6.5.16 requires that leakage rate testing be performed as required by 10 CFR Part 50, Appendix J, Option B, as modified by approved exemptions, and in accordance with the guidelines contained in U.S. Nuclear Regulatory Commission (NRC) Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995 (ADAMS Accession No. ML003740058). This RG endorses, with certain exceptions, Nuclear Energy Institute (NEI) report 94-01, Revision 0, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," dated July 26, 1995.

A Type A test is an overall ILRT of the containment structure. NEI 94-01, Revision 0, specifies an initial test interval of 48 months, but allows an extended interval of 10 years, based upon two consecutive successful tests. There is also a provision for extending the test interval an additional 15 months, but this "should be used only in cases where refueling schedules have been changed to accommodate other factors." The most recent two Type A tests at ANO-2 have been successful, so the current interval requirement is 10 years.

The ANO-2 refueling outage happens to fall such that the next Type A test would have to be performed less than 9 years after the most recent one, because the following refueling outage would be 135 months after the most recent Type A test, and the extension allowed by NEI 94-01 does not apply. Thus, the licensee is requesting a TS change to add one more operating cycle to the test interval.

The licensee proposes to take exception to its implementation of the TS with regard to the interval for the next ILRT and, therefore, submitted the amendment request in accordance with 10 CFR 50, Appendix J, Option B, Section V.B.3, as stated below:

> The regulatory guide or other implementation document used by a licensee or applicant for an operating license under this part or a combined license under part 52 of this chapter to develop a performance-based leakage-testing program must be included, by general reference, in the plant technical specifications. The submittal for technical specification revisions must contain justification, including supporting analyses, if the licensee chooses to deviate from methods approved by the Commission and endorsed in a regulatory guide.

The proposed TS change does not involve any other changes to licensing commitments or acceptance criteria.

As additional background, the NRC staff has issued license amendments to approximately 87 reactor units which extended, on a one-time basis, their Type A test intervals to 15 years, based primarily on probabilistic risk assessment arguments.

3.0 TECHNICAL EVALUATION

3.1 Containment Inservice Inspection Program and Structural/Leak-Tight Integrity Considerations

The reactor containment leakage test program requires the licensee to perform an ILRT, also termed as a Type A test, and local leakage rate tests (LLRTs) termed as Type B and Type C tests. The Type A test measures the overall leakage rate of the primary reactor containment. Type B tests are primarily intended to detect leakage paths and measure leakage rates for primary reactor containment penetrations. Type C tests are intended to measure containment isolation valve leakage rates.

The ANO-2 TS 6.5.16 currently states that the next Type A test shall be within 10 years after the last ILRT test, which was performed on November 30, 2000. The licensee has requested an extension of the Type A test interval not to exceed 15 months.

NEI 94-01, Revision 0, allows an additional 15 months to be added on to the 10-year interval at the discretion of the licensee, but with the restriction that it "should be used only in cases where refueling schedules have been changed to accommodate other factors." The purpose of this restriction is to prevent a licensee from arbitrarily adding the 15 months on to every testing interval, which would effectively change the interval permanently to 135 months. The safety and risk significance of the 15-month extension has already been incorporated into the models used to determine the acceptability of the testing interval.

The proposed revision would avoid the necessity of performing a Type A test 14 months prior to the 10th year anniversary of the completion of the last Type A test (November 30, 2000) and would also extend the period from 120 months (10 years) to no longer than 135 months between successive tests. In terms of refueling outages, this extension would move the performance of the next ILRT from ANO-2 outage #20 (2R20) to ANO-2 outage #21 (2R21).

The leak-tight integrity of the penetrations and isolation valves are verified through Type B and Type C LLRTs and the overall leak-tight integrity and structural integrity of the primary containment is verified through a Type A test (ILRT), as required by 10 CFR 50, Appendix J. These tests are performed at the design-basis accident pressure. The testing frequency for Type B and Type C tests is not affected by this requested amendment and will continue to be performed in accordance with NEI 94-01, Revision 0, as endorsed by RG 1.163.

The first ANO-2 ILRT was performed on May 31, 1981. The most recent test was performed on November 30, 2000. There have been no failed ILRTs at ANO-2. Additionally, no modifications that require a Type A test are planned prior to 2R21 refueling outage, when the next Type A test will be performed under this proposed change. There have been no pressure or temperature excursions in the containment which could have adversely affected containment integrity. There is no anticipated addition or removal of plant hardware within the primary containment which could affect leak-tightness.

Any unplanned modifications to the containment prior to the next scheduled Type A test would be subject to the special testing requirements of Section 9.2.4 of NEI 94-01, Revision 0, and Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code).

ANO-2 has established procedures for performing visual examination of the accessible surfaces of the containment for detection of structural problems. RG 1.163, Regulatory Position C.3 specifies that these examinations should be conducted prior to initiating a Type A test and during two other outages before the next Type A test, if the interval for the Type A test has been extended to 10 years, in order to allow for early detection of evidence of structural deterioration. These visual examinations have been completed, with no significant defects noted to date. It is noted that a visual inspection is also conducted in accordance with the Containment Inservice Inspection (CISI) requirements, per 10 CFR 50.55a(b)(2) and Subsection IWE of the ASME Code, Section XI.

In this case, the NRC staff considers the extension of 15 months to be a reasonable request, considering the ANO-2 ILRT testing history and other factors, discussed above.

3.2 Containment Pressure Boundary Evaluation

The results of previous ILRT testing has confirmed that the ANO-2 containment structure leakage is acceptable, with considerable margin by meeting the TS acceptance criterion of 0.1 percent of containment air weight leakage at the design-basis loss-of-coolant accident pressure. The last ILRT was completed on November 30, 2000, after the installation of the replacement generators and closure of the construction opening made in the containment structure to support the replacement of the steam generators. Additionally, the test was performed at the new higher design pressure of 58 pounds per square inch gauge. There have been no failed ILRTs at ANO-2.

No modifications that require a Type A test are planned prior to the 2011 refueling outage (2R21), when the next Type A test will be performed under this proposed change. Any unplanned modifications to the containment prior to the next scheduled Type A test would be subject to the special testing requirements of Section IV.A, "Containment modification," of 10 CFR 50, Appendix J. There have been no pressure or temperature excursions in the containment which could have adversely affected containment integrity. There is no anticipated addition or removal of plant hardware within the primary containment which could affect leak-tightness.

Containment penetration (Types B and C) testing is being performed in accordance with Option B of 10 CFR 50, Appendix J at the frequency required by the TSs. The current total penetration leakage on a minimum path basis is less than 10 percent of the leakage allowed for containment integrity.

ANO-2 has established procedures for performing visual examination of the accessible surfaces of the containment for detection of structural problems. RG 1.163, Regulatory Position C.3 specifies that these examinations should be conducted prior to initiating a Type A test and during two other outages before the next Type A test if the interval for the Type A test has been extended to 10 years, in order to allow for early detection of evidence of structural deterioration. In addition, a visual inspection is also conducted in accordance with the CISI requirements, per 10 CFR 50.55a(b)(2) and Subsection IWE of Section XI of the ASME Code. These visual examinations have been completed, with no significant defects noted to date.

4.0 SUMMARY

Based on the foregoing evaluation, the NRC staff finds that there are no significant increases in risk or reductions in safety resulting from the requested test extension, beyond those already considered in the establishment of the intervals allowed by RG 1.163 and NEI 94-01, Revision 0. Further, the ANO-2 containment has a good leakage rate history, and has passed the required visual and ISI inspections. Therefore, the staff concludes that the requested TS change, increasing the Type A test interval one time to 135 months, 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 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 published in the *Federal Register* on November 4, 2008 (73 FR 65694). The amendment also relates to changes in recordkeeping, reporting, or administrative procedures or requirements. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and 10 CFR 51.22(c)(10). 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 Contributors: B. Lee
J. Uribe
H. Ashar

Date: July 20, 2009

July 20, 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: ONE-TIME EXTENSION TO 10-YEAR FREQUENCY OF INTEGRATED LEAK RATE TEST (TAC NO. MD9502)

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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/

N. Kaly Kalyanam, Project Manager
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* Minor editorial changes from Staff provided SE

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DATE	7/1/09	7/1/09	3/27/09	6/1/09	7/6/09	7/10/09	7/17/09	7/20/09

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