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

August 10, 2011

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

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT NO. 1 - ISSUANCE OF AMENDMENT RE: REVISION OF TECHNICAL SPECIFICATION (TS) 3.9.3, "REACTOR BUILDING PENETRATIONS" (TAC NO. ME4544).

Dear Sir or Madam:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 245 to Renewed Facility Operating License No. DPR-51 for Arkansas Nuclear One, Unit No. 1. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated August 10, 2010, as supplemented by letter dated June 10, 2011.

The amendment revises TS 3.9.3, "Reactor Building Penetrations," to allow reactor building flow path(s) providing direct access from the reactor building atmosphere to the outside atmosphere to be unisolated under administrative control, during movement of irradiated fuel assemblies. The change is consistent with Technical Specification Task Force (TSTF) Technical Change Traveler TSTF-312, Revision 1, "Administratively Control Containment Penetrations."

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. 50-313

Enclosures:
1. Amendment No. 245 to DPR-51
2. Safety Evaluation

cc w/encls: Distribution via Listserv

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

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 245
Renewed License No. DPR-51

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Entergy Operations, Inc. (the licensee), dated August 10, 2010, as supplemented by letter dated June 10, 2011, 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. DPR-51 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 245, are hereby incorporated in the renewed license. EOI 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 90 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. DPR-51
and Technical Specifications

Date of Issuance: August 10, 2011

ATTACHMENT TO LICENSE AMENDMENT NO. 245

RENEWED FACILITY OPERATING LICENSE NO. DPR-51

DOCKET NO. 50-313

Replace the following pages of the Renewed Facility Operating License No. DPR-51 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
3.9.3-1	3.9.3-1

(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 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;

(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 the 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; 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 2568 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 245, are hereby incorporated in the renewed license. EOI shall operate the facility in accordance with the Technical Specifications.

(3) Safety Analysis Report

The licensee's SAR supplement submitted pursuant to 10 CFR 54.21(d), as revised on March 14, 2001, describes certain future inspection activities to be completed before the period of extended operation. The licensee shall complete these activities no later than May 20, 2014.

(4) Physical Protection

EOI shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans, including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Arkansas Nuclear One Physical Security Plan, Training and Qualifications Plan, and Safeguards Contingency Plan," as submitted on May 4, 2006.

3.9 REFUELING OPERATIONS

3.9.3 Reactor Building Penetrations

LCO 3.9.3 The reactor building penetrations shall be in the following status:

a. The equipment hatch is capable of being closed;

b. One door in each air lock is capable of being closed; and

c. Each penetration providing direct access from the reactor building atmosphere to the outside atmosphere either:

1. closed by a manual or automatic isolation valve, blind flange, or equivalent, or

2. capable of being closed by an OPERABLE reactor building isolation valve, except reactor building purge isolation valves, or

3. capable of being closed by an OPERABLE reactor building purge isolation valve with the purge exhaust radiation monitoring channel OPERABLE.

----------NOTE----------
Penetration flow path(s) providing direct access from the reactor building atmosphere to the outside atmosphere may be unisolated under administrative controls.

APPLICABILITY: During movement of irradiated fuel assemblies within the reactor building.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more reactor building penetrations not in required status.	A.1 Suspend movement of irradiated fuel assemblies within the reactor building.	Immediately

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 245 TO

RENEWED FACILITY OPERATING LICENSE NO. DPR-51

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT NO. 1

DOCKET NO. 50-313

1.0 INTRODUCTION

By application dated August 10, 2010 (Agencywide Documents Access and Management System (ADAMS Accession No. ML102280537), and ass supplemented by letter dated June 10, 2011 (ADAMS Accession No. ML111610441), Entergy Operations, Inc. (the licensee), requested changes to the Technical Specifications (TSs) for Arkansas Nuclear One, Unit No. 1 (ANO-1).

The amendment would revise TS 3.9.3, "Reactor Building Penetrations," Limiting Condition for Operation (LCO) 3.9.3, item (c) by adding a NOTE to allow reactor building flow path(s) providing direct access from the reactor building atmosphere to the outside atmosphere to be unisolated under administrative control, during movement of irradiated fuel assemblies. The change is consistent with Nuclear Regulatory Commission (NRC)-approved Technical Specification Task Force (TSTF) Technical Change Traveler TSTF-312, Revision 1, "Administratively Control Containment Penetrations."

The allowance to open penetration flow paths under administrative controls will support the performance of other outage activities concurrent with fuel handling activities while continuing to provide an acceptable barrier against the release of fission product radioactivity to the outside atmosphere.

The supplemental letter dated June 10, 2011, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on October 5, 2010 (75 FR 61526).

2.0 REGULATORY EVALUATION

The following general design criteria (GDCs) in Appendix A to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "General Design Criteria for Nuclear Power Plants," are applicable to the proposed amendment.

- Criterion 16, "Containment design," states that

  > Reactor containment and associated systems shall be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment and to assure that the containment design conditions important to safety are not exceeded for as long as the postulated accident conditions require.

- Criterion 19, "Control room," states, in part, that

  > A control room shall be provided from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition under accident conditions, including loss-of-coolant accidents. Adequate protection shall be provided to permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 5 rem [roentgen equivalent man] whole body, or its equivalent to any part of the body, for the duration of the accident ....
  >
  > Applicants for and holders of ... operating licenses ..., or holders of operating licenses using an alternative source term under §50.67, shall meet the requirements of this criterion, except that with regard to control room access and occupancy, adequate radiation protection shall be provided to ensure that radiation exposures shall not exceed 0.05 Sv [sievert] (5 rem) total effective dose equivalent (TEDE) as defined in § 50.2 for the duration of the accident.

- Criterion 54, "Piping systems penetrating containment," states that

  > Piping systems penetrating primary reactor containment shall be provided with leak detection, isolation, and containment capabilities having redundancy, reliability, and performance capabilities which reflect the importance to safety of isolating these piping systems. Such piping systems shall be designed with a capability to test periodically the operability of the isolation valves and associated apparatus and to determine if valve leakage is within acceptable limits.

- Criterion 56, "Primary containment isolation," states, in part, that

> Each line that connect directly to the containment atmosphere and which penetrate primary reactor containment unless it can be demonstrated that the isolation provisions for a specific class of lines are acceptable on some other defined basis.

The regulations in 10 CFR 50.59 establish the requirements for changes, tests, and experiments.

The regulations in 10 CFR 50.67, "Accident source term," provide the limitations of radiological dose for an individual located at any point on the boundary of the exclusion area, for an individual located at any point on the outer boundary of the low population zone, and provide for the radiological protection of the personnel occupying the control room under accident conditions.

NRC Regulatory Guide (RG) 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," July 2000 (ADAMS Accession No. ML003716792), provides guidance on acceptable applications of alternative source terms. In Appendix B of this RG, guidance is provided on evaluating the radiological consequences of a fuel handling accident (FHA).

3.0 TECHNICAL EVALUATION

3.1 Licensee's Proposed Changes

The current TS LCO 3.9.3.c does not permit opening certain reactor building penetrations that provide direct access from the reactor building atmosphere to the outside atmosphere, during fuel movement inside the reactor building. The proposed change would allow opening these penetration flow path(s) under administrative controls.

In its letter dated August 10, 2010, the licensee stated that by allowing containment penetration flow paths to be open under administrative controls, outage activities can be performed in a more efficient manner, concurrently with fuel handling activities. As an example, the licensee stated that Type C local leak rate testing (LLRT) of certain penetrations require opening the associated containment isolation valves to drain the penetration piping. The process could potentially establish communication between the reactor building atmosphere and outside atmosphere and, therefore, the current restriction in TS LCO 3.9.3.c will not allow such LLRT tests during fuel movement inside the reactor building.

The NRC previously granted approval to ANO-1, to revise TS 3.9.3 to (1) allow personnel air locks to be open (Amendment No. 184, dated September 20, 1996 (ADAMS Accession No. ML021270502)), and (2) allow containment equipment hatch to be open (Amendment No. 195, dated April 16, 1999 (ADAMS Accession No. ML021270166)), during the handling of irradiated fuel in the reactor building. In the current license amendment request, the licensee proposed a change to TS 3.9.3 for ANO-1 to allow other containment penetrations, in addition to equipment hatch or personnel air locks authorized earlier, to remain open under administrative

controls during the handling of irradiated fuel within the reactor building. By letter dated August 10, 2010, the licensee proposed to add the following note under TS LCO 3.9.3.c:

> Penetration flow path(s) providing direct access from the reactor building atmosphere to the outside atmosphere may be unisolated under administrative controls.

3.2 NRC Staff Evaluation

In its letter dated August 10, 2010, the licensee stated that the proposed change implements the NRC-approved TSTF-312, Revision 1. Approval of applications of this nature are acceptable to the NRC staff if (1) dose consequences indicate acceptable radiological consequences without credit for the containment's fission product control function, and (2) the licensee has committed to implement administrative procedures that ensure that the open penetration can and will be promptly closed, following containment evacuation, in the event of an FHA.

The dose consequences for the prior approval of allowing equipment hatch and/or personnel air locks to be open were based on the FHA analysis that existed at the time of issuing Amendment Nos. 184 and 195 for ANO-1. However, the FHA analysis has since been revised by the licensee in support of the adoption of the use of alternate source term (AST). The AST analysis also included the basis for allowing the containment equipment hatch and/or personnel air locks to remain open during the handling of irradiated fuel within the reactor building. The NRC staff reviewed the licensee's request to adopt the AST and issued a safety evaluation dated October 21, 2009 (Amendment No. 238; ADAMS Accession No. ML092740035). The analysis considered both a dropped fuel assembly inside the containment with the equipment hatch open and an assembly drop in the spent fuel pool. The release in both cases is assumed to occur directly to the environment without filtration. The results of the analysis show that the radiological consequences resulting from the postulated FHA at the exclusion area boundary, low population zone, and in the control room are within the dose criteria specified in 10 CFR 50.67. In the safety evaluation dated October 21, 2009, related to an amendment on the use of an AST associated with accident offsite and control room dose consequences, the NRC staff concluded that the method, assumptions, and parameters were consistent with the conservative guidance provided in RG 1.183. The licensee stated that this analysis is the limiting FHA when considering open penetration flow paths during the handling of irradiated fuel in the reactor building. The NRC staff concludes that the results of this analysis will also envelope the proposed change.

In its letter dated August 10, 2010, the licensee stated that procedural controls are currently in place for the open equipment hatch and doors during operations involving irradiated fuel movement inside the reactor building. The licensee further stated that the same procedural controls will be extended to other open penetrations that fall under the scope of the current proposed change. These controls will ensure that appropriate personnel are aware of the open status of the penetration flow paths during movement of irradiated fuel assemblies within the reactor building and that specified individuals are designated and readily available to isolate the flow paths in the event of an FHA.

In the application dated August 10, 2010, the licensee stated that provisions already exist in TS 3.6.3, "Reactor Building Isolation Valves," to allow penetration flow paths to be un-isolated

under administrative controls in MODES 1 through 4. The licensee pointed out that these modes are more restrictive than the refueling mode of operation, in terms of reactor coolant system energy and the potential for a significant motive force to expel radionuclides during a design-basis accident and, therefore, a similar allowance to open penetration flow paths under less restrictive modes should also be acceptable. The licensee stated that the potential for an FHA resulting in the pressurization of the reactor building is negligible during movement of irradiated fuel assemblies within the reactor building (i.e., MODE 6, Refueling Operations). One scenario, with the reactor vessel head removed and an FHA during the irradiated fuel movement activity, would not result in a measurable increase in building pressure considering the total volume of the containment building (of 1.81×10^6 cubic feet) and the number of fuel rods assumed to fail (failure of 82 fuel rods in one assembly). Therefore, during irradiated fuel movement activities inside the reactor building, the potential for an FHA resulting in pressurization of the reactor building is negligible. The NRC staff's determination on the amendment request is based on the proposed change meeting TSTF-312, Revision 1, with respect to consistency with TSTF-312, Revision 1, acceptable radiological consequences resulting from a postulated FHA, and administrative controls which ensure prompt closure of the open penetration flow paths.

In its letter dated June 10, 2011, the licensee provided a revised markup of the affected TS Bases page for the NRC staff's information.

3.3 Summary

Based on its review, the NRC staff concludes that the proposed change is consistent with the NUREG-1430, Revision 3, "Standard Technical Specifications, Babcock and Wilcox Plants," which incorporated TSTF-312, Revision 1. The FHA analysis performed without reactor building closure and without filtration shows that dose consequences at the exclusion area boundary, low population zone, and in the control room are within the limits specified in 10 CFR 50.67, thus complying with GDC 19. The administrative procedures ensure that designated individuals are readily available to isolate the open penetration flow paths in the event of an FHA, thus ensuring containment barrier functions are fully re-established and those functions remain in compliance with GDCs 16, 54, and 56. Based on the licensee's compliance with the applicable requirements of the proposed change, the NRC staff concludes that the proposed change is acceptable.

3.4 Regulatory Commitment

In its letter dated August 10, 2010, the licensee made a commitment, with a scheduled completion date as "Within 90 days of NRC approval of the proposed TS," as follows:

> Entergy commits to revising the associated Technical Specification Bases consistent with TSTF-312, Revision 1, during implementation of the amendment.

The NRC staff concludes that reasonable controls for the implementation and for subsequent evaluation of proposed changes pertaining to the regulatory commitments are best provided by the licensee's administrative processes, including its commitment management program. The regulatory commitments do not warrant the creation of regulatory requirements (items requiring prior NRC approval of subsequent changes).

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 in the *Federal Register* on October 5, 2010 (75 FR 61526). 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: Janak H. Raval

Date: August 10, 2011

August 10, 2011

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

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT NO. 1 - ISSUANCE OF AMENDMENT RE: REVISION OF TECHNICAL SPECIFICATION (TS) 3.9.3, "REACTOR BUILDING PENETRATIONS" (TAC NO. ME4544).

Dear Sir or Madam:

The Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 245 to Renewed Facility Operating License No. DPR-51 for Arkansas Nuclear One, Unit No. 1. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated August 10, 2010, as supplemented by letter dated June 10, 2011.

The amendment revises TS 3.9.3, "Reactor Building Penetrations," to allow reactor building flow path(s) providing direct access from the reactor building atmosphere to the outside atmosphere to be unisolated under administrative control, during movement of irradiated fuel assemblies. The change is consistent with NRC-approved Technical Specification Task Force (TSTF) Technical Change Traveler TSTF-312, Revision 1, "Administratively Control Containment Penetrations."

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
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-313
Enclosures:
1. Amendment No. 245 to DPR-51
2. Safety Evaluation
cc w/encls: Distribution via Listserv

DISTRIBUTION:

PUBLIC	RidsNrrDorlDpr Resource	RidsNrrLAJBurkhardt Resource
LPLIV RF	RidsNrrDssScvb Resource	RidsOgcRp Resource
RidsAcrsAcnw_MailCTR Resource	RidsNrrDorlLpl4 Resource	RidsRgn4MailCenter Resource
RidsNrrDirsItsb Resource	RidsNrrPMANO Resource	JRaval, NRR/DSS/SCVB

ADAMS Accession No. ML111940085 ***SE memo dated**

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	DIRS/ITSB/BC	DSS/SCVB/BC	OGC NLO	NRR/LPL4/BC	NRR/LPL4/PM
NAME	NKalyanam	JBurkhardt	REIliott (MHamm for)	RDennig*	LSubin	MMarkley	NKalyanam
DATE	8/2/11	7/27/11	8/10/11	5/23/11	8/4/11	8/10/11	8/10/11

OFFICIAL RECORD COPY