

February 9, 2006

Mr. Paul D. Hinnenkamp
Vice President - Operations
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5485 US Highway 61N
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SUBJECT: RIVER BEND STATION, UNIT 1 - ISSUANCE OF AMENDMENT RE:
ADDITIONAL EXTENSION OF APPENDIX J, TYPE A INTEGRATED LEAKAGE
RATE TEST INTERVAL (TAC NO. MC6328)

Dear Mr. Hinnenkamp:

The Commission has issued the enclosed Amendment No. 150 to Facility Operating License No. NPF-47 for the River Bend Station, Unit 1 (RBS). The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated March 8, 2005, as supplemented by letter dated January 17, 2006.

The amendment allows a one-time TS change for RBS. The change extends the test interval for the next Appendix J, Type A test an additional 4 months beyond the 5-year extension already granted by the staff to the nominal 10-year interval

A copy of our related Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

Bhalchandra Vaidya, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-458

Enclosures: 1. Amendment No. 150 to NPF-47
2. Safety Evaluation

cc w/encls: See next page

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(*) No significant change from SE Input

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ENTERGY GULF STATES, INC. **

AND

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-458

RIVER BEND STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 150
License No. NPF-47

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Entergy Gulf States, Inc.* (the licensee) dated March 8, 2005, as supplemented by letter dated January 17, 2006, 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, as amended, 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

* Entergy Operations, Inc. is authorized to act as agent for Entergy Gulf States, Inc., and has exclusive responsibility and control over the physical construction, operation and maintenance of the facility.

**Entergy Gulf States, Inc., has merged with a wholly owned subsidiary of Entergy Corporation. Entergy Gulf States, Inc., was the surviving company in the merger.

- 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-47 is hereby amended to read as follows:
- (2) Technical Specifications and Environmental Protection Plan
- The Technical Specifications contained in Appendix A, as revised through Amendment No. 150 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. EOI shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.
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/

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

Attachment: Changes to the Technical
Specifications

Date of Issuance: February 9, 2006

ATTACHMENT TO LICENSE AMENDMENT NO. 150

FACILITY OPERATING LICENSE NO. NPF-47

DOCKET NO. 50-458

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 area of change.

Remove

Insert

5.0-16

5.0-16

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 150 TO

FACILITY OPERATING LICENSE NO. NPF-47

ENTERGY OPERATIONS, INC.

RIVER BEND STATION, UNIT 1

DOCKET NO. 50-458

1.0 INTRODUCTION

By application dated March 8, 2005 (Reference 8.1), as supplemented by letter dated January 17, 2006 (Reference 8.2), Entergy Operations, Inc. (the licensee or Entergy), requested a technical specifications (TS) change for the River Bend Station, Unit 1 (RBS). Specifically, the change would extend the test interval for its next Appendix J, Type A test by an additional 4 months beyond the 5-year extension already granted by the staff to the nominal 10-year interval. The additional 4-month extension would allow the licensee to perform the Type A test at the refueling outage following the expiration of their current extension, instead of at the refueling outage preceding the expiration of their current extension.

The supplement dated January 17, 2006, 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 March 29, 2005 (70 FR 15942).

2.0 BACKGROUND

RBS is a General Electric Boiling Water Reactor (BWR) design, specifically a BWR-6 with a Mark III primary containment. The containment vessel consists of a continuous and leak-tight steel membrane that includes the cylindrical portion, torispherical portion and floor liner plate on the top of the foundation mat. The design of the containment incorporates a cylindrical drywell, and a cylindrical weir wall concentric with the containment cylindrical wall, forming the suppression pool. The containment vessel is penetrated by access penetrations, processing piping, and electrical penetrations. The integrity of the penetrations is verified through Type B and Type C local leak rate tests (LLRT) as required by 10 CFR Part 50, Appendix J, and the overall integrity of the containment vessel is verified through an integrated leak rate test (ILRT). These tests are performed to verify the leak-tight characteristics of the containment vessel at the design basis accident (DBA) pressure. In its TS amendment request application dated May 14, 2002 (Reference 8.3), as supplemented by letter dated December 20, 2002 (Reference 8.5), for the extension of the ILRT interval, the licensee stated that the last ILRT was performed in August 1992. This request, which was approved on March 5, 2003 (Reference 8.4), by License Amendment No. 131, allows the next overall verification to be performed no later than August

14, 2007. With its letter dated March 8, 2005 (Reference 8.1), the licensee has requested the next ILRT be performed by December 14, 2007.

3.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix J, Option B, "Performance-Based Requirements," requires, in part, that a Type A test be conducted at a periodic interval based on historical performance of the overall containment system. RBS TS 5.5.13, "Primary Containment Leakage Rate Testing Program," 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 Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995, with one exception (discussed in the next paragraph). This RG endorses, with certain exceptions, Nuclear Energy Institute (NEI) report NEI 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 (integrated) leakage rate test of the containment structure. NEI 94-01 specifies an initial test interval of 48 months, but allows an extended interval of 10 years, based upon two consecutive successful tests. The two most recent Type A tests at RBS have been successful, so the current interval requirement would normally be 10 years. However, by letter dated May 14, 2002 (Reference 8.3), the licensee requested a one-time extension of the test interval to 15 years. On March 5, 2003 (Reference 8.4), the U.S. Nuclear Regulatory Commission (NRC) staff granted this request via License Amendment No. 131.

The licensee is now requesting a change to TS 5.5.13 that would alter its exception from the guidelines of RG 1.163 and NEI 94-01, Revision 0, by adding 4 more months to the 5-year extension already in place, for a total interval of 15 years and 4 months. Specifically, the exception states that, after the Type A test performed in August 15, 1992, the next Type A test shall be performed no later than December 14, 2007.

The local leakage rate tests (Type B and Type C tests), including their schedules, are not affected by this request.

4.0 TECHNICAL EVALUATION

4.1 Probabilistic Risk Assessment

In License Amendment No. 131, the NRC staff approved a one-time extension of the Type A test interval from 10 to 15 years. In License Amendment 144, dated October 15, 2004 (ADAMS Accession No. ML043200567), the NRC staff approved a similar one-time extension to the drywell bypass leakage test (DWBT) interval from 10 to 15 years. Both of these test interval extensions were supported by licensee risk assessments. Since the Type A test and DWBT are typically performed on the same frequency, the latter risk assessment evaluated the combined impact of both an extended Type A test and an extended DWBT. The NRC staff's review of the licensee's risk assessment was documented in the Safety Evaluation Report (SER) for License Amendment 144, and concluded that the combined risk impact of the test interval extensions, in terms of total integrated plant risk, large early release frequency, and conditional containment failure probability, were small and supportive of the change.

The current request, to allow a one-time extension of the interval from 15 years to 15 years and 4 months, does not include the DWBT because the existing DWBT interval is adequate to perform the DWBT in conjunction with the Type A test in the desired outage. However, the DWBT interval was conservatively assumed to also be extended in order to simplify the analysis and the licensee performed a risk impact assessment of the combined impact of extending the test interval for the Type A test and DWBT from 10 years to 15 years and 4 months. The risk assessment provided in Reference 8.1, is based on the same methodology, input, and assumptions as described in the SER for License Amendment 144, with the exception of the revised test interval.

Based on these analyses, the risk impacts and risk comparisons for the proposed change are essentially unchanged from those reported in the previous SER, and the staff conclusions remain valid. Specifically, the increase in the total integrated plant risk is small and supportive of the proposed change, the increase in the test interval results in only a small change in large early release frequency consistent with the acceptance guidelines of RG 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," and the defense-in-depth philosophy is maintained based on the small magnitude of the change in the conditional containment failure probability.

Based on the above, the NRC staff finds that the increase in predicted risk due to the proposed change is within the acceptance guidelines, while maintaining the defense-in-depth philosophy of RG 1.174 and, therefore, is acceptable. Therefore, based on the probabilistic risk assessment evaluation, the NRC staff finds that the interval until the next containment Type A test at the River Bend Station, Unit 1, may be extended to 15 years and 4 months, and that the proposed change to TS 5.5.13 is acceptable.

4.2 Aging Degradation of Containment Pressure Boundary

The leak rate testing requirements (ILRT and LLRTs) of Option B of 10 CFR Part 50, Appendix J, and the containment inservice inspection (ISI) requirements mandated by 10 CFR 50.55a complement each other in ensuring the leak-tightness and structural integrity of the containment. This portion of the safety evaluation addresses the ISI program. Specifically, the review focuses on the containment ISI program implemented at RBS; containment surface areas requiring augmented examinations; integrity of seals, gaskets, and pressure retaining bolted connections; integrity of stainless steel bellows (Information Notice 92-20, "Inadequate Local Leak Rate Testing"); and degradation of uninspectable (embedded) portions of the drywell steel shell and steel liner of the primary containment.

As discussed in References 8.3 and 8.5, the licensee started to implement its ISI program based on the 1992 Edition and the 1992 Addenda of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code), Section XI, Subsection IWE, "Requirements for Class MC and Metallic Liners of Class CC Components of Light-Water Cooled Plants," for ISI of the steel containment. By letter dated October 27, 2004 (Reference 8.6), the licensee requested the staff's approval to use the ASME Code Section XI, 1998 Edition with 2000 Addenda for conducting visual containment examinations. In Reference 8.2, the licensee further defined the changes made in the current containment ISI program as compared to the previous containment ISI program described in References 8.3 and 8.5. The licensee stated that the revision to the previous ISI program was based on the 1998 Edition with 2000 Addenda for

visual examination of containment surfaces, along with the associated limitations provided by 10 CFR 50.55a for this code year and Addenda. The staff's acceptance of using the 1998 Edition with 2000 Addenda of ASME Section XI for the RBS containment surface examination is documented in its letter dated December 21, 2004 (Reference 8.7). Under the ISI program, the licensee performs the Appendix J inspections three times every 10 years. No areas that require augmented examination were identified during previous inspections. The staff finds the licensee's program for examining the accessible portions of the containment steel surfaces adequate for detecting flaws and degradation.

Regarding the examination and testing of seals, gaskets and pressure-retaining bolted connections, the licensee stated, in References 8.3 and 8.5, that Type B testing will be performed on penetrations once during each containment inspection interval, on hatches (containment equipment hatch, control rod drive removal hatch, and inclined fuel transfer tube) every refueling outage, and on containment air-locks every 30 months. In Reference 8.2, the licensee did not indicate any changes in this testing schedule. The staff finds the testing schedule for the penetration seals, gaskets, and pressure-retaining bolted connections consistent with the regulations and, therefore, acceptable for the period of extended ILRT interval.

With regard to the integrity of stainless steel bellows, the licensee explained, in References 8.3 and 8.5, that RBS utilizes expansion bellows on 20 containment penetrations. These bellows are subject to LLRT by pressurizing the space between the plies of the bellows, and leakage across the bellows is detectable by Type B testing. In Reference 8.2, the licensee did not indicate any changes in this area. On this basis, the staff concludes that the licensee is actively pursuing the issue of bellows degradation and will be taking appropriate actions (i.e., repair, replacement, etc.) if the leakage rates exceed the limits and, therefore, is acceptable.

As for the uninspectable (embedded) portions of the drywell steel shell and steel liner of the primary containment, the results of the licensee's risk assessment indicated that the ILRT interval extension has a minimal impact on the plant risk. From its review of the licensee's submittals, the staff finds that the increase in predicted risk due to the proposed change is within the acceptance guidelines while maintaining the defense-in-depth philosophy of RG 1.174 and is, therefore, acceptable. The details of the staff's evaluation regarding the risk assessment performed by the licensee is discussed in Section 3.1 of this safety evaluation.

On the basis of the above discussion, the staff finds that (1) the structural degradation of the accessible areas of the RBS containment will be adequately monitored through the periodic ISI required by the ASME Code, Section XI, Subsection IWE, and (2) the integrity of the penetrations will be verified through Types B and C tests as required by 10 CFR Part 50, Appendix J. In addition, the system pressure tests for containment pressure boundary are required to be performed following repair and replacement in accordance with ASME Code, Section XI, Subsection IWE-5000, and significant degradation of the primary containment pressure boundary is required to be reported under 10 CFR 50.72 or 10 CFR 50.73. Since the requested extension of testing interval will not affect the existing Appendix J Types A, B, and C tests nor Code requirements or Code acceptance criteria, the staff concludes that the request for performing the next ILRT test by December 14, 2007 (an additional four month extension), is acceptable.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Louisiana 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 March 29, 2005 (70 FR 15942). 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) 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

- 8.1 Letter from Rick J. King, Entergy to NRC, "License Amendment Request LAR 2005-1, One-Time Extension of the Integrated Leak Rate Test Interval - River Bend Station, Unit 1," dated March 8, 2005. (ADAMS Accession No. ML050740346)
- 8.2 Letter from Rick J. King, Entergy to NRC, "Supplement to Amendment Request, One Time Extension of the Integrated Leak Rate Test Interval - River Bend Station, Unit 1," dated January 17, 2006. (ADAMS Accession No. ML060230049)
- 8.3 Letter from Paul D. Hinnenkamp, Entergy to NRC, "One Time Extension of the Integrated Leak Rate Test Interval, License Amendment Request, LAR 2002-16," dated May 14, 2002. (Agencywide Documents and Access Management System (ADAMS) Accession No. ML021540215)
- 8.4 Letter from Michael Webb, NRC to Paul D. Hinnenkamp, Entergy Operations, Inc., "River Bend Station, Unit 1 - Issuance of Amendment Re: One-Time Extension of the Integrated Leak Rate Test (ILRT) Interval," dated March 5, 2003. (ADAMS Accession No. ML030650187)

- 8.5 Letter from Paul D. Hinnenkamp, Entergy to NRC, "Response to Request for Additional Information, One-time Extension of the ILRT Interval, License Amendment Request (LAR) 2002-16," dated December 20, 2002. (ADAMS Accession No. ML023640299)
- 8.6 Letter from F. G. Burford, Entergy, to NRC, "Request No. CEP-IWE/IWL-001 - Use of Subsequent ASME Code Edition and Addenda for Visual Containment Examinations, for River Bend Station, Grand Gulf Nuclear Station Unit 1, Arkansas Nuclear One Units 1 and 2, Waterford Steam Electric Station Unit 3," dated October 27, 2004. (ADAMS Accession No. ML043080325)
- 8.7 Letter from Michael K. Webb, NRC to F. G. Burford, Entergy, "Arkansas Nuclear One, Units 1 and 2; Grand Gulf Nuclear Station; River Bend Station; Waterford Steam Electric Station, Unit 3 - Use of Subsequent American Society of Mechanical Engineers Boiler and Pressure Vessel Code Edition and Addenda for Visual Containment Examinations," dated December 21, 2004. (ADAMS Accession No. ML043570274)

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Date: February 9, 2006

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