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RBG-46552

September 19, 2006

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: License Amendment Request
Leakage Rate Testing of Containment Purge Valves
River Bend Station, Unit 1
Docket No. 50-458
License No. NPF-47

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Operations, Inc. (Entergy) hereby requests the following amendment for River Bend Station, Unit 1 (RBS). This change deletes the augmented testing requirement for containment purge supply and exhaust isolation valves with resilient seal materials and allows the surveillance intervals to be set in accordance with the Containment Leakage Rate Testing Program. The RBS Containment Leakage Rate Testing Program is implemented in accordance with the *Code of Federal Regulations*, Part 50, Appendix J, Option B, and Regulatory Guide 1.163, "Performance-Based Containment Leak Test Program," dated September 1995. This change would affect Technical Specification (TS) Surveillance Requirement (SR) 3.6.1.3.5.

The proposed change has been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c), and it has been determined that this change involves no significant hazards consideration. The bases for these determinations are included in the attached submittal.

The proposed change does not include any new commitments. The NRC has approved similar Technical Specification changes for other plants.

Although this request is neither exigent nor emergency, your prompt review is requested. Once approved, the amendment shall be implemented within 60 days.

If you have any questions or require additional information, please contact Bill Brice at 601-368-5076.

AD17

I declare under penalty of perjury that the foregoing is true and correct. Executed on September 19, 2006.

Sincerely,



Paul D. Hinnenkamp
Vice President, Operations
River Bend Station, Unit 1

PDH/WBB

Attachments:

1. Analysis of Proposed Technical Specification Change
2. Proposed Technical Specification Changes (mark-up)
3. Changes to Technical Specification Bases Pages (for information only)

cc: Dr. Bruce S. Mallett
U. S. Nuclear Regulatory Commission
Region IV
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NRC Senior Resident Inspector
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St. Francisville, LA 70775

U.S. Nuclear Regulatory Commission
Attn: Mr. Bhalchandra Vaidya MS O-7D1A
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Mr. Jeff Meyers
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Attachment 1

RBG-46552

Analysis of Proposed Technical Specification Change

1.0 DESCRIPTION

This letter is a request to amend Operating License NPF-47 for River Bend Station, Unit 1 (RBS).

The proposed change will revise the Operating License to delete the augmented testing requirements for the Containment Purge Valves with resilient seals and allows the surveillance intervals to be set in accordance with the Containment Leakage Rate Testing Program. The RBS Containment Leakage Rate Testing Program is implemented in accordance with the *Code of Federal Regulations*, Part 50, Appendix J, Option B and Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak Test Program," dated September 1995. This change would affect Technical Specification (TS) Surveillance Requirement (SR) 3.6.1.3.5.

2.0 PROPOSED CHANGE

Entergy proposes to revise RBS TS SR 3.6.1.3.5 to replace the currently specified frequency for leak testing containment purge supply and exhaust isolation valves with resilient seal materials with a requirement to test these valves in accordance with the Containment Leakage Rate Testing Program. The RBS Containment Leakage Rate Testing Program is implemented in accordance with the *Code of Federal Regulations*, Part 50, Appendix J, Option B and Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak Test Program," dated September 1995. RG 1.163 allows a nominal test interval of 30 months for containment purge and vent valves.

S.R. 3.6.1.3.5 currently requires leakage rate testing for each primary containment purge valve with resilient seals be tested every 184 days and once within 92 days after opening the valve.

RBS proposes to revise TS SR 3.6.1.3.5 to require the test frequency to be in accordance with the Containment Leak Rate Testing program (see attachment 2). Changes to the TS Bases are included in Attachment 3 for information only.

In summary, the proposed change will revise the Operating License of RBS to allow the Containment Purge Valves with resilient seals to be tested at the frequencies specified in the Containment Leakage Rate Testing Program.

3.0 BACKGROUND

The Containment Purge System is designed to either continuously purge the containment when required or recirculate air during periods of testing.

The associated containment isolation valves are 36 inch Posi-seal air operated butterfly valves. The seal rings are TEFZEL or URETHANE and are not periodically replaced. The valves are Type C leak tested between the isolation valves. The valves are normally closed during Modes 1, 2, and 3 to ensure leak tightness. The valves must be closed per TS SR 3.6.1.3.1 when not being used for pressure control, ALARA, or air quality considerations for personnel entry, or for surveillances or special testing on the purge system that require the valves to be open. For further information see RBS USAR, Section 9.4.6.5.3.

As a result of reports of unsatisfactory performance of resilient seals in butterfly-type due to seal deterioration, the NRC established Generic Issue B-20, "Containment Leakage Due to Seal Deterioration" to study the problem and propose a regulatory resolution of the problem. IE Circular 77-11 "Leakage of Containment Isolation Valves with Resilient Seals," provides additional information on the issue.

As part of the resolution of the issue, the NRC imposed augmented testing requirements for containment purge and vent valves. These requirements were typically imposed as TS SRs. Since then, the industry has improved the performance of these valves. As a result of these improvements the NRC staff has approved reduced leakage testing for several plants when adequately supported by plant specific data demonstrating that further augmented testing is not necessary. A review of the leakage history indicates that Appendix J testing intervals would be sufficient and appropriate.

4.0 TECHNICAL ANALYSIS

The NRC revised 10 CFR 50, Appendix J, in 1995 to add a new, performance-based option for testing, called Option B. The staff also published RG 1.163. RG 1.163 referenced the guidance in NEI 94-01 which provides methods acceptable to the NRC staff for compliance and implementation of Option B of 10 CFR 50, Appendix J, with certain exceptions. One exception concerned containment purge and vent valves and limited the leakage rate testing frequency to 30 months, "with consideration given to operating experience and safety significance." The NRC also referenced ANSI/ANS 56.8-1994, Section 3.3.4, which gives a test frequency of 30 months.

A review of leak test results for the containment purge valves supports extending the interval at RBS to be consistent with staff guidance. In the last ten years, there has been only three instances where valve leakage exceeded the Appendix J administrative limits. The first was due to an actuator problem and was not due to a problem with the resilient seals. In the other tests, the valve leakage exceeded the administrative leakage limit, but was evaluated and accepted "as is" due to the large containment leak rate margin. The testing history is presented in the table below. The limits below are current administrative limits and may be adjusted in the future. The limit for penetration KJB-Z31 is very conservative because it had been established based on a TS limit for annulus bypass. This TS has since been deleted (TAC NO. MB5021).

**Containment Purge Valves
 Test Results from 1996 to Present**

Test Date	KJB-Z31 Penetration ⁽¹⁾ Limit 70 sccm	KJB-Z33 Penetration ⁽²⁾ Limit 2,100 sccm
6/29/06	5	758
5/10/06	-	(as left post maintenance) 84
3/31/06	-	leakage exceeded admin limit (see note 4) 2,950
3/8/06	60	1,970
12/13/05	11	812
9/19/05	13	1,725
6/28/05	13	740
4/5/05	3	1,762
1/12/05	18	762
9/24/04	11	756

Test Date	KJB-Z31 Penetration ⁽¹⁾ Limit 70 sccm	KJB-Z33 Penetration ⁽²⁾ Limit 2,100 sccm
7/29/04	9	756
05/04/04	9	1,651
02/04	6	1,188
11/03	13	788
08/03	2	941
06/03	2	1,459
03/13/03	9	1,376
12/19/02	2	809
9/26/02	19	1,087
07/11/02	5	830
04/02	10	773
01/02	3	536
10/01	14	1,301
07/01	2	688
04/01	43	535
01/01	1	887
09/00	6	803
06/00	11	12
04/00	(As Left Post Maint.) 3	-
03/00	8	747
11/99	4	180
08/99	10	643
05/99	14	193
01/99	2	182
10/98	10	20
07/98	55	42
04/98	32	47
01/09/98	(As Left Post Maint.) leakage exceeded admin limit (see note 4) 141	-
01/08/98	Failed (See Note 3)	1,394
10/97	18	127
07/97	4	753
03/97	45	222
12/97	7	104
10/96	leakage exceeded admin limit (see note 4) 86	82
7/96	9	40
4/96	69	156
1/96	26	39

Notes:

- (1) Pen. Z31 includes valves CPP-SOV140 (1 in. dia. Gate), HVR-AOV123/165 (36 in. dia. Butterfly)
- (2) Pen. Z33 includes valves CPP-MOV104/105 (3 in. dia. Gate), HVR-AOV128/166 (36 in. dia. Butterfly)
- (3) HVR-AOV165 could not be pressurized for LLRT. Opened pet cock on hydraulic jack and valve went closed fully. Retest: passed.
- (4) Valve leakage was evaluated and accepted "as is" due to the large containment leak rate margin.

5.0 REGULATORY ANALYSIS

5.1 Applicable Regulatory Requirements/Criteria

The proposed changes have been evaluated to determine whether applicable regulations and requirements continue to be met. Entergy has determined that the proposed changes do not require any exemptions or relief from regulatory requirements, other than the TS, and do not affect conformance with any General Design Criterion (GDC) differently than described in the Updated Safety Analysis Report (USAR.)

GDC 54, 55, 56, and 57 of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50 require that piping systems penetrating primary reactor containment be provided with isolation capabilities that reflect the importance to safety of isolating these piping systems. The proposed TS change only affects the purge valve leakage rate test interval and does not affect the design or operation of the valves. Therefore, the isolation capability is maintained in accordance with the GDC requirements.

The RBS Containment Leakage Rate Program is implemented in accordance with 10 CFR Part 50, Appendix J, Option B and Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995. RG 1.163 allows a nominal test interval of 30 months for containment purge and vent valves. The proposed TS change is consistent with 10 CFR Part 50, Appendix J, Option B and Regulatory Guide (RG) 1.163.

5.2 No Significant Hazards Consideration

The proposed change will revise the Operating License of RBS to allow the Containment Purge Valves with resilient seals to be tested in accordance with the Containment Leakage Rate Testing Program. The RBS Containment Leakage Rate Testing Program is implemented in accordance with the *Code of Federal Regulations*, Part 50, Appendix J, Option B and Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak Test Program," dated September 1995. RG 1.163, Section C.2 allows a nominal test interval of 30 months for containment purge and vent valves.

Entergy Operations, Inc. has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

This change deletes the augmented testing requirement for these containment isolation valves and allows the surveillance intervals to be set in accordance with the Containment Leakage Rate Testing Programs. This change does not affect the system function or design. The purge valves are not an initiator of any previously analyzed accident. Leakage rates do not affect the probability of the occurrence of any accident. Operating history has demonstrated that the valves do not degrade and

cause leakage as previously anticipated. Because these valves have been demonstrated to be reliable, these valves can be expected to perform the containment isolation function as assumed in the accident analyses. Therefore, there is no significant increase in the consequences of any previously evaluated accident.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

Extending the test intervals has no influence on, nor does it contribute in any way to, the possibility of a new or different kind of accident or malfunction from those previously analyzed. No change has been made to the design, function or method of performing leakage testing. Leakage acceptance criteria have not changed. No new accident modes are created by extending the testing intervals. No safety-related equipment or safety functions are altered as a result of this change.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The only margin of safety that has the potential of being impacted by the proposed changes involves the offsite dose consequences of postulated accidents which are directly related to the containment leakage rate. The proposed change does not alter the method of performing the tests nor does it change the leakage acceptance criteria. Sufficient data has been collected to demonstrate these resilient seals do not degrade at an accelerated rate.

Because of this demonstrated reliability, this change will provide sufficient surveillance to determine an increase in the unfiltered leakage prior to the leakage exceeding that assumed in the accident analysis.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, Entergy concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.3 Environmental Considerations

The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may

be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 PRECEDENCE

This license amendment is similar to several NRC approved submittals, including the June 10, 2004 Catawba Nuclear Station (TAC Number MC3630 and MC3631) submittal, and the September 19, 1996 Grand Gulf Nuclear Station submittal (TAC Number M95338).

This license amendment is also similar to a submittal for Waterford 3 Steam Electric Station, dated August 2, 2006. This submittal is currently under review by the NRC.

7.0 REFERENCES

1. Regulatory Guide 1.163, "Performance-Based Containment Leak Test Program," dated September 1995
2. NEI 94-01 "Industry Guideline for Implementing Performance-Based Option of 10 CFR 50, Appendix J"
3. Generic Issue B-20, "Containment Leakage Due to Seal Deterioration"
4. IE Circular 77-11 "Leakage of Containment Isolation Valves with Resilient Seals"
5. ANSI/ANS 56.8-1994, "Containment System Leakage Testing Requirements," Section 3.3.4

Attachment 2

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Proposed Technical Specification Changes (mark-up)



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

ENTERGY GULF STATES, INC. **

AND

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-458

RIVER BEND STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. ~~351~~
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 December 19, 2005, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, 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 151, 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 prior to expiration of the temporary change on June 1, 2006, provided by Amendment No. 147.

FOR THE NUCLEAR REGULATORY COMMISSION

(Original signed by D. Terao)

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

Attachment: Changes to the Facility
Operating License and
Technical Specifications

Date of Issuance: ~~May 17, 2006~~

- (3) EOI, pursuant to the Act and 10 CFR Part 70, to receive, possess and to use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;
- (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, 40 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 license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter 1 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 reactor core power levels not in excess of 3091 megawatts thermal (100% rated power) in accordance with the conditions specified herein. The items identified in Attachment 1 to this license shall be completed as specified. Attachment 1 is hereby incorporated into this license.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 151 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.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.4	Verify the isolation time of each power operated and each automatic PCIV, except MSIVs, is within limits.	In accordance with the Inservice Testing Program
SR 3.6.1.3.5	<p>—————NOTE————— Only required to be met in MODES 1, 2, and 3.</p> <p>Perform leakage rate testing for each primary containment purge valve with resilient seals.</p>	<p><i>In accordance with the Containment/leakage rate testing program.</i></p> <p>184 days</p> <p><u>AND</u></p> <p>Once within 92 days after opening the valve</p>
SR 3.6.1.3.6	Verify the isolation time of each MSIV is ≥ 3 seconds and ≤ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	18 months

(continued)

Attachment 3

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Changes to Technical Specification Bases Pages

(For Information Only)

BASES

ACTIONS

D.1, D.2, and D.3 (continued)

verification that those isolation devices outside primary containment and potentially capable of being mispositioned are in the correct position. For the isolation devices inside primary containment, the time period specified as "prior to entering MODE 2 or 3, from MODE 4 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

For a primary containment purge valve with a resilient seal that is isolated in accordance with Required Action D.1, SR 3.6.1.3.5 must be performed at least once every 92 days. This provides assurance that degradation of the resilient seal is detected and confirms that the leakage rate of the primary containment purge valve does not increase during the time the penetration is isolated. The normal Frequency for SR 3.6.1.3.5 is 184 days. Since more reliance is placed on a single valve while in this Condition, it is prudent to perform the SR more often. Therefore, a Frequency of once per 92 days was chosen and has been shown acceptable based on operating experience.

E.1 and E.2

If any Required Action and associated Completion Time cannot be met in MODE 1, 2, or 3, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

F.1 and F.2

If any Required Action and associated Completion Time cannot be met, the plant must be placed in a condition in which the LCO does not apply. Action must be immediately initiated to suspend operations with a potential for draining the reactor

(continued)

BASES

**SURVEILLANCE
REQUIREMENTS**
(continued)

SR 3.6.1.3.5

For primary containment purge valves with resilient seals, additional leakage rate testing beyond the test requirements of 10 CFR 50, Appendix J (Ref. 4), is required to ensure OPERABILITY. The acceptance criterion for each purge exhaust valve is established by the Primary Containment Leakage Rate Testing Program to ensure early detection of seal degradation. Operating experience has demonstrated that this type of seal has the potential to degrade in a shorter time period than do other seal types. Based on this observation, and the importance of maintaining this penetration leak tight (due to the direct path between primary containment and the environment), a Frequency of 184 days was established. Additionally, this SR must be performed within 92 days after opening the valve. The 92 day Frequency was chosen recognizing that cycling the valve could introduce additional seal degradation (beyond that which occurs to a valve that has not been opened). Thus, decreasing the interval (from 184 days) is a prudent measure after a valve has been opened.

The SR is modified by a Note stating that the primary containment purge valves are only required to meet leakage rate testing requirements in MODES 1, 2, and 3. If a LOCA inside primary containment occurs in these MODES, purge valve leakage must be minimized to ensure offsite radiological release is within limits. At other times pressurization concerns are not present and the purge valves are not required to meet any specific leakage criteria.

SR 3.6.1.3.6

Verifying that the full closure isolation time of each MSIV is within the specified limits is required to demonstrate OPERABILITY. The full closure isolation time test ensures that the MSIV will isolate in a time period that does not exceed the times assumed in the DBA analyses. The maximum closure time has been selected to contain fission products and to ensure the core is not uncovered following line breaks. The minimum closure time is consistent with the assumptions in the safety analyses to prevent pressure surges. The Frequency of this SR is in accordance with the Inservice Testing Program.

(continued)
