

August 26, 1997

Mr. John R. McGaha, Jr.  
Vice President - Operations  
Entergy Operations, Inc.  
River Bend Station  
P. O. Box 220  
St. Francisville, LA 70775

SUBJECT: RIVER BEND STATION, UNIT 1 - AMENDMENT NO. 98 TO FACILITY  
OPERATING LICENSE NO. NPF-47 (TAC NO. M97393)

Dear Mr. McGaha:

The Commission has issued the enclosed Amendment No. 98 to Facility Operating License No. NPF-47 for the River Bend Station, Unit 1. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated November 6, 1996, as supplemented by letter dated July 31, 1997.

The amendment revises the Technical Specifications to delete the requirements for the Penetration Valve Leakage Control System.

By this letter, we are also suspending the review for increasing the main steam isolation valve leakage rate and the deletion of Main Steam Positive Leakage Control System. Entergy may reapply for this change upon the revision of the justification. This completes the action under TAC No. M97393.

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,

ORIGINAL SIGNED BY:  
David L. Wigginton, Senior Project Manager  
Project Directorate IV-1  
Division of Reactor Projects III/IV  
Office of Nuclear Reactor Regulation

Docket No. 50-458

Enclosures: 1. Amendment No. 98 to NPF-47  
2. Safety Evaluation

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

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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,

A handwritten signature in dark ink, appearing to read "D. Wigginton", is written over the typed name.

David L. Wigginton, Senior Project Manager  
Project Directorate IV-1  
Division of Reactor Projects III/IV  
Office of Nuclear Reactor Regulation

Docket No. 50-458

Enclosures: 1. Amendment No. 98 to NPF-47  
2. Safety Evaluation

cc w/encs: See next page

Mr. John R. McGaha  
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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

ENTERGY GULF STATES, INC. \*\*  
CAJUN ELECTRIC POWER COOPERATIVE AND  
ENTERGY OPERATIONS, INC.  
DOCKET NO. 50-458  
RIVER BEND STATION, UNIT 1  
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 98  
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 November 6, 1996, as supplemented by letter dated July 31, 1997, 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

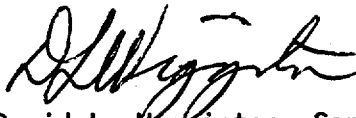
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\* EOI is authorized to act as agent for Entergy Gulf States, Inc, which has been authorized to act as agent for Cajun Electric Power Cooperative, and has exclusive responsibility and control over the physical construction, operation and maintenance of the facility.

\*\*Entergy Gulf States, Inc., which owns a 70 percent undivided interest in River Bend, 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. 98 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.

FOR THE NUCLEAR REGULATORY COMMISSION



David L. Wigginton, Senior Project Manager  
Project Directorate IV-1  
Division of Reactor Projects III/IV  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: August 26, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 98

FACILITY OPERATING LICENSE NO. NPF-47

DOCKET NO. 50-458

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain marginal lines indicating the areas of change.

REMOVE

ii  
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INSERT

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(continued)

**SURVEILLANCE REQUIREMENTS (continued)**

SURVEILLANCE	FREQUENCY
<p>SR 3.6.1.3.8    Verify in-leakage rate of <math>\leq 340</math> scfh for each of the following valve groups when tested at 11.5 psid for MS-PLCS valves.</p> <p>a. Division I MS-PLCS valves.</p> <p>b. Division II MS-PLCS valves.</p>	<p>18 months</p>
<p>SR 3.6.1.3.9    -----NOTE----- Only required to be met in MODES 1, 2, and 3. -----</p> <p>Verify the combined leakage rate for all secondary containment bypass leakage paths is <math>\leq 170,000</math> cc/hr when pressurized to <math>\geq P_a</math>.</p>	<p>In accordance with the Primary Containment Leakage Rate Testing Program</p>

(continued)



### 3.6 CONTAINMENT SYSTEMS

3.6.1.8 Deleted

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 98 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 November 6, 1996, Entergy Operations, Inc. (the licensee) requested changes to the Technical Specifications (Appendix A to Facility Operating License No. NPF-47) for the River Bend Station, Unit 1. The proposed changes would revise the Technical Specifications (TSs) to permit an increase in the allowable leak rate for the main steam isolation valves (MSIVs) and deleted both the Main Steam-Positive Leakage Control System (MS-PLCS) and the Penetration Valve Leakage Control System (PVLCS). By letter dated July 31, 1997, the licensee provided additional clarification for the deletion for the PVLCS and requested the deferral of review for increasing the MSIV leakage rate and the deletion of the MS-PLCS. This Safety Evaluation therefore addresses only the request to delete PVLCS. The licensee's July 31, 1997, letter did not change the staff's conclusions in the initial no significant hazards consideration determination.

**2.0 BACKGROUND**

The PVLCS consists of two independent, manually initiated subsystems, either of which is capable of preventing fission product leakage from the containment following a Loss-of-Coolant-Accident (LOCA). Each subsystem is comprised of an air compressor, an accumulator, an injection valve, and three injection headers with separate isolation valves. This system has additional headers, which allows the PVLCS air compressors to serve as a supply to the MS-PLCS and a backup supply to the safety relief valve (SRV) actuator air accumulators. The PVLCS lines to the containment isolation valves will be cut and capped and the remainder of the system left in service for MS-PLCS and for SRV actuation. The containment isolation valves served by the PVLCS will continue to be tested as containment isolation valves by the local leak rate (Type C) test requirements in accordance with the Primary Containment Leakage Rate Testing Program.

**3.0 EVALUATION**

The PVLCS was designed and was intended to limit the leakage past certain containment isolation valves following an accident by pressurizing the space between the discs of the isolation valves. The system has proven to be costly to maintain and test and the licensee proposes to delete the requirement for

the system based on the dose assessment of not having the system to limit leakage. The isolation valves will continue to be type C tested on the same frequency but the PVLCS will no longer contribute to containment in-leakage and possible overpressurization of containment following an accident. Our evaluation of the proposed deletion of PVLCS examines the dose assessment assuming some leakage past the isolation valve will occur and the system modifications will limit in-leakage to the containment. Evaluation of the deletion of MS-PLCS and an increase in the leakage rate of the main steam isolation valves is deferred.

#### Dose Assessment

The staff has reviewed the licensee's analysis and finds that their offsite and control room operator radiological consequence assessments met the relevant dose acceptance criteria. Furthermore, the staff finds that the licensee's calculational methods used for the offsite and control room operator radiological consequence assessments are also acceptable. To verify the licensee's assessments, the staff has performed independent assessments of the offsite and control room operator radiological consequences resulting from a postulated LOCA without the PVLCS. In its assessments, the staff considered the following three fission product transport paths to the environment following a postulated LOCA:

- (1) containment leakage
- (2) PVLCS leakage
- (3) post-LOCA leakage from engineered safety features (ESF) outside containment

The calculated offsite doses resulting from a postulated LOCA and the parameters and assumptions used in recalculation are given in Tables 1 and 2 of this safety evaluation, respectively. The staff finds that the recalculated offsite doses meets the dose guidelines set forth in 10 CFR Part 100. The calculated control room operator doses following a postulated LOCA, along with the parameters and assumptions used, are listed in Table 3 of this safety evaluation. The staff also finds that the calculated whole-body and equivalent organ doses (thyroid) are within the guidelines of SRP Section 6.4 and therefore, within the acceptance criteria specified in GDC 19 of Appendix A to 10 CFR Part 50.

Based on the above evaluation and the calculated radiological consequences shown in Tables 1 and 3, the staff concludes that the proposed deletion of the PVLCS is acceptable. The staff further concludes that the existing distances to the exclusion area and to the low population zone boundaries of the River Bend Station, in conjunction with the engineered safety features provided in the River Bend Station, Unit 1, are still sufficient to provide reasonable assurance that the radiological consequences of a postulated LOCA will be within the dose guidelines set forth in 10 CFR Part 100 and the control room operator dose acceptance criteria specified in GDC-19 of Appendix A to 10 CFR Part 50. This conclusion is based on the staff review of the applicant's analysis and on the independent analysis by the staff which confirms that the calculated doses are within these guidelines.

### System Modifications/Technical Specifications

The PVLCS air compressors and accumulator tanks provide air to the MS-PLCS and serve as long term safety-related backup air supply to the SRV and ADS accumulators. This part of the system will remain and will continue to be referred to as PVLCS components in the MS-PLCS technical specifications. This will minimize the necessary changes to procedures and operating instructions until the removal of the MS-PLCS system may be justified by the licensee and approved by a future license amendment. The deletion of the PVLCS technical specification is acceptable.

Operation of the PVLCS on the containment isolation valves also introduced the possibility of air leakage into and overpressurization of the containment.

The Primary Containment Isolation Valve technical specifications contain a requirement to limit the in-leakage from both the PVLCS and MS-PLCS to prevent overpressurization and surveillance requirements to test the combinations of MS-PLCS and PVLCS valves at their system pressures. With removal of the PVLCS, the isolation valves served by PVLCS will no longer be subjected to PVLCS air in-leakage in the long term following an accident, therefore, the Primary Containment Isolation Valve technical specification is being modified to delete the PVLCS tests. This is acceptable.

### 4.0 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.

### 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 (62 FR 125). 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 Contributors: Jay Lee  
J. Pulsipher  
D. Wigginton

Date: August 26, 1997

TABLE 1

Radiological Consequences of Loss-of-Coolant Accident  
(rem)

EAB		LPZ	
Thyroid	Whole Body	Thyroid	Whole Body
32	3.1	44	3.3

**Table 2**

**Assumptions Used to Calculate Offsite Radiological Consequences  
Resulting from Loss-of-Coolant Accident**

<u>Parameter</u>	<u>Value</u>
Power level	3039 MWt
Fraction of core inventory released	
Noble gases	100%
Iodine	50%
Iodine initial plate-out fraction	50%
Iodine chemical species	
Elemental	91%
Particulate	5%
Organic	4%
Suppression pool water volume	1.24E+5 ft <sup>3</sup>
Suppression pool decontamination factor (effective)	
Noble gas	1
Organic iodine	1
Elemental iodine	7.87
Particulate	7.87
Drywell Leakage (suppression pool bypass)	3%
Iodine dose conversion factors	ICRP-30
PVLCS leak rate	1.7E+5 cc/hr
Iodine partition factor for ECCS leak	10
ECCS leak rate	1 gpm
Standby gas treatment system	
Filter efficiency	99%
Flow rate	2500 ft <sup>3</sup> /min
Secondary containment filtration	
Filter efficiency	99%
Flow rate	2E+4 ft <sup>3</sup> /min
Drawdown time	213 seconds
Primary containment and drywell free volume	1.43E+6 ft <sup>3</sup>
Secondary containment free volume	9.5E+5 ft <sup>3</sup>
Secondary containment mixing efficiency	50 percent
Annulus Building free volume	1.79E+5 ft <sup>3</sup>
Breathing rates	Regulatory Guide 1.3



Table 2 (continued)

Assumptions Used to Calculate Offsite Radiological Consequences  
Resulting from Loss-of-Coolant Accident

Atmospheric Dispersion Factors ( $\chi/Q$ ) (seconds/m<sup>3</sup>)

0 to 2 hr EAB	9.01E-4
0 to 8 hr LPZ	1.14E-4
8 to 24 hr LPZ	8.00E-5
1 to 4 day LPZ	3.71E-5
4 to 30 day LPZ	1.23E-5

TABLE 3

Assumptions and Estimates of the  
Radiological Consequences to Control Room  
Operators following a LOCA

Control room free volume	2.41E+5 ft <sup>3</sup>
Recirculation Rates	1957 CFM
Filtered Intake	1947 CFM
Unfiltered Intake	0
Filtered Recirculation	1957 CFM
Filter Efficacy	99%
Unfiltered control room infiltration rate	10 CFM
Duration of accident	30 days
Breathing rate of operators in control room for the course of the accident	3.47E-4 m <sup>3</sup> /sec
Control room $\lambda/Q$	
0 - 8 hours	4.04E-3 sec/m <sup>3</sup>
8 - 24 hours	3.03E-3 sec/m <sup>3</sup>
24 - 96 hours	9.29E-4 sec/m <sup>3</sup>
96 - 720 hours	1.62E-5 sec/m <sup>3</sup>
Iodine Dose Conversion Factors	ICRP-30
Control Room Operator Occupational Factors	
0 - 24 hours	1
24 - 96 hours	0.6
96 - 720 hours	0.4
Doses to control room operators (rem)	
Thyroid	Whole Body
3.4	2.4