

October 7, 2005

Mr. Paul D. Hinnenkamp  
Vice President - Operations  
Entergy Operations, Inc.  
River Bend Station  
5485 US Highway 61N  
St. Francisville, LA 70775

SUBJECT: RIVER BEND STATION, UNIT 1 - ISSUANCE OF AMENDMENT RE:  
TECHNICAL SPECIFICATIONS 3.8.4 ACTIONS FOR INOPERABLE BATTERY  
CHARGER (TAC NO. MC5423)

Dear Mr. Hinnenkamp:

The Commission has issued the enclosed Amendment No. 148 to Facility Operating License No. NPF-47 for the River Bend Station. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated December 17, 2004, as supplemented by letters dated June 29 and August 12, 2005.

The amendment revises the TS requirements for direct current (DC) sources. The current TS only includes ACTION Statements for an inoperable DC Power subsystem. The change adds a new ACTION Statement to TS 3.8.4, "DC Sources - Operating," to specifically address an inoperable battery charger.

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

Sincerely,

**/RA/**

N. Kalyanam, Project Manager, Section 1  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-458

Enclosures: 1. Amendment No.148 to NPF-47  
2. Safety Evaluation

cc w/encls: See next page

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Accession No.:ML052790535

\*No significant change to 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.148  
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 17, 2004, as supplemented by letters dated June 29 and August 12, 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

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\* 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. 148 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 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

David Terao, Chief, Section 1  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: October 7, 2005

ATTACHMENT TO LICENSE AMENDMENT NO. 148

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 areas of change.

Remove

3.8-24

Insert

3.8-24

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 148 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 December 17, 2004, Agencywide Documents Access and Management System (ADAMS) Accession Number ML043640284, as supplemented by letters dated June 29 and August 12, 2005, ADAMS Accession Numbers ML051870228 and ML052290282, respectively, Entergy Operations, Inc. (the licensee), requested changes to the Technical Specifications (TSs) for the River Bend Station, Unit 1 (RBS). The supplements dated June 29 and August 12, 2005, 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 January 4, 2005 (70 FR 401).

The proposed change will revise the Operating License by modifying the TS requirements for direct current (DC) sources through revision of TS 3.8.4, "DC Sources - Operating". The current RBS TS only includes Action Statements for the inoperable DC Power subsystem. The proposed change incorporates a new Action Statement to specifically address an inoperable battery charger. The proposed changes are related to the TS Actions for Division I and II battery chargers and DC electrical power subsystems.

2.0 REGULATORY EVALUATION

The regulatory requirements which the staff applied in its review of the application includes:

General Design Criterion (GDC) 17, "Electric power systems," of Appendix A, "General Design Criteria for Nuclear Power Plants," to Title 10 of the Code of Federal Regulations (CFR), Part 50, requires, in part, that nuclear power plants have onsite and offsite electric power systems to permit the functioning of structures, systems, and components that are important to safety. The onsite system is required to have sufficient independence, redundancy, and testability to perform its safety function, assuming a single failure. The offsite power system is required to be supplied by two physically independent circuits that are designed and located so as to minimize, to the extent practical, the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions. In addition, this criterion

requires provisions to minimize the probability of losing electric power from the remaining electric power supplies as a result of loss of power from the unit, the offsite transmission network, or the onsite power supplies.

GDC-18, "Inspection and testing of electric power systems," requires that electric power systems that are important to safety must be designed to permit appropriate periodic inspection and testing.

Pursuant to 10 CFR 50.36(c)(3), "Technical specifications," a licensee's TSs must establish surveillance requirements relating to test, calibration, or inspection to assure that the necessary quality of the systems and components is maintained, that the facility will be within safety limits, and that the limiting conditions for operation (LCO) will be met.

Pursuant to 10 CFR 50.65(a)(3), preventive maintenance activities should be designed to maximize the availability of systems, structures, and components, as appropriately balanced against the objective of preventing failures of systems, structures, and components.

Regulatory Guide 1.93, "Availability of Electric Power Sources," provides guidance with respect to operating restrictions (i.e., Completion Times (CTs)/allowed outage times) if the number of available DC sources is less than that required by the TS LCO. In particular, this guide prescribes a maximum CT of 2 hours for an inoperable DC source.

The onsite power system at RBS includes three independent Class 1E 125 volt (V) DC electrical power subsystems, Division I, II, and III. The DC electrical power distribution system provides the alternating current (AC) emergency power distribution system with control power. It also provides both motive and control power to selected safety-related equipment. The Division I, II, and III batteries supply the Engineered Safeguards Feature (ESF) Division I, II, and III load requirements, respectively. The Divisions are electrically isolated and physically separated so that any failure involving one division cannot jeopardize the function of another division.

### 3.0 TECHNICAL EVALUATION

The RBS Class 1E 125V DC battery systems supply power to Class 1E loads without interruption during normal operation or during design basis accident conditions. Each Class 1E 125V DC system consists of one battery, one main distribution bus, one static battery charger, and local distribution panels. Redundancy and independence of components precludes the loss of both systems as a result of a single failure. There is no sharing between redundant Class 1E trains of equipment such as batteries, battery chargers, or distribution panels.

Each Class 1E 125 V DC charger system has the capacity to continuously supply the normally connected running loads while maintaining its respective battery in a fully charged condition. Each battery was sized based upon supplying the design duty cycle in the event of loss of offsite AC power concurrent with a loss of coolant accident (LOCA) and a single failure of a diesel generator.

The primary sources of Class 1E DC power systems are the battery chargers. Each battery charger is capable of floating the battery on the bus or recharging a completely discharged

battery while supplying the largest combined demands of the various steady state loads under all plant operating conditions. Each battery charger is fed from a 480V AC ESF switchgear bus of the same division.

Each RBS battery system is sized in conformance with principles set out in the Institute of Electrical and Electronics Engineers (IEEE) Standard - 308, "IEEE Standard Criteria for Class 1E Power Systems for Nuclear Power Generating Stations," and IEEE Standard - 485, "IEEE Recommended Practice for Sizing Lead-Acid Batteries for Stationary Applications."

RBS has a separate backup battery charger procured and qualified to IEEE Standard - 323, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations." This backup battery charger can receive power from either a nonsafety-related power source or a portable diesel generator and is provided as a backup battery charger for the Division I, II, and III safety-related battery chargers and three of the nonsafety-related battery chargers. The backup battery charger's rating is equal to the largest capacity battery charger which it must replace. When the backup battery charger is to be used, the breaker of the battery charger being removed from service is relocated to the backup charger position. The backup charger breaker is taken from its storage position and placed in the position on its bus which feeds the bus of the battery charger removed from service. Manual closing of the two charger breakers completes the charging circuit. The backup battery charger breaker's position is monitored in the main control room, and is tripped upon receipt of a LOCA signal.

The licensee stated that the operation of the backup battery charger is under strict administrative control.

Where there is an electrical interface between safety-related switchgear and nonsafety-related equipment, such as chargers and switchgear, automatic breaker tripping by a LOCA signal at the safety-related switchgear is provided.

3.1 LCO 3.8.4: The licensee proposed the following:

- Provide a specific action and increased CT for an inoperable battery charger.

The proposed change to LCO 3.8.4 addresses the condition where one battery charger on Division I or II is inoperable. The licensee has proposed increasing the battery charger CT from 2 hours to 7 days, provided that the licensee is able to restore battery terminal voltage to greater than or equal to the minimum established float voltage within 2 hours, and is able to verify that battery float current is # 2 amps, once per 12 hours.

In the supplemental letter dated August 12, 2005, the licensee confirmed that the discharge of the battery during the allowable two-hour period to connect the backup battery charger would be limited by procedure. Furthermore, in its application dated December 17, 2004, the licensee provided a regulatory commitment to include the TS support function of the spare battery charger in the scope of the maintenance rule (10 CFR 50.65). Having the backup battery charger in the scope of the maintenance rule would provide added assurance that the nonsafety-related backup battery charger is capable of performing the safety design function of the safety-related battery charger that it replaces.

The licensee also provided several regulatory commitments in its August 12, 2005, supplemental letter in response to staff concerns cited in a January 26, 2005, request for additional information. The following paragraphs detail the staff concerns and the regulatory commitments that the licensee provided in response to those concerns.

The first regulatory commitment involves changing the alarm setpoint for loss of AC power to the battery charger. A loss of AC power to the battery charger would result in loss of the battery charger function and immediate loading of the respective division battery. The current alarm setpoint is 123V DC, which corresponds to the nominal open-circuit voltage of the battery. The staff's concern was that this setpoint did not provide enough margin between identifying the failed or failing battery charger and minimizing the discharge on the safety-related batteries. The licensee has addressed the staff's concern by committing to revise this alarm setpoint by setting it closer to the minimum float voltage, which is 130.2V DC.

The licensee's second regulatory commitment relates to TS Surveillance Requirement (SR) 3.8.4.1 which directs the licensee to check the battery float voltage every 7 days. The licensee's proposed TS Bases state that the current TS SR for checking the battery float voltage every 7 days is consistent when compared with the battery manufacturer's recommendations and IEEE Standard - 450, "Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications." Since the battery manufacturer for the licensee's batteries, GNB Industrial Battery Company, does not prescribe a float voltage verification frequency and IEEE Standard - 450 recommends a monthly float voltage verification interval, the licensee has resolved the staff's concern by providing a regulatory commitment to revise the TS Bases for SR 3.8.4.3 to clarify that the 7-day check is conservative with respect to the recommendations.

The licensee's third regulatory commitment resolves the staff's concern with the backup battery charger not being credited for accident mitigation. In Section 8.3.2 of the RBS Updated Safety Analysis Report (USAR), it is currently stated that operation of the backup battery charger is under strict administrative control and that no credit was taken for a battery charger in mitigating the consequences of an accident. To resolve the staff's concern, the licensee has provided a regulatory commitment stating that it will revise the USAR prior to the implementation of the proposed change to indicate that, when used as a substitute for a safety-related battery charger, the backup battery charger will be credited for accident mitigation.

Given that the battery discharge can be terminated and that the DC bus remains energized, there is reasonable basis for extending the restoration time for an inoperable battery charger beyond the current 2-hour limit. Therefore, based on the information and regulatory commitments provided above and the availability of a spare battery charger that is capable of being supplied by a backup power source, the staff finds the proposed change acceptable.

The changes made to the other conditions of LCO 3.8.4 are administrative to accommodate the addition of the new conditions. The staff finds these administrative changes 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 published January 4, 2005 (70 FR 401). 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: G. Morris

Date: October 7, 2005

River Bend Station

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May 2005