Mr. Randall K. Edington
Vice President - Operations
Entergy Operations, Inc.
River Bend Station
P. O. Box 220
St. Francisville, LA 70775

March 3, 1999

SUBJECT: RIVER BEND STATION, UNIT 1 - AMENDMENT NO. 103 TO FACILITY RATING LICENSE NO. NPF-47 (TAC NO. MA3885)

Dear Mr. Edington:

The Commission has issued the enclosed Amendment No. 103 to Facility Operating License No. NPF-47 for the River Bend Station (RBS), Unit 1. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated September 23, 1998.

The amendment changes Division III battery specific gravity acceptance criteria outlined in RBS TSs. The change is required as a result of Division III battery system modifications scheduled to be implemented during the upcoming refueling outage (RF-8) beginning April 3, 1999. During this time, the current Division III battery will be replaced with a new battery having a greater capacity rating. The new battery has a nominal specific gravity of 1.215 at 77°F in contrast to the existing Division III battery supplied with a nominal specific gravity of 1.210 at 77°F. Since TS Section 3.8.6, Table 3.8.6-1 values for specific gravity are based upon the manufacturer's nominal specific gravity, these values were updated to reflect the changes.

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:
Robert J. Fretz, Project Manager
Project Directorate IV-1
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-458

Enclosures: 1. Amendment No. 103 to NPF-47
2. Safety Evaluation

cc w/encls: See next page

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

March 3, 1999

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cc w/encls: See next page

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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. 103
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 September 23, 1998, 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, 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. 103 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 upon the date of issuance and shall be implemented within 90 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert J. Fretz, Project Manager
Project Directorate IV-1
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: March 3, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 103

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	INSERT
3.8-34	3.8-34
B 3.8-67	B 3.8-67
B 3.8-68	B 3.8-68

Table 3.8.6-1 (page 1 of 1)
Battery Cell Parameter Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and ≤ 1/4 inch above maximum level indication mark(a)	> Minimum level indication mark, and ≤ 1/4 inch above maximum level indication mark(a)	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V	≥ 2.07 V
Specific Gravity(b)(c)	≥ 1.200	≥ 1.195 AND Average of all connected cells ≥ 1.205	Not more than 0.020 below average of all connected cells AND Average of all connected cells ≥ 1.195

(a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum level during equalizing charges provided it is not overflowing.

(b) Corrected for electrolyte temperature and level. Level correction is not required, however, when battery charging is < 2 amps when on float charge.

(c) A battery charging current of < 2 amps when on float charge is acceptable for meeting specific gravity limits following a battery recharge, for a maximum of 31 days. When charging current is used to satisfy specific gravity requirements, specific gravity of each connected cell shall be measured prior to expiration of the 31 day allowance.

BASES

SURVEILLANCE REQUIREMENTS

Table 3.8.6-1 (continued)

it is not overflowing. These limits ensure that the plates suffer no physical damage, and that adequate electron transfer capability is maintained in the event of transient conditions. IEEE-450 (Ref. 3) recommends that electrolyte level readings should be made only after the battery has been at float charge for at least 72 hours.

The Category A limit specified for float voltage is 2.13 V per cell. This value is based on the recommendation of IEEE-450 (Ref. 3), which states that prolonged operation of cells below 2.13 V can reduce the life expectancy of cells.

The Category A limit specified for specific gravity for each pilot cell is 1.200 (0.015 below the manufacturer's fully charged nominal specific gravity). This value is characteristic of a charged cell with adequate capacity. According to IEEE-450 (Ref. 3), the specific gravity readings are based on a temperature of 77 F (25 C).

The specific gravity readings are corrected for actual electrolyte temperature and level. For each 3 F (1.67 C) above 77 F (25 C), 1 point (0.001) is added to the reading; 1 point is subtracted for each 3 F below 77 F. The specific gravity of the electrolyte in a cell increases with a loss of water due to electrolysis or evaporation. Level correction will be in accordance with manufacturer's recommendations.

Category B defines the normal parameter limits for each connected cell. The term "connected cell" excludes any battery cell that may be jumpered out.

The Category B limits specified for electrolyte level and float voltage are the same as those specified for Category A and have been discussed above. The Category B limit specified for specific gravity for each connected cell is 1.195 (0.020 below the manufacturer's fully charged, nominal specific gravity) with the average of all connected cells 1.205 (0.010 below the manufacturer's fully charged, nominal specific gravity). These values are based on manufacturer's

(continued)

BASES

SURVEILLANCE REQUIREMENTS

Table 3.8.6-1 (continued)

recommendations. The minimum specific gravity value required for each cell ensures that the effects of a highly charged or newly installed cell do not mask overall degradation of the battery.

Category C defines the limit for each connected cell. These values, although reduced, provide assurance that sufficient capacity exists to perform the intended function and maintain a margin of safety. When any battery parameter is outside the Category C limit, the assurance of sufficient capacity described above no longer exists, and the battery must be declared inoperable.

The Category C limit specified for electrolyte level (above the top of the plates and not overflowing) ensures that the plates suffer no physical damage and maintain adequate electron transfer capability. The Category C limit for float voltage is based on IEEE-450 (Ref. 3), which states that a cell voltage of 2.07 V or below, under float conditions and not caused by elevated temperature of the cell, indicates internal cell problems and may require cell replacement.

The Category C limit of average specific gravity is based on manufacturer's recommendations (0.020 below the manufacturer's recommended fully charged, nominal specific gravity). In addition to that limit, it is required that the specific gravity for each connected cell must be no less than 0.020 below the average of all connected cells. This limit ensures that the effect of a highly charged or new cell does not mask overall degradation of the battery.

The footnotes to Table 3.8.6-1 that apply to specific gravity are applicable to Category A, B, and C specific gravity.

Footnote b in Table 3.8.6-1 requires the above mentioned correction for electrolyte level and temperature, with the exception that level correction is not required when battery charging current is < 2 amps on float charge. This current provides, in general, an indication of overall battery condition.

(continued)

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 103 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 September 23, 1998, Entergy Operations, Inc. (EOI or the licensee) requested changes to the Technical Specifications (TSs) (Appendix A to Facility Operating License No. NPF-47) for the River Bend Station (RBS), Unit 1. The proposed changes would revise Division III battery specific gravity acceptance criteria outlined in RBS TSs Section 3.8.6, Table 3.8.6-1. The change is required as a result of Division III 125 Vdc battery system modifications scheduled to be implemented during refueling outage (RF) RF-8. During this time, the current Division III battery will be replaced with a new battery, having a greater capacity rating. The new battery has a nominal specific gravity of 1.215 at 77°F in contrast to the existing Division III battery supplied with a nominal specific gravity of 1.210 at 77°F. Since TS Section 3.8.6, Table 3.8.6-1 values for specific gravity are based on the manufacturer's nominal specific gravity, these values need to be updated to reflect the changes.

2.0 BACKGROUND

The function of the Division III 125 Vdc power system is to provide a continuous, reliable, and independent source of electrical power to the High Pressure Core Spray (HPCS) system. The HPCS system is designed to provide a source of high pressure makeup water in the event of a small break loss of coolant accident (LOCA).

On August 25, 1997, EOI filed Licensee Event Report (LER) 97-004-00 in response to the discovery of errors made in the design analysis associated with the Division III 125 Vdc battery system. Non-conservative assumptions were applied in battery profile calculations used to determine allowable values for battery system TS surveillance testing. Based upon the revised calculations, the existing batteries' capacity would be unable to meet its safety function whenever it was less than 91% of the nameplate value. A nominal value of 80% of the manufacturer's capacity rating is required whenever performance discharge testing is performed under TS Surveillance Requirement (SR) 3.8.4.8. As a part of long term corrective actions in response to the LER, the licensee is replacing its Division III batteries. The new battery capacity will increase from 100 amp-hours, at the 8 hour rate to 1.75 Vdc per cell, to 800 amp-hours at the 8 hour rate to 1.75 Vdc per cell. The battery system upgrade will allow the licensee to maintain adequate capacity margin at the TS SR 3.8.4.8 nominal value of 80%.

Specific gravity is a measure of the weight of acid in the electrolyte of a lead-acid battery cell as compared to an equal volume of water. It is used to determine a battery cell's state of charge. Battery manufacturers normally supply cells with an electrolyte specific gravity between 1.210 and 1.220 at a temperature of 77 °F.

The licensee's submittal proposes to amend the specific gravity requirements listed in TS Section 3.8.6, Table 3.8.6-1. The table provides the Category A (weekly), Category B (quarterly) and Category C surveillance requirements for demonstrating operability of all three divisions of batteries. Verification of these battery characteristics is performed in order to ensure that the batteries are operable and capable of performing their safety function. Category C limits represent values which allow temporary operation (less than 7 days) with a cell's parameter outside the normal Category A and Category B limits. TS acceptance limits are established as follows:

- The Category A specific gravity limit for each pilot cell is set no more that 15 points (0.015) below the manufacturer's recommended fully-charged nominal specific gravity value.

- The Category B specific gravity limit for each connected cell is no more than 20 points (0.020) below the recommended fully-charged nominal specific gravity. The average of all connected cells must also be no more than 10 points (0.010) below the fully charged value.

- The Category C limit for average specific gravity is no more than 20 points (0.020) below the recommended fully-charged value. The specific gravity for each connected cell must also be no less than 20 points (0.020) below the average of all connected cells.

The current battery specific gravity surveillance requirements in Table 3.8.6-1 are as follows:

1. Divisions I and II

   Category A - Each designated pilot cell shall have a specific gravity greater than or equal to 1.200 or the battery float charge current shall be less than 2 amperes.

   Category B - Each connected cell shall have a specific gravity greater than or equal to 1.195 and the average of all connected cells shall be greater than 1.205.

   Category C - No connected cell can have a specific gravity more than 0.020 below the average of all connected cells and either the average of all connected cells shall be greater than or equal to 1.195 or the battery float charge current shall be less than 2 amperes.

2. Division III

   Category A - Each designated pilot cell shall have a specific gravity greater than or equal to 1.195 or the battery float charge current shall be less than 2 amperes.

   Category B - Each connected cell shall have a specific gravity greater than or equal to 1.190 and the average of all connected cells shall be greater than 1.200.

   Category C - No connected cell can have a specific gravity more than .020 below the average of all connected cells and either the average of all connected cells shall be greater than or equal to 1.190 or the battery float charge current shall be less than 2 amperes.

The licensee's proposal is to remove the separate requirements for the Division III batteries and make the requirements for the Division I and Division II batteries applicable to all three divisions.

3.0 EVALUATION

The nominal specific gravity for the new batteries being installed by the licensee is 1.215 at 77 °F versus the existing batteries which have a nominal specific gravity of 1.210 at 77 °F. This means that the current specific gravity values specified in Table 3.8.6-1 for Category A limits, Category B limits, and for the Category C values for each connected cell are non-conservative since they are lower than will be required for maintaining an adequate charge in the new replacement batteries. As shown above, the Division I and Division II batteries (both are Lead-Calcium type) have identical requirements and the Division III batteries have a separate set of requirements. The new replacement Division III batteries have the same nominal specific gravity ratings and are the same type as the current Division I and Division II batteries. Based on this, the staff finds the licensee's proposal to remove the separate requirements for the Division III batteries and make the requirements the same for all three divisions to be 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 Nuclear Regulatory Commission 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 (63 FR 64111). 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: R. J. Fretz

Date: March 3, 1999