

Entergy Operations, Inc.
River Bend Station
5485 U.S. Highway 61
P. O. Box 220
St. Francisville, LA 70775

September 23, 1998

U. S. Nuclear Regulatory Commission
Document Control Desk, OP1-37
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Subject: River Bend Station - Unit I
Docket No. 50-458
License No. NPF-47
License Amendment Request (LAR) 98-08, Change to Technical
Specifications 3.8.6, "Battery Cell Parameters"

File Nos.: G9.5, G9.42

RBEXEC-98-113
RBF1-98-0222
RBG-44608

Ladies and Gentlemen:

In accordance with 10 CFR § 50.90, Entergy Operations, Inc. (EOI), hereby applies for an amendment of Facility Operating License No. NPF-47, Appendix A - Technical Specifications, for River Bend Station (RBS). The request consists of a proposed change to Technical Specifications 3.8.6, "Battery Cell Parameters."

Specifically this submittal proposes to change the specific gravity acceptance criteria for the Division III battery. This change is necessary because the present acceptance criteria needs to be updated to reflect design changes planned to be implemented during refueling outage (RF) 8 currently scheduled to begin April 1999.

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License Amendment Request (LAR) 98-08, "Battery Cell Parameters"

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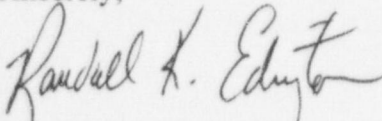
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A condition was described in LER 50-458/97-004 and NRC Inspection Report 50-458/97-013. These documents identify that the current Division III battery is sized such that it has the required capacity to meet its safety function as long as its capacity is greater than or equal to 91% of its nameplate value. This more conservative limit has been established for an interim period in lieu of the nominal design of 80% as described in Technical Specification Surveillance Requirement (SR) 3.8.4.8. The nonconforming condition is documented in the station corrective action program and plans are underway to upgrade the Division III battery during RF-8. During RF-7, an IEEE-450 performance test confirmed the current capacity of the battery is greater than 101 %; therefore, the Division III battery is operable and capable of performing its safety function. In the interim, administrative controls are in place to ensure the necessary minimum capacity is maintained.

An Affirmation is contained in Enclosure 1 of this letter. Enclosure 2 provides a description of the proposed changes and the associated justification (including a basis for No Significant Hazards Consideration). A marked-up copy of the affected pages from the RBS Technical Specifications (TS) is provided in Enclosure 3. The applicable marked-up Bases pages are included for your information.

This request has been reviewed and approved by the RBS Facility Review Committee and the Safety Review Committee. If you have any questions regarding this request or require additional information, please contact Mr. B. M. Burmeister at (225) 381-4148.

Sincerely,



Randall K. Edington
Vice President - Operations

RKE/RJK
enclosures

cc: U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011

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NRC Senior Resident Inspector

P. O. Box 1050

St. Francisville, LA 70775

Mr. Robert Fretz

U.S. Nuclear Regulatory Commission

M/S OWFN 13-H-3

Washington, DC 20555

Louisiana Department of Environmental Quality

Radiation Protection Division

P. O. Box 82135

Baton Rouge, LA 70884-2135

ATTN: Administrator

Enclosure 1

BEFORE THE

UNITED STATES NUCLEAR REGULATORY COMMISSION

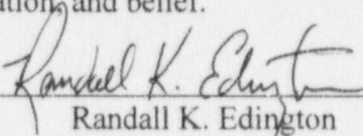
LICENSE NO. NPF-47

DOCKET NO. 50-458

IN THE MATTER OF
ENTERGY GULF STATES, INC.
ENTERGY OPERATIONS, INC.

AFFIRMATION

I, Randall K. Edington, state that I am Vice President - Operations of Entergy Operations, Inc. at River Bend Station; that on behalf of Entergy Operations, Inc., I am authorized by Entergy Operations, Inc., to sign and file with the Nuclear Regulatory Commission, this River Bend Station License Amendment Request (LAR) 98-08, Change to Technical Specifications 3.8.6, "Battery Cell Parameters" that I signed this letter as Vice President - Operations at River Bend Station for Entergy Operations, Inc.; and that the statements made and the matters set forth herein are true and correct to the best of my knowledge, information, and belief.




Randall K. Edington

STATE OF LOUISIANA
PARISH OF WEST FELICIANA

SUBSCRIBED AND SWORN TO before me, a Notary Public, commissioned in the Parish above named, this 23rd day of September, 1998.

(SEAL)



Claudia F. Hurst
Notary Public

Enclosure 2

**ENERGY OPERATIONS, INC.
RIVER BEND STATION
DOCKET 50-458/LICENSE NO. NPF-47
LICENSE AMENDMENT REQUEST 98-08**

Licensing Document Involved

This proposed change affects the following Technical Specification section:

3.8.6 "Battery Cell Parameters"

Background

The Division III 125 Volts direct current (Vdc) power system provides a reliable, continuous, and independent 125 Vdc power source of control and motive power for the High Pressure Core Spray System (HPCS) system logic, HPCS diesel generator set control and protection, and Division III related control functions. The Division III battery storage is adequate for the required load continuously for at least two hours. This system is discussed in USAR Section 8.3.2, "DC Power Systems," Technical Specification (TS) 3.8.4 (including Bases), "Electrical Power Systems, DC Sources - Operating", TS 3.8.5 (including Bases), "Electrical Power Systems, DC Sources - Shutdown," and TS 3.8.6 (including Bases), "Electrical Power Systems, Battery Cell Parameter."

In July 1997, EOI performed a calculation in response to a corrective action program item. The Calculation indicated that the current Division III battery is sized such that it has the required capacity to meet load requirements as long as its capacity is maintained at greater than or equal to 91% of its nameplate value. Additional information on the history of this nonconforming condition is contained in LER 50-458/97-004 and NRC Inspection Report 50-458/97-013.

As a result of identifying the nonconforming condition in the station corrective action program, plans are underway to upgrade the Division III battery during Refueling Outage 8 (RF-8). In the interim, administrative controls remain in place to ensure the necessary minimum capacity is maintained.

Reason For Change:

The current battery is adequate only if the design and aging margins are reduced and its capacity is greater than or equal to 91% of the name plate rating; this is consistent with the Basis of TS 3.8.4. To correct this nonconformance a modification is in process which will restore industry accepted values for design and aging margins for the Division III battery. As part of this effort, the current Division III battery will be replaced. The capacity of the existing battery is 100 amp-hours at the 8 hour rate to 1.75 Vdc per cell. The replacement battery capacity is greater than 800 amp-hours at the 8 hour rate to 1.75 Vdc per cell. The new Division III battery will be supplied with 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 Technical Specification 3.8.6, Table 3.8.6-1 values for specific gravity are based on the manufacturer's nominal specific gravity, these values will require update.

The Division III 125 Vdc system, including the battery, are designed to conform with IEEE Std. 308-1974. RBS uses the guidance provided in IEEE Std. 450-1975 for testing and inspection of the battery. The modification described herein will upgrade the design of the system to include the guidance in IEEE Std. 485. It should also be noted that the significant increase in battery capacity is a result of margins added to the Division III battery capacity, in addition to the margins provided by IEEE Std. 485.

Justification:

In a lead-acid cell, the electrolyte is a dilute solution of water and sulfuric acid. Specific gravity is a measure of the weight of acid in the electrolyte as compared to an equal volume of water. Specific gravity is used in determining a cell's state of charge. It decreases as the cell discharges and increases as the cell is charged reaching its original or nominal value when the cell is fully charged. Battery manufacturers normally supply cells with an electrolyte specific gravity range of 1.210 to 1.220, basing the cell specification on a specific gravity of 1.215 and an electrolyte temperature of 77°F, for use in power stations.

Since specific gravity is one means of determining a cell's state of charge, it is one of the parameters required by Technical Specifications. The Technical Specifications are designed to ensure that low values of specific gravity are addressed prior to the loss of the ability to perform the safety function. The Technical Specifications require actions based on the battery capacity, which is separated into three categories:

- The Category A limit specified for specific gravity for each pilot cell is no more than 15 points below the manufacturer's recommended fully charged nominal specific gravity.

- The Category B limit for specific gravity of each connected cell is no more than 20 points below the manufacturer's fully charged nominal specific gravity with the average of all connected cells no more than 10 points below the manufacturer's recommended fully charged nominal specific gravity.
- The Category C limit for average specific gravity is no more than 20 points 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 20 points below the average of all connected cells. This limit ensures that the effect of a highly charged or a new cell does not mask overall degradation of the battery.

The currently installed Division III battery was supplied with a nominal specific gravity, as provided by the manufacturer, of 1.210 at an electrolyte temperature of 77°F. The replacement Division III battery will be supplied with a nominal specific gravity, as provided by the manufacturer, of 1.215 at an electrolyte temperature of 77°F. Therefore, the Technical Specification will require revision to increase the Category A, B, and C specific gravity limits by 5 points. This change will align the specific gravity values for Division I, II, and III, because the nominal specific gravity for Division I and II has always been 1.215 at 77°F.

Description of Proposed Changes

EOI proposes a change to Technical Specification 3.8.6, Table 3.8.6-1. The following are the relevant portions of Table 3.8.6-1 with the revisions marked:

| <i>PARAMETER</i> | <i>CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL</i> | <i>CATEGORY B: LIMITS FOR EACH CONNECTED CELL</i> | <i>CATEGORY C: LIMITS FOR EACH CONNECTED CELL</i> |
|---------------------------------|---|---|---|
| <i>Specific Gravity (b) (c)</i> | ≥ 1.200 (Div. I and II) ≥ 1.195 (Div. III) | ≥ 1.195 (Div. I and II) ≥ 1.190 (Div. III) <u>AND</u> Average of all connected cells ≥ 1.205 (Div. I and II) ≥ 1.200 (Div. III) | Not more than 0.020 below average of all connected cells <u>AND</u> Average of all connected cells ≥ 1.195 (Div. I and II) ≥ 1.190 (Div. III) |

Environmental Impact Consideration

EOI has reviewed this request against the criteria of 10 CFR 51.22 for environmental considerations. Since this request involves (i) no significant hazards consideration, (ii) no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, and (iii) no significant increase in individual or cumulative occupational radiation exposure, EOI has concluded that the proposed change meets the criteria given in 10 CFR 51.22(c)(9) for a categorical exclusion from the requirement for an environmental impact statement.

Notification of State Personnel

A copy of this amendment has been provided to the State of Louisiana, Department of Environmental Quality - Radiation Protection Division.

No Significant Hazards Consideration

In accordance with 10 CFR 50.92, a proposed change to the operating license (Technical Specifications) involves no "significant hazards consideration" if operation of the facility, in accordance with the proposed change, would not (1) involve a significant increase in the probability or consequences of any accident previously evaluated, (2) create the possibility of a new or different kind of accident from previously evaluated, or (3) involve a significant reduction in a margin of safety. This request is evaluated against each of these criteria as follows:

1. *This request does not involve a significant increase in the probability or consequences of an accident previously evaluated.*

The system loads, voltage requirements, and inrush currents have been calculated in accordance with IEEE Std. 485, "IEEE Recommended Practice for Sizing Large Lead Storage Batteries for Generating Stations and Substations." To support these design requirements at a capacity of 80 %, a new battery must be installed. The nominal specific gravity of the new battery, as provided by the manufacturer of the battery, is 1.215 at 77°F.

A review of USAR Chapter 15, including Appendix 15A, was conducted to determine what accidents, if any, may be impacted by the proposed change to the Division III battery specific gravity.

USAR Sections 15.2, "Increase in Reactor Pressure;" 15.3, "Decrease in Reactor Coolant System Flow Rate;" and Section 15.6, "Decrease in Reactor Coolant Inventory" discuss accidents that involve the initiation of HPCS when reactor vessel level drops to the initiation point. The function of the HPCS System is to mitigate the consequences of an accident (i.e., to maintain reactor vessel coolant inventory after small breaks which do not depressurize the reactor vessel, or provide spray cooling heat transfer following larger breaks, Ref. USAR Section 6.3.1.2.1). The function of the Division III 125 Vdc Power System is to provide a highly reliable, continuous, and independent source of control and motive power for the HPCS System logic, HPCS diesel generator set control and protection, and all Division III related control (Ref. USAR Section 8.3.2.2.1). This is a support function for the HPCS System.

USAR Section 15.5, "Increase In Reactor Coolant Inventory," postulates an inadvertent HPCS actuation resulting from operator error. The proposed changes to the Division III battery specific gravity cannot result in an inadvertent HPCS actuation/injection. The proposed changes to the allowable specific gravity values provided in Technical Specification 3.8.6 are in agreement with the manufacturer's nominal specific gravity. The revision simply ensures that the battery has sufficient capacity to meet the energy requirements of its critical loads. The proposed change does not create any new internally generated missiles, nor does it affect the High Energy Line Break Analysis or any other accident described in Chapter 15 of the USAR. Neither the function nor the operation of the Division III battery is impacted by the proposed change.

The replacement Division III battery will be supplied by the manufacturer with a nominal specific gravity of 1.215 at 77°F. The battery manufacturer's rated performance is based on the specific gravity of the battery being maintained near the nominal specific gravity. Since the Division III design basis calculation depends on the battery manufacturer's rated performance, battery parameters upon which that performance is based must be monitored. The current Technical Specification values for specific gravity are based upon a nominal specific gravity of 1.210 at 77°F. The proposed values accurately reflect the manufacturer's nominal specific gravity. Testing the Division III battery to the proposed values provides assurance that the HPCS functions supported by the 125 Vdc System will not be adversely affected by the Division III battery.

The proposed changes will not affect failure modes of existing equipment. The proposed changes do not affect the ability of any structures, systems or components to perform their safety functions. Therefore, no undue risk to the health and safety of the public has been created by the proposed changes, nor is there any change in the radiological consequences at the site boundary.

By incorporating the correct value for battery specific gravity verification in Table 3.8.6-1, the Technical Specifications will accurately reflect the new design basis value for the Division III battery specific gravity. This change allows the performance of the Division III battery to be verified against the correct design basis value, thus providing assurance that the Division III 125 Vdc power system function will remain as assumed in the accident analysis. Therefore, the proposed change cannot affect any accidents previously evaluated (probability or consequences). Consequently, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. *This Request does not create the possibility of occurrence of a new or different kind of accident from any accident previously evaluated.*

Since a battery's capacity decreases as specific gravity decreases below the manufacturer's nominal value, monitoring the battery's specific gravity is one means of ensuring that the battery will adequately supply the minimum energy required to support the system function assumed in the accident analysis.

All safety systems will continue to function as originally designed. The subject equipment will not function in a manner different than described in USAR Section 8.3.2.2. The functional and performance requirements of the Division III 125 Vdc System and its associated interfaces have not been altered. The proposed change simply ensures that the HPCS battery performance is verified against the correct design basis value. This value provides assurance that the HPCS System functions will not be adversely affected by the capacity of the battery. Therefore, the proposed changes do not create the possibility of occurrence of a new or different kind of accident from any previously evaluated.

3. *This request does not involve a significant reduction in a margin to safety.*

This proposed change updates the acceptance criteria of the current specific gravity for the Division III battery. This acceptance criteria is in accordance with manufactures recommendations. The design and license basis for the Division III systems and functions remain unchanged and the battery will continue to supply the 125 Vdc loads necessary to support these functions. This value will reflect the manufacturer's nominal specific gravity for the Division III battery. With the system functions supported as assumed in the accident analyses, the margin to safety remains unchanged.

As a result, the proposed change does not involve a significant reduction in a margin to safety.