



**ENTERGY**

Entergy Operations, Inc.  
River Bend Station  
5485 U.S. Highway 61  
P.O. Box 220  
St. Francisville, LA 70775  
Tel 504 336 6225  
Fax 504 635 5068

James J. Fisicaro  
Director  
Nuclear Safety

April 19, 1996

U. S. Nuclear Regulatory Commission  
Document Control Desk  
Mail Stop P1-37  
Washington, DC 20555

Subject: Response to Generic Letter 96-01  
River Bend Station  
Docket No. 50-458

File No. G9.5, G9.33.4

RBG-42811  
RBF1-96-0093

Gentlemen:

Pursuant Generic Letter (GL) 96-01, River Bend Station (RBS) has provided the attached information which represents completion of requested actions. This letter concludes our response requirements; no additional actions are required.

Should you have any questions, please contact Tim Gates at 504-381-4866.

Sincerely,

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attachment

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Response to Generic Letter 96-01

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

NRC Sr. Resident Inspector  
P. O. Box 1051  
St. Francisville, LA 70775

INPO Records Center  
700 Galleria Parkway  
Atlanta, GA 30339-3064

Mr. C. R. Oberg  
Public Utility Commission of Texas  
7800 Shoal Creek Blvd., Suite 400 North  
Austin, TX 78757

Mr. David L. Wigginton  
U.S. Nuclear Regulatory Commission  
M/S OWEN 13-H-15  
Washington, DC 20555

BEFORE THE  
UNITED STATES NUCLEAR REGULATORY COMMISSION

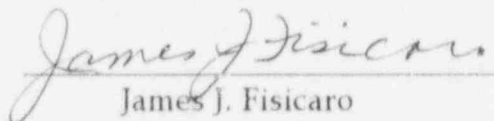
LICENSE NO. NPF-47

DOCKET NO. 50-458

IN THE MATTER OF  
GULF STATES UTILITIES COMPANY  
CAJUN ELECTRIC POWER COOPERATIVE AND  
ENTERGY OPERATIONS, INC.

AFFIRMATION


I, James J. Fisicaro, state that I am Director - Nuclear Safety 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 response to GL 96-01, "Testing of Safety-Related Logic Circuits"; that I signed this letter as Director - Nuclear Safety at River Bend Station of Entergy Operations, Inc.; and that the statements made and the matters set forth therein are true and correct to the best of my knowledge, information, and belief.

  
James J. Fisicaro

STATE OF LOUISIANA  
PARISH OF WEST FELICIANA

SUBSCRIBED AND SWORN TO before me, a Notary Public, in and for the Parish and State above named, this 19<sup>th</sup> day of April, 1996.

(SEAL)

  
Claudia F. Hurst  
Notary Public

My commission expires with life

## **Attachment**

### **Response to GL 96-01 "Testing of Safety-Related Logic Circuits"**

#### Generic Letter 96-01 Requested Actions

Generic Letter (GL) 96-01 requested that licensees take the following actions:

- 1) Compare electrical schematic drawings and logic diagrams for the reactor protection systems, EDG load shedding and sequencing, and actuation logic for the engineered safety features systems against plant surveillance test procedures to ensure that all portions of the logic circuitry, including the parallel logic, interlocks, bypasses, and inhibit circuits, are adequately covered in the surveillance procedures to fulfill the TS requirements. This review should also include relay contacts, control switches, and other relevant electrical components within these systems, utilized in the logic circuits performing a safety function.
- 2) Modify the surveillance procedures as necessary for complete testing to comply with the technical specifications. Additionally, the licensee may request an amendment to the technical specifications if relief from certain testing requirements can be justified.

The generic letter recognized that some licensees may have already performed reviews and taken appropriate actions. These licensees were not required to perform any additional reviews unless modifications had been made to logic circuits associated with the applicable systems.

#### RBS Response to Generic Letter 96-01

At River Bend Station (RBS), the adequacy of Logic System Functional Tests (LSFTs) were reviewed during implementation of an LSFT project completed in December 1993. This project was documented in LER 93-002-03. These actions have been reviewed and determined to meet the criteria set forth in GL 96-01. The associated corrective actions and reviews are described below.

The LSFT review project was initiated as a result of deficiencies documented in Licensee Event Report (LER) 93-002-00. This LER was initiated to document a deficiency in an LSFT surveillance procedure in that the logic circuit that verified the isolation of the reactor core isolation cooling system was not being completely tested. The LSFT review project was subsequently implemented to identify any similar logic system discrepancies. Additional discrepancies were identified during this review and documented using the RBS corrective action process. Immediate corrective actions

were implemented to correct procedural deficiencies and ensure operability. For each deficiency, subsequent testing determined that the associated logic system functioned adequately and was confirmed to have been operable. These specific deficiencies and the associated corrective actions are documented in LER 93-002-03.

The scope of the review project included TS surveillance requirements requiring an LSFT. This review compared the associated surveillance test procedures (STPs) with the associated elementary drawings, electrical schematics, and connection diagrams. The review consisted of identifying each test point and marking the applicable drawings confirming the appropriate logic system test coverage. To maintain adequate testing, the results of this review were documented in an LSFT cross reference matrix which includes 1) each TS requirement and the corresponding LSFT description, 2) the STPs required to perform the requirement, and 3) a description of specific overlap points for each procedure and logic system.

The definition of an LSFT does not require that all logic combinations be verified in order to satisfy the testing requirements. Testing is limited to verifying the operability of the logic circuits specified in the TS, including any associated parallel logic, interlocks, bypasses and inhibit circuits if they are required to perform a safety function or their failure could affect the safety function.

At the time of the LSFT review project, RBS TS defined an LSFT as a "test of all logic components, all relays and contacts, all trip units, solid state logic elements, etc. of a logic circuit, from sensor through and including the actuated device to verify OPERABILITY. The LSFT may be performed by any series of sequential, overlapping or total system steps such that the entire logic system is tested." Since that time RBS converted to standard TS whereas the definition was changed, using the standard TS language, to define LSFT as "a test of all required logic components (i.e., all required relays and contacts, trip units, solid state logic elements, etc.) of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device to verify OPERABILITY. The LSFT may be performed by means of any series of sequential, overlapping or total system steps so that the entire logic system is tested." The most significant change in this definition was the exclusion of the actuated device from the LSFT. This change had no significant impact on LSFT methodology.

Since completion of the LSFT review project, administrative controls have been in place to update the LSFT cross-reference matrix subsequent to any applicable STP changes. In addition, process requirements are in place to ensure that full functional testing of any modification to a safety related circuit is performed prior to release for service. Any modification done to any safety related circuit is reviewed to ensure that there is no effect on the performance of the associated STP.

A review of LSFT review project methodology, corrective actions, and results concluded that the LSFT review project documented in LER 93-002-03, as implemented, meets the requirements set forth in Items 1 and 2 of the GL requested actions. We believe that our current LSFT methodology adequately tests the required components of the applicable logic systems to ensure performance of plant safety functions. We are therefore in compliance with the generic letter and require no additional action.