



**GULF STATES UTILITIES COMPANY**

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U. S. Nuclear Regulatory Commission  
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Gentlemen:

River Bend Station - Unit 1  
Docket No. 50-458

Gulf States Utilities Company (GSU) is providing its status of the diesel generator voltage regulator long-term reliability recommendations from the Transamerica Delaval, Inc. (TDI) Owners Group Design Review and Quality Revalidation (DR/QR) program for River Bend Station.

The TDI Owners Group Plan was previously submitted to the NRC by TDI Owners Group letter dated March 24, 1984. This plan consists of two phases comprised of the following major elements:

Phase I

Generic Problem Resolution

Phase II

Component Selection  
Task Description Preparation  
Design Review  
Quality Revalidation  
Final Documentation

In addition, Appendix II to the DR/QR report contains specific Maintenance and Surveillance requirements for the TDI Diesel Engines.

The NRC Staff's review of the Phase I program for River Bend Station (RBS) is documented in SSER 3. The NRC Staff found the Phase I program for RBS acceptable and acceptably implemented subject to several License Conditions.

With regard to the Phase II implementation, GSU has completed the initial revalidation inspections required by the DR/QR report as previously provided in GSU's letter dated June 21, 1985 (RBG-21356).

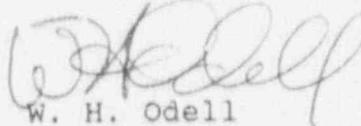
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GSU has reviewed the recommended long-term reliability modifications for the diesel generator voltage regulator and has determined that these changes would have little impact on long-term diesel reliability. Individual discussions concerning each proposed modification are provided in the attachment.

Should you have any questions, please contact Mr. L. A. England of my staff at (504)-381-4145.

Sincerely,



W. H. Odell  
Manager - River Bend Oversight  
River Bend Nuclear Group

Attachment

WHO/LAE/LLD/MSF

cc: U. S. Nuclear Regulatory Commission  
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ATTACHMENT

Gulf States Utilities Company (GSU) has reviewed each recommendation concerning the diesel generator voltage regulator and provides a discussion as to why performance of such modifications is not required. Items 1 through 6 relate to electro-magnetic interference (EMI) and R/F noise in the voltage regulator. Performance of the modifications suggested in these items would help to reduce EMI and R/F noise. However, the EMI and R/F noise levels in the River Bend Station voltage regulator are minimal and there would be little benefit gained by performing these proposed modifications. Items 7 through 9 concern the seismic qualification of various components of the voltage regulator. All of these components were seismically qualified in their current configuration and performance of the proposed modifications would yield no significant benefits.

- 1) "Install a power supply bypass capacitor on each integrated circuit in the voltage regulator."

GSU has determined that the existing power supply chokes and capacitors are adequately sized to suppress any transients or noise that may occur. A review of the operating history of the diesel generators has revealed that integrated circuit damage due to power supply transients has never occurred at River Bend Station.

- 2) "Add a large value capacitor to amplifier U1 in the voltage regulator."

Review of operational history has shown that no failures of amplifier U1 have occurred due to power supply noise. Although quantitative data on these noise levels is not available, the noise is not expected to become worse with time.

- 3) "Install shielded signal leads between the motor operated potentiometer (MOP) and the voltage regulator."

Diesel generator problems due to noise in the MOP circuit have not occurred at River Bend Station. Quantitative data on these noise levels is not available. However, the noise is not expected to become worse with time.

- 4) "Install a bypass capacitor on the feedback circuit."

Based on a review of the diesel generator excitation design and operating history, GSU has determined that the existing circuitry provides adequate filtering of the feedback signal.

- 5) "Run SCR gate signals in separate bundles from power leads."  
A review of the diesel generator operating history revealed that problems due to noise in the SCR gate signals have not occurred. The noise profile in the SCR gate signals is not expected to increase with time.

- 6) "Replace single-sided PC boards with double-sided PC boards in the voltage regulator."

The extra copper layer on a double-sided PC board may provide a marginal increase in AC noise rejection. However, diesel generator problems due to noise effects on the voltage regulator PC boards have not occurred.

- 7) "Direct solder the 9 integrated circuit chips (ICs) to the voltage regulator printed circuit board and delete IC sockets."

The DR/QR report indicates that this modification is required in order to assure diesel reliability during a seismic event. However, the voltage regulator was previously qualified with the existing IC socket mounting. Soldering the ICs directly to the PC board is an expensive and labor intensive modification that would make maintenance and troubleshooting more difficult.

- 8) "Replace voltage regulator potentiometers R4 and R5 with multi-turn MIL style potentiometers."

Seismic qualification testing of the voltage regulators was performed with the equipment in the existing configuration. Additionally, a review of the diesel operating history has revealed that the existing potentiometers have had no trouble with resistance stability.

- 9) "Direct solder components to PC boards or provide retaining mechanisms."

The DR/QR report indicates that this modification is required in order to assure diesel reliability during a seismic event. However, the voltage regulator was previously qualified with the equipment in the existing configuration. Adding retaining clips to the components would require revision of the EQ documentation by the original equipment manufacturer. Soldering the components directly to the PC board is a expensive and labor intensive modification that would make maintenance and troubleshooting more difficult.