

**GULF STATES UTILITIES COMPANY**

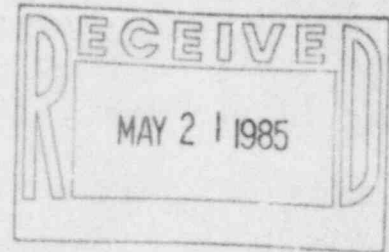
RIVER BEND STATION POST OFFICE BOX 220 ST. FRANCISVILLE, LOUISIANA 70775  
AREA CODE 504 635-6094 346-8651

May 16, 1985  
RBG- 21011  
File Nos. G9.5, G9.25.1.1

Mr. Robert D. Martin, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region IV  
611 Ryan Plaza Drive, Suite 1000  
Arlington, Texas 76011

Dear Mr. Martin:

River Bend Station - Unit 1  
Docket No. 50-458  
Final Report/DR-222



On February 1, 1985, GSU provided Region IV with a 30-day written report on DR-222 concerning the voltage drop in 125-V dc cables which caused improper recharging time of the high-pressure core spray battery. The attachment to this letter is GSU's revised final written report with regard to this deficiency.

Sincerely,

*J. E. Booker*

J. E. Booker  
Manager-Engineering,  
Nuclear Fuels & Licensing  
River Bend Nuclear Group

PJD  
JEB/PJD/amg

Attachment

cc: Director of Inspection & Enforcement  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

NRC Resident Inspector-Site

INPO

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## ATTACHMENT

May 16, 1985  
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### DR-222/Voltage Drop in 125-V DC Cables

#### Background and Description of the Problem

The deficiency concerns the voltage drop in 125-V dc cables which caused improper recharging time of the high-pressure core spray (HPCS) battery as identified in Engineering and Design Coordination Report (E&DCR) No. P-22,099. This condition is the result of the relocation of GE-furnished 125-V dc panel 1E22\*S001PNL (dedicated to the HPCS system) from the control building to the diesel generator building without an engineering evaluation of electrical cable sizes.

The deficiency was caused by the inadvertent error on the part of the designer and engineer responsible for implementing and reviewing the change. Information concerning cable sizes was not furnished on the electrical equipment arrangement drawings which were modified for this change and as a result, the chosen cable size was not obvious to those signing the drawing.

The practice of adding maximum cable length information for power cables on the cable block diagram (CBD) was inadvertently overlooked. Had this been done, the design group responsible for routing the cable would have detected the discrepancy and could have brought it to the attention of the engineer. Because of the error, however, cable lengths were not addressed, and excessive voltage drop occurred.

Approximately 1300 power cables were evaluated for ampacity and voltage drop considering the latest load information and actual cable lengths included in the Electrical Cable Schedule Information System. There were three cables rejected because of ampacity, and the cables were subsequently replaced. The observed reject rate demonstrates acceptable control over the cable sizing process.

#### Safety Implication

The above described condition caused an excessive voltage drop in the circuit connecting HPCS battery charger 1E22\*S001CCR to HPCS battery 1E22\*S00BAT. As a result, the battery recharging time exceeds the design limit of 8 hours as stated in General Electric Company (GE) document NEDO-10905 and FSAR Section 8.9.2. Additionally, voltages less than the required minimum of 101-V dc would be supplied to HPCS switchgear 1E22\*S004 as a result of excessive voltage drop in the cable connecting the switchgear to panel 1E22\*S001PNL.

Because of the described conditions, the HPCS system may have been unable to perform its design function due to inadequate control voltage, and the operation of the HPCS would be impaired when called upon to perform its safety function.

Corrective Action

E&DCR No. P-22,099 was initiated to install proper size cable to correct this condition. The cables connecting the remaining loads fed from panel 1E22\*S001PNL are adequately sized, and no rework is necessary.

Proper implementation of adding maximum length information for power cables on the CBD will prevent recurrence.