



GULF STATES UTILITIES COMPANY

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July 24, 1985

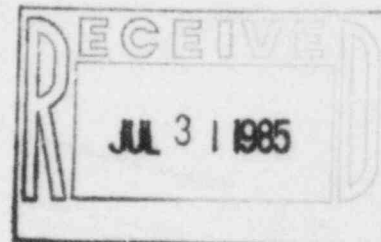
RBG- 21680

File Code: 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-295



On July 10, 1985, GSU notified Region IV by telephone that it had determined DR-295 concerning the closing spring charging mechanism in 480V switchgear supplied by General Electric Company to be reportable under 10CFR50.55(e). The attachment to this letter is GSU's final 30-day written report pursuant to 10CFR50.55(e) (3) with regard to this deficiency.

Sincerely,

L. A. England

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

ALP
JEB/PJD/amg

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

NRC Resident Inspector-Site

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ATTACHMENT

July 24, 1985
RBG- 21680

DR-295/CLOSING SPRING CHARGING MECHANISM

Background and Description of the Problem

The deficiency concerns the closing spring charging mechanism in 480V switchgear supplied by General Electric Company (GE). The circuit breakers are GE Model AKR. These circuit breakers are used in Class 1E 480-V load centers furnished by Powell Electric Corporation and in non-Class 1E load centers furnished by GE. The failure is mechanical in nature, but the components involved differ depending on manual or electrical operation.

For the electrically operated breakers, the charging mechanism was unable to charge the breaker closing spring because of excessive wear in the ratchet and pawl mechanism. Since the pawl turns the ratchet tooth by tooth eventually there was insufficient contact surface to turn the ratchet. Therefore the charging spring was not closed.

There were several factors that contributed to this deficiency. One factor is the heavy usage of these breakers during the construction and testing phases of the plant. These breakers do not have counters to indicate the number of breaker operations so the actual usage can not be determined. The mechanically operated breakers were used less and did not exhibit significant wear on the ratchet.

There were other minor factors such as bent studs that support the pawls. This bent stud causes misalignment between the ratchet and pawl and thus excessive wear.

General Electric reports thousands of breakers in use with only a limited number of charging components replaced.

Safety Implication

The failure of the charging mechanism to charge the closing spring can result in an electrically operated circuit breaker being unable to close and supply power to a load. The impact on manually operated breakers is not of concern since these breakers are maintained in a closed position. For the case of electrically operated breakers supplying loads such as containment unit coolers and hydrogen recombiners, where the nature of the load is such that it cycles or is not required until LOCA, the impact is that a load required during a LOCA will be unavailable, thus adversely affecting the safety of operations of the nuclear plant.

Corrective Action

Since no design or material related cause was found for the problem, two actions will be taken for the 28 electrically operated breakers. The first action was to shorten the maintenance interval from a maximum of 200 weeks to a maximum of 104 weeks. The second action was to inspect the charging mechanism of these breakers and correct any problems found. For the 28 electrically operated breakers the corrective action has been completed on 18 of them, the remainder will be completed by fuel load.

The breakers are no longer under the heavy usage of the testing phase. These breakers undergo periodic tests and inspections. The preventative maintenance program inspects the entire breaker including the charging mechanism at a maximum of 104 weeks. These breakers will also be functionally tested regularly as a part of the surveillance test procedures for a given system. Since the construction activities are complete in the area of the breakers they are now under a normal operating and maintenance program.