



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

Enclosed is Gulf States Utilities Company's special report concerning separate invalid failures of the Division I and II Diesel Generators during surveillance tests at River Bend Station. This report is being submitted pursuant to River Bend Station Technical Specification 4.8.1.1.3 and 6.9.2.

Sincerely,

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SPECIAL REPORT

At 1525 on 5/3/88, an invalid failure of the Division II Diesel Generator (DG) occurred when the DG room standby ventilation exhaust fan (1HVP*FN2B) failed to auto-start while performing the Division II DG Operability Test (STP-309-0202). A similar event occurred on 3/13/88 at 1113 involving the Division I DG. Because the ventilation fans are not a part of the defined "diesel generator unit," these are considered invalid failures per Regulatory Guide 1.108, Position c.2.e.(2).

It was not immediately recognized at the time of the 3/13/88 event that a Special Report was required. Through further review following the 5/3/88 occurrence, it was determined that these events constituted invalid failures of the DG and that a special report should have been submitted. Therefore, due to the similar nature of these events, this report will satisfy reporting requirements of Technical Specification 4.8.1.1.3 for both occurrences.

1. Investigation

3/13/88

In accordance with the regularly scheduled operability test (STP-309-0201), Diesel Generator 1EGS*EG1A was given a normal start signal from the local diesel control panel at 1113 on 3/13/88. As the DG comes up to speed, the design is such that the diesel room exhaust fan (1HVP*FN2A) is given an auto-start signal which closes the 480V circuit breaker supplying the fan causing the fan to start. However, after the DG had successfully started within the required time, the operator noticed that the DG room exhaust fan had not started. Efforts to manually start the fan from the local DG panel were unsuccessful. The shift supervisor was notified, the test was terminated, and the DG secured at 1130 on 3/13/88.

Corrective Action

An investigation of the cause of the failure to start was immediately undertaken. Maintenance personnel megger tested the fan motor and power cables and found no problems. The circuit breaker serving the fan was then investigated. By racking the breaker into the test position and attempting to close it, it was determined that the breaker mechanism was not functioning properly. The breaker subassembly was found to be apparently binding in such a way that the breaker would not close. Maintenance personnel were able to manually manipulate the breaker linkage sufficiently to loosen the breaker from binding. This freed the mechanism, and the breaker was tested to verify that it was working properly. It was then reinstalled in the switchgear cubicle, and the fan was run to verify operability of both the breaker and the fan. The DG operability test was then repeated, and the results were satisfactory. The DG was declared operable at 0535 on 3/14/88.

2. Investigation

5-03-88

Following a scheduled maintenance outage on the Division II DG (1EGS*EG1B), which began at 0422 on 5/3/88, a post-maintenance operability test (STP-309-0202) was performed on the DG prior to returning it to service. The DG was given a normal start signal at 1513 on 5/3/88 and the DG started properly within the required time period. However, as in the 3/13/88 occurrence, the operator noted that the DG room exhaust fan (1HVP*FN2B) did not auto-start. Efforts to manually start the fan also proved unsuccessful. The shift supervisor was notified, and the test was terminated at 1525 on 5/3/88.

Corrective Action

As in the 3/13/88 occurrence, the fan motor and power cables were meggered and found to be acceptable. Investigations again revealed that the breaker mechanism was binding in such a way that the breaker would not close. Recognizing that this was a recurrence of a similar occurrence on the opposite division, engineering was contacted for further evaluation. A spare breaker was installed in the switchgear, and the DG was tested to determine operability. The DG was declared operable at 0505 on 5/4/88. In attempting to identify the cause of the binding, the mechanism was loosened prior to identifying the cause of the binding. The breakers involved are General Electric (GE) Type AKR-30 electrically operated 480V air circuit breakers. GE was contacted for assistance.

Cause of Failure

GSU Engineering worked with the GE field engineer to try to determine the root cause of the breakers' failure to close. A number of tests were performed, including cycling the breaker electrically in the shop both rapidly and slowly and manually slow-closing the breaker. The breaker was also manually charged and closed and tripped several times. It is estimated that the breaker was cycled a minimum of fifty (50) times. At no time did the breaker fail to operate properly, and it was not possible to reproduce the binding phenomenon it had exhibited previously.

All of the GE specified maintenance adjustments and settings were checked. Two adjustments were found to be off by a slight amount but were not significant in terms of the proper operation of the breaker. The root cause of the failure to close is indeterminate at this time. GSU is continuing to pursue this matter with GE. The breaker will be shipped to GE for further testing, disassembling and performance of a root cause analysis. Once the root cause is identified, a supplement to this special report will be provided.

Length of Time the DG was Unavailable

Div. I - 3-13-88 18 hrs. 5 minutes
Div. II - 5-03-88 13 hrs. 52 minutes

Current Surveillance Interval

Div. I Weekly
Div. II Monthly
Div. III Monthly

Test Interval Conforms to Technical Specifications

Yes

Failures for Div. I

0 Valid failures in last 20 valid tests
5 Valid failures in last 100 valid tests

Failures for Div. II

1 Valid failure in last 20 valid tests
1 Valid failure in all 65 valid tests

Number of Valid Failures in Previous 100 Valid Tests of All Diesel Generators at River Bend Station

One