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U.S. Nuclear Regulatory Commission  
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Subject: River Bend Station - Unit 1  
Docket No. 50-458  
Interim Special Report - Failure of Division II Starting Air Block and Vent  
Valve

File No.: G9.5, G9.25.1.7

RBG-41936  
RBF1-95-0215

Gentlemen:

On August 16, 1995, a monthly operability surveillance was performed on the Division I Emergency Diesel Generator (EDG). The EDG failed to start during the test. This test was to perform an EDG start using the forward starting air bank, with the rear starting air bank valved out as provided for in the surveillance procedure. Both forward and rear starting air banks are 100% capacity and are individually capable of starting the EDG. In the test configuration with alignment only to the forward starting air bank, a start signal was initiated, air pressure in the forward air tank dropped indicating that air was being supplied, field flashing initiated, the fuel rack opened, and one exhaust pulse was heard by test engineers in the area. The EDG moved slightly but did not continue to roll over, and the start was not successfully completed.

Information gathered in the engine room and from plant computer data provided evidence of a mechanical malfunction, such as sticking or binding, in the forward starting air block and vent valve. During the start attempt, pressure in the forward air tank had decreased by one-half the amount used in a typical start-up roll and successful start. It appears that the valve stroked only partially open, providing an insufficient supply of starting air energy required to start the engine. Subsequent to replacing the forward block and vent valve, the surveillance test was successfully completed, again starting on the forward air bank only. The diesel had been

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removed from service for 9 hours, 38 minutes during evaluation of the failure and valve replacement.

To evaluate the possibility of a common mode failure, tests were performed on the Division I rear starting air bank and the Division II forward and rear starting air banks. An air roll of the Division I EDG was performed using the rear air bank. The Division I air roll was normal, indicating that the rear valve functioned as required. An air roll was performed on the Division II EDG using the rear air bank and then started using only the forward air bank. Both Division II tests were successful. These tests did not provide any evidence of valve degradation that would support the possibility of a common mode failure. Based on this evidence, it can be concluded that both Division I and II EDGs were capable of starting in their normal standby configurations.

The air start block and vent valve removed from the Division I EDG was disassembled only to the point where portions of the valve could be visually inspected. The disassembly was kept to a minimum to avoid disturbing any evidence that could impact future investigation of the valve failure which is to be completed by an independent offsite consultant. The results of the visual inspection supported the initial determination that the valve had stuck partially open. The River Bend Station root cause evaluation will be completed upon receipt of the consultant's report which is expected to be received prior to September 29, 1995. A discussion of the completed root cause and appropriate long-term corrective actions will be provided in a supplement to this Special Report within 30 days of receipt of the consultant's report.

This event has been evaluated against the criteria provided in Regulatory Guide 1.108 and categorized as a valid test and invalid failure. The conclusions of this evaluation were based on the redundancy of the EDG air start systems and the associated test methodology.

As stated above, the Division I and II design includes redundant forward and rear starting air banks each of which are 100% capacity and individually capable of starting the EDG. In the normal standby configuration both starting air banks are aligned to start the EDG. In this configuration, a failure of a single starting air block and vent valve as described in this event would not have prevented the EDG from starting upon demand. Successful air rolls on the rear starting air bank, before both the test failure and the next successful start, demonstrated that the engine would have started successfully had the redundant starting air systems been in their normal standby alignment.

River Bend utilizes test methodology to periodically start the Division I and II EDGs using each redundant air supply. This is accomplished by isolating alternate starting air systems for

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alternate tests. Although this is an acceptable configuration in accordance with the EDG licensing basis, there is no intent nor are the systems routinely configured with one air bank isolated. The unused redundant air bank is not isolated until immediately before the surveillance test and is re-aligned immediately after. Regulatory Position C.2.e.(2), provides exception from classification as valid failures for failures due to equipment that is "not operative in the emergency mode." River Bend's test methodology is more stringent than the intent of Regulatory Guide 1.108, in that redundant equipment which is available to start the engine in a normal configuration is isolated from service. With both systems normally aligned, one starting air system can be inoperable during an emergency or test start without preventing the diesel from starting as required. Thus, the exception permitted by Regulatory Position C.2.e.(2) can be applied to this event, resulting in an invalid failure classification.

This report is submitted pursuant to Technical Specification 4.8.1.1.3. The current statistics for valid EDG failures are as follows:

Current surveillance intervals:

Division I: Monthly

Test intervals conform to Technical Specifications?: Yes

Failures for Division I:

0 valid failure in the last 20 valid tests

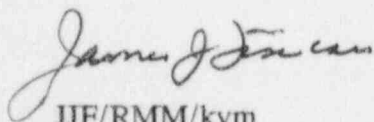
2 valid failures in the last 100 valid tests

Cumulative failures for all River Bend Station diesel generators:

2 valid failures in the last 100 valid tests

If there are any questions concerning this issue please contact R. M. McAdams at (504) 336-6224.

Sincerely,



JJF/RMM/kvm

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