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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 I Diesel Generator Air Admission
Valves

File No.: G9.5, G9.25.1.7

RBG-42305
RBF1-95-0311

Gentlemen:

This special report is being submitted pursuant RBS Technical Specification 5.6.9.1. On December 12, 1995, the Division I Emergency Diesel Generator (EDG) was being prepared for a series of maintenance runs to collect diagnostic information and heat the engine for a hot crankshaft alignment check, in accordance with station operating procedures. This evolution is routinely performed to assess the condition of the EDG engine and plan revised or additional refueling outage maintenance if needed. During two prestart air roll attempts, the EDG failed to reach satisfactory rotational speed and the maintenance runs were postponed.

During the investigation, vendor recommended functional tests were performed on each air admission start valve to ensure proper operation. During these tests, valves #2, #3, and #4 exhibited excessive air blowby through the piston/cap assembly, with no audible signs of stroking. Notably, blowby on the #4 valve was the most excessive. Through discussions with the vendor, it was agreed that the excessive blowby was not normal and could interfere with satisfactory valve operation. This type of failure could produce symptoms similar to those observed during the failed air roll attempts. Two complete admission valves and the remaining piston/cap assemblies were replaced and successfully retested.

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The suspected cause of the unsuccessful air rolls is believed to be a mechanical malfunction of the #4 air admission valve. The investigation results indicated that the failure mechanism may be a result of normal wear accumulation. Although there were deficiencies associated with the #2 and #3 admission valves, the investigation concluded that they were not the cause of the unsuccessful rolls. The removed parts will be submitted to the vendor for confirmation of the failure mechanism.

The Division I EDG was successfully started on December 6, 1995. The Division II EDG surveillance was successfully performed on December 6, 1995 with no indications of a similar valve problem. A post-run air roll was observed on December 6, 1995. The engine quickly rolled up to and maintained normal rotational speed. No problems are suspected in Division II air system, but a functional inspection of the air admission valves is scheduled to be performed during the next refueling outage, scheduled to begin on January 6, 1996.

The root cause investigation will be finalized upon completion of the vendor evaluation. The final root cause and any additional corrective actions, if required, will be provided in a subsequent report. This event has been evaluated against the criteria provided in Regulatory Guide 1.108, Revision 1, and categorized as a valid test and failure in accordance with Regulatory Position C.2.e.

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:

- 1 valid failure in the last 25 valid tests
- 2 valid failures in the last 100 valid tests

Cumulative failures for all River Bend Station diesel generators:

- 3 valid failures in the last 100 valid tests

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If there are any questions concerning this issue, please contact David Lorring at (504) 381-4157.

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