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November 17, 1997

U. S. Nuclear Regulatory Commission Document Control Desk, OP1-17 Washington, DC 20555

Subject: River Bend Station - Unit 1 Docket No. 50-458 License No. NPF-47 Licensee Event Report 50-458/97-009-00

File Nos. G9.5, G9.25.1.3

RBG-44288 RBF1-97-0419

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Ladies and Gentlemen:

In accordance with 10CFR50.73, enclosed is the subject report.

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Sincerely,

RJK/WJF/mbg

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NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION (4-95) LICENSEE EVENT REPORT (LER) (See reverse for required number of d gits/characters for each block)						ESTIM INFOR LEARN BACK ESTIM 6 F33) 0'01 	APPROVED BY OMB NO. 3150-0104 EXPIRES 04/30/98 ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATOR INFORMATION COLLECTION REQUEST 500 HRS. REPORTED LESSON LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FE BACK TO INDL'3TRY FORWARD COMMENTS REGARDING BURDE ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 2055/ 0701, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFIC L.º MANAGEMENT AND BUDGET, WASHINGTON, DC 20503									
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On October 16, 1997, while completing a refueling outage (RF-7), with the plant in mode 4 (cold shutdown) and the reactor at 0% power, investigation results identified potentially inadequate prior local leak rate testing (LLRT) for three valves. The inadequate prior test performances were caused by pressurizing with at least one check valve between the pressure source and the valves being tested. Differential pressure across the check valves may have reduced test pressures to less than the minimum required test pressure.

The cause of the inappropriate testing lineups was determined to be insufficient technical knowledge regarding the effects of pressurizing an LLRT test boundary through a check valve. After recognition by the test engineers during RF-7, LLRT personnel, including contractors, were briefed on the potential effects of check valves on LLRTs. Applicable procedures will be revised to remove the check valves from the test configurations. A caution will be placed in the controlling procedure regarding the effects of check valves on leak tests. Immediate corrective actions included leak rate testing utilizing revised pressure pathways which do not include check valves. All three valves passed the revised testing method. Also, each penetration contains at least one additional containment isolation valve in series that was tested satisfactorily. No safety significance is associated with this event.

This report is submitted pursuant to 10CFR50.73(a)(2)(i)(B) as an operation prohibited by the plant's Technical Specifications.

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Reported Condition

On October 16, 1997, while completing the seventh plant refueling outage, with the plant in mode 4 (cold shutdown) and the reactor at 0% power, investigation results, including a review of previous outage testing, identified potentially inadequate prior local leak rate testing (LLRT) for three primary containment isolation valves. Limiting Condition for Operation 3.6.1.3 of the River Bend Station Technical Specifications requires primary containment isolation valves to be operable in Modes 1, 2, or 3. Previous surveillance testing has included at least one check valve between the pressure source and the valve being tested. Since the effect of the check valves on final pressure is not known, the minimum required test pressure has not been assured and thus, Surveillance Requirements 3.6.1.3.11 and 3.6.1.1.1 were not met. This report is submitted pursuant to 10CFR50.73(a)(2)(i)(B) as an operation prohibiled b, the plant's Technical Specifications.

Investigation

On July 22, 1997, a condition report was issued addressing prior leakage testing of two containment purge isolation valves which did not consider overcoming the opening pressure of a one-inch spring loaded piston check valve. Troubleshooting determined that the actual opening pressure of the check valve was 0.30 psig. The Technical Specifications minimum test pressure is 7.6 psig. Since actual test pressure was 8.0 psig, an acceptable net test pressure of 7.7 psig was retained. The piping configuration for these two valves does not provide an alternative means of pressurizing the test boundary without going through the check valve. As a result of heightened awareness resulting from this condition, another example of a testing configuration which pressurizes through a check valve was identified (E51-MOVF013). Immediate actions included a review of the remaining LLRT surveillances for similar test configurations. Two similar configurations were identified (E51-MOVF019 & E51-MOVF077). An investigation began to review previous outage testing and differential pressure results to determine if prior LLRTs for the subject valves were adequate.

Valves E51-MOVF013 and E51-MOVF077 are pneumatically tested at a required minimum test pressure of 7.6 psig (pounds per square inch gage). Valve E51-MOVF019 is hydrostatically ested at a required minimum test pressure of 8.36 psig. Empirical test data for E51-MOVF077 indicates the required minimum test pressure was not established. Empirical data for E51-MOVF013 and E51-MOVF019 is not available.

Based on the investigation, the following results were identified E5.-MOVF013 may have been tested incorrectly by pressurizing through one swing check valve during the first six refueling outages. Leakage was identified during as-found testing for valve E51-MOVF013 early in the current refueling outage. The valve was reworked before the test configuration inadequacy was identified. E51-MOVF013 was retested using the correct test configuration with acceptable results. E51-MOVF019 had been tested correctly during the first four refueling outages. The surveillance procedure for E51-MOVF019 was revised such that the valve may have been tested incorrectly during the fifth and sixth refueling outages by pressurizing through the procedure for E51-MOVF077 has been tested incorrectly during the first six refueling outages by pressurizing through two spring loaded piston check valve.

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Inservice testing (IST) procedures were also reviewed for test configurations which pressurize through a check valve. One similar test configuration for a pressure isolation valve was identified. However, this is a high pressure test that does not identify a minimum pressure and uses "equivalent leakage." The evaluation of this test configuration concluded there was no impact on test results.

Since actual differential pressure across the LLRT check valves during prior tests is not known, upon completing the engineering review of past leak testing performance history and considering the empirical test data for E51-MOVF077, sufficient information was available to determine this condition to be reportable on October 16, 1997.

Root Cause

The cause of the inappropriate testing lineups was determined to be insufficient technical knowledge regarding the effects of pressurizing an LLRT test boundary through a check valve, by the procedure writers, reviewers, and test engineers.

Previous Occurrences

A review of River Bend LERs for the past two years identified no other occurrence of inadequate test configurations associated with differential pressure across check valves.

Corrective Actions

The following corrective actions were identified:

- During shift briefings, the potential effect of check valves on LLRTs was discussed with licensee and contractor personnel involved in LLRT activities.
- The subject LLRT valves were retested utilizing revised test configurations which do not include the check valves.
- Applicable LLRT surveillance procedures will be revised to remove the check valves from the test configurations.
- A caution will also be placed in procedure ADM-0050. "Primary Containment Leakage Rate Testing Program," identifying the potential offects of pressurizing through check valves.

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Safety Significance

Though prior testing of . : : subject valves may not have met the required pressures, the testing would have identified gross leakage caused by valve failures. Prompt changes were made to the surveillance procedures and the valves were retested using revised test configurations which do not include check valves. The revised testing results contained no appreciable difference in leakage from prior tests. Therefore, no safety significance is associated with this event. Each of the valves has a good maintenance history and the design for each penetration contains at least one additional containment isolation valve in series that was tested satisfactorily.