



ENTERGY

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JAMES J. FISICARO

Director
Nuclear Safety

October 10, 1994

U.S. Nuclear Regulatory Commission
Document Control Desk
Mail Stop P1-37
Washington, D.C. 20555

SUBJECT: River Bend Station - Unit 1
Docket No. 50-458
License No. NPF-47
Licensee Event Report 50-458/94-024-00
File Nos. G9.5, G9.25.1.3

RBG-40943
RBF1-94-0063

Gentlemen:

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

Sincerely,

JJF/kvm
Enclosure

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cc U.S. Nuclear Regulatory Commission
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Arlington, TX 76011

NRC Sr. Resident Inspector
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INPO Records Center
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Radiation Protection Division
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Baton Rouge, LA 70884-2135
ATTN: Administrator

NRC FORM 366 (5-92)		U.S. NUCLEAR REGULATORY COMMISSION				APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95				
LICENSEE EVENT REPORT (LER)						<small>ESTIMATED BURDEN FOR RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTIVE REQUEST 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503</small>				
FACILITY NAME (1) River Bend Station						DOCKET NUMBER (2) 05000-458		PAGE (3) 1 of 6		
TITLE (4) DRYWELL ISOLATION CHECK VALVES INOPERABLE DUE TO INADEQUATE HOUSEKEEPING										
EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	11	94	94	024	00	10	10	94	N/A	05000
									FACILITY NAME	DOCKET NUMBER
									N/A	05000
OPERATING MODE (9)		4		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more (11))						
POWER LEVEL (10)		000		20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)
				20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)
				20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER
				20.405(a)(1)(iii)		x 50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in abstract below and in text, NRC Form 366A)
				20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		
				20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		
LICENSEE CONTACT FOR THIS LER (12)										
NAME T.W. Gates, Supervisor - Licensing						TELEPHONE NUMBER (Include Area Code) 504-381-4866				
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
SUPPLEMENTAL REPORT EXPECTED (14)						EXPECTED		MONTH	LAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)				X NO		SUBMISSION DATE (15)				
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)										
<p>On September 11, 1994, with the plant in Operational Condition 4 (Cold Shutdown) four check valves required to satisfy Technical Specification 3.6.4 requirements for drywell isolation functions were found to be impaired by foreign debris. This condition was identified during a disassembly inspection of selected check valves as the result of RBS's activities to improve the Pump and Valve Inservice Testing Program.</p> <p>These check valves are eight inch swing check valves and are part of the reactor equipment drain and floor drain systems. They have an active safety function in the closed direction for drywell integrity. The root cause of this condition is the failure to maintain adequate housekeeping during the construction and early operations phase of the plant.</p> <p>The immediate corrective action was to restore the operability of each of the impaired check valves. To prevent recurrence, the reactor plant floor drain system was thoroughly flushed to ensure that no additional trash was present in the system which could impair the safety function of the system's check valves. Selected valves in both of these drain systems will be disassembled and verified operable during the next scheduled refueling outage. No similar event associated with poor housekeeping practices at RBS have been identified. This event was of no safety significance.</p>										

NRC FORM 356A (5-82)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95		
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		FACILITY NAME (1) River Bend Station	DOCKET NUMBER (2) 05000-458	LER NUMBER (6) 94-024

TEXT (If more space is required, use additional copies of NRC Form 356A) (17)

REPORTED CONDITION

On September 11, 1994, with the plant in Operational Condition 4 (Cold Shutdown), reactor plant equipment drain drywell isolation check valve (*WK-ISV*), 1DER*V15, was discovered to be inoperable because of entrapped debris which prevented the valve from fully closing. This condition was identified during a disassembly inspection of this check valve which was being performed as part of RBS's Pump and Valve Inservice Testing Program. As a result of this condition being identified, the seven other equipment and floor drain drywell isolation check valves (*WK-ISV*) were disassembled and inspected. This inspection identified three more check valves whose disk movement was impaired by foreign debris; of those, two valves would not close and the other would not open fully. Based on the debris found, there was sufficient evidence to conclude that the operability of these valves was questionable during periods when operability was required per Technical Specification 3.6.4, "Primary Containment and Drywell Isolation Valves." Therefore, this condition is reported pursuant to 10CFR50.73(a)(2)(i)(b) as plant operation prohibited by the Technical Specifications.

INVESTIGATION

Valve 1DER*V15 is a eight inch swing check valve that has an active safety function in the closed direction for drywell integrity. This valve plus three other swing check valves (i.e., 1DER*V14, -V16 and -V17) provide redundant isolation capability in the two reactor equipment drain lines that penetrate the drywell in route to the containment equipment drain sump. In accordance with RBS's Pump and Valve Inservice Testing (IST) Program approved Valve Relief Request (VRR) -02, the required testing of these valves is accomplished by the performance of a drywell bypass test which is conducted during each refueling outage. During a programmatic review of the IST program by RBS, a deficiency regarding the test configuration for these valves was identified. Because of the system layout, the water level in the drywell sump could create a water seal on the drain lines containing these four valves during the performance of the test. Because of the low differential pressure used during the performance of this test, the sump water seal could isolate these check valves from the drywell bypass test volume. This condition was identified to the NRC and justification for interim relief was provided in a interim relief request to NRC via EOI letter dated August 10, 1994. Due to hardship without a compensating increase in the level of safety or quality, immediate testing of these valves was allowed to be delayed until a cold shutdown of greater than 48 hours or the next scheduled refueling, whichever occurred first. The testing would be performed by conducting disassembly inspections of these valves.

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During Forced Outage 94-01 in September, 1994, Maintenance Work Orders (MWOs) were issued to perform the required inspection for the drywell isolation check valves in the reactor equipment drain system. During these inspections two valves, one in each penetration, were found to be lodged open by debris. Although the valves were found to be blocked open, the redundant isolation valve for each pair was found capable of isolating and accomplishing the desired safety function for the associated penetration. The as-found conditions for these reactor equipment drain line isolation check valves were as follows:

Valve Mark No.	Function	Inspection Results
1DER*V14	Outboard isolation and redundant to V15	No debris or corrosion was identified
1DER*V15	Inboard isolation and redundant to V14	A plastic skoal can was found lodged in swing arm which impaired the ability of the valve to fully close. A date of 1985 was imprinted on the back of the can. No other debris or corrosion was identified.
1DER*V16	Inboard isolation and redundant to V17	An ink pen was found in the valve hanger holding the valve open. No other debris or corrosion was identified.
1DER*V17	Outboard isolation and redundant to V16	No debris or corrosion was identified.

Knowing that these valves had not been inspected since construction and this was an essentially "clean" system (equipment drains), concerns were raised regarding the cleanliness of the reactor plant floor drain piping to the containment floor drain sump. Similar drywell isolation check valves in this system are also required operable by Technical Specification 3.6.4. Note that the corresponding four check valves in floor drain system are not subject to the water seal issue associated with the equipment drain system, and the isolation capability of their drywell penetrations is verified by the drywell bypass test of RBS's Pump and Valve Inservice Test Program.

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

MWOs were written to disassemble reactor plant floor drain drywell isolation check valves (*WK-ISV*) 1DFR*V1, 1DFR*V2, 1DFR*V3, 1DFR*V4 for inspection:

The as-found conditions for these valves are as follows:

Valve Mark No.	Function	Inspection Results
1DFR*V1	Outboard isolation and redundant to V2	The valve's disk moved freely; however, some debris was found upstream of the valve. ①
1DFR*V2	Inboard isolation and redundant to V1	The valve's disk moved freely; however, some debris was found in the valve body and in the upstream piping. ①
1DFR*V3	Inboard isolation and redundant to V4	The valve's disk was capable of closing and sealing, but was blocked from fully opening because of foreign material found in valve body. ①
1DFR*V4	Outboard isolation and redundant to V3	The valve's disk was not capable of fully closing because of foreign material. ①

① Evidence of some slight rusting was present. The amount found in the DFR valves was slightly more than the amount found in the DER valves. However, the level of rust was not significant and did not impair the functioning of the valves.

After finding this quantity of debris, MWOs were written to remove the internals of reactor plant floor drain drywell isolation check valves and flush the system's piping. The containment floor drain sump was cleaned after the flushing and the valve bodies re-inspected. The re-inspection of the valve bodies was completed on September 22, 1994. The reactor plant floor drain sump check valves on the containment side had no rust or other foreign material in the valve bodies after the flushing. The reactor plant floor drain sump check valves on the drywell side did have an accumulation of some loose rust particles in the valve bodies, but no other debris. These valve bodies were cleaned and the disks were placed back into the valves. All containment floor drain sump check valves were manually exercised before replacing the bonnet.

NRC FORM 366A (5-02)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95	
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(Note that a similar flushing of the reactor plant equipment drain piping was not deemed necessary because of the small quantity of debris discovered and the cleanliness of the valve interiors of this system. Also equipment drains which are dedicated to specific equipment areas are less susceptible to debris intrusion than floor drains which are open to large areas.)

ROOT CAUSE

The root cause of this condition is the failure to maintain adequate housekeeping during the construction and early operation of the plant. A secondary factor which allowed this condition to exist for an extended period is the recognized deficiencies in the IST program.

A review was conducted of past RBS LERs and no similar event associated with poor housekeeping practices or debris induced failures were identified. This event appears to be an isolated occurrence for RBS.

CORRECTIVE ACTION

The immediate corrective action was to restore the operability of each of the impaired check valves. To prevent recurrence, the reactor plant floor drain system was thoroughly flushed to ensure that no additional trash was present in the system which could impair the safety function of the system's check valves. As stated above, this action was not deemed necessary for the reactor equipment drain system. However, selected valves in both of these drain systems will be disassembled and verified operable during the next scheduled refuel outage. The continued performance of these inspections will be reassessed after RF-6 based on the inspection findings and the requirements of the IST program. This action will provide assurance that a housekeeping concern does not exist for this system. Note that the debris identified in these inspections does not appear to challenge the effectiveness of the current housekeeping practices. As discussed in the similarity review in the root cause section, no LERs have been submitted by RBS because of inadequate housekeeping practices. Current housekeeping practices should maintain these systems in an acceptable state.

The corrective actions being pursued as part of RBS Long Term Improvement Plan regarding the IST program will serve to adequately satisfy the testing deficiencies which contributed to this condition.

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SAFETY ASSESSMENT

The safety function of these check valves is to close following a high energy line break in the drywell to support the integrity of the drywell pressure boundary. This integrity is required to prevent the resulting blow down from bypassing the suppression pool condensing function and potentially overpressurizing primary containment. The results of the inspections conducted on these check valves indicate that at least one check valve per penetration was capable of performing its isolation function. Additionally, EOI has performed a calculation which evaluated the bypass leakage that could occur if the internals of the four checks valves in the equipment drain system were removed (note that the check valves in both systems are the same size, eight inches). This calculation was performed to support the interim relief request regarding the IST testing deficiency associated with the equipment drain check valves. This calculation demonstrated that the design basis bypass leakage limit would not be exceed for a condition with no isolation capability in the equipment drain system. Based on this calculation, a significant safety margin would have still been maintained even if a penetration was not capable of isolating. Therefore this condition was of no safety significance.

Note: Energy Industry Identification System Codes are indicated in the text as (*XX*).