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March 14, 1996

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 50-458/96-007-00
File Nos. G9.5, G9.25.1.3

RBG-42382
RBF1-96-0029

Gentlemen:

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

Sincerely,

JJF/CEF/kvm
enclosure

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cc: U. S. Nuclear Regulatory Commission
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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)						ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION 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				
FACILITY NAME (1) River Bend Station						DOCKET NUMBER (2) 05000-458		PAGE (3) 01 of 03		
TITLE (4) Containment Airlock Pneumatic System Ball Valve Failure Due to Debris Internal to the System										
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
02	14	96	96	007	0	03	14	96	N/A	05000
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more (11))						FACILITY NAME	DOCKET NUMBER
1			20.402(b)			20.405(c)			N/A	05000
POWER LEVEL (10)			20.405(a)(1)(i)			50.36(c)(1)			50.73(a)(2)(iv)	73.71(b)
46.5%			20.405(a)(1)(ii)			50.36(c)(2)			50.73(a)(2)(v)	73.71(c)
			20.405(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(vii)	OTHER
			20.405(a)(1)(iv)			50.73(a)(2)(ii)			(Specify in abstract below and in text, NRC Form 366A)	
			20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(viii)(A)	50.73(a)(2)(viii)(B)
									50.73(a)(2)(x)	
LICENSEE CONTACT FOR THIS LER (12)										
NAME, David N. Lorfing, Supervisor - Nuclear Licensing						TELEPHONE NUMBER (include Area Code) 504-381-4157				
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC
SUPPLEMENTAL REPORT EXPECTED (14)						EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)			NO							
x										
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)										
<p>On February 14, 1996, with the plant in operational Mode 1, River Bend engineering determined a single condition contributed to the failure of Surveillance Test Procedure (STP) 057-7203, "Containment Personnel Airlock Door Seal Air System Leak Rate Test" for each of the four inflatable seal pneumatic systems of the 171 foot reactor building personnel airlock (*AL*). This report is being submitted pursuant to 10 CFR 50.73 (a) (2) (vii).</p> <p>The single condition is determined to be entrained debris internal to the pneumatic system. The debris was most likely introduced into the system from modifications performed during refuel outage (RF) 5. This debris adhering to lubricant applied to the ball valve and check valve seating surfaces resulted in leakage beyond an acceptable limit. The leaking valves were reworked and Preventative Maintenance (PM) tasks will be developed to replace the seating surfaces on a regular basis. Additionally, the surveillance test will be performed on a more frequent basis. The corrective action will be extended to the 113 foot containment airlock due to similarities of usage and maintenance history.</p> <p>This condition is not safety significant. Engineering analysis concluded the pneumatic system was capable of supplying sufficient seal pressure to maintain containment integrity for 30 days post design basis accident (DBA).</p>										

NRC FORM 366A (5-82)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95	
<p align="center">LICENSEE EVENT REPORT (LER) TEXT CONTINUATION</p>		<p>ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION 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.</p>	
		FACILITY NAME (1) River Bend Station	DOCKET NUMBER (2) 05000-458

Reported Condition:

On February 14, 1996, with the plant in Mode 1, River Bend engineering determined that a single condition caused the failure of Surveillance Test Procedure (STP) 057-7203, "Containment Personnel Airlock Door Seal Air System Leak Rate Test" for each of the four inflatable seal pneumatic systems on the reactor building containment personnel airlock. Engineering investigation found that debris in the system adhered to excess lubricant on the ball valve and check valve seating surfaces, eventually causing air leakage beyond the specified limits. This condition is being reported as a single condition that caused two independent trains to become inoperable in a single system designed to control the release of radioactive material per 10 CFR 50.73 (a) (2) (vii).

Investigation:

The primary containment at River Bend Station is equipped with two double door airlocks that provide personnel access to the primary containment. The airlocks are designed to limit the release of radioactive material to the environment during normal operation and through a range of transients and accidents up to and including postulated design basis accidents (DBA's). Each airlock door has two inflatable seals maintained at pressure by a separate pneumatic system. The purpose of the pneumatic system is to ensure an adequate supply of air is available to the containment airlock door seals for a period of 30 days following a DBA. Only one seal pneumatic system per airlock is needed to accomplish this requirement.

Surveillance Test Procedure (STP) 057-7203, "Containment Personnel Airlock Door Seal Air System Leak Rate Test" was being performed between December 7, 1995, and December 13, 1995, to confirm the Technical Specification operability of the personnel airlock pneumatic system.

On December 7, 1995, both airlock seal pneumatic systems on the 171 foot containment airlock inner door failed their surveillance tests. The pressure drop exceeded the Technical Specification allowable value for leakage. Investigation found the upper and lower accumulator ball valves were leaking. The seats were replaced and during retest the upper air accumulator check valve was found leaking. The check valve elastomers were replaced and the surveillance tests were re-performed successfully. On December 11, 1995, both airlock seal pneumatic systems on the 171 foot containment airlock outer door failed their surveillance tests. The pressure drop exceeded the Technical Specification allowable value for leakage. Investigation found the upper and lower ball valves and upper air accumulator check valve leaking. The ball valve seats and check valve's elastomers were replaced and during retest the lower air accumulator check valve was found leaking. The elastomers were replaced on this valve also and the surveillance tests were re-performed successfully.

Engineering performed an investigation in order to determine the root cause or causes of the failures. Inspection of the failed parts found minor scratches on the seating surfaces and particles adhering to the lubricant residue on all seating surfaces of the valves. The particles were analyzed to determine size and general composition. It was

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concluded that the debris adhering to the lubricant had been entrained by air movement within the system's pneumatic piping, then captured by residual lubricant on the ball and check valve seating surfaces. This debris caused scratches to the ball valve's seats and accumulated on the check valve's seats allowing the valves to leak beyond an acceptable limit.

Root Cause:

Based on physical evidences the single condition is determined to be entrained debris internal to the pneumatic system which adhered to valve's seating surfaces resulting in an unacceptable leakage rate. Engineering evaluated the potential sources of the debris. The potential sources included the pneumatic system accumulators, fragments internal to the seal left from the manufacturing process, and debris introduced during system maintenance or modifications. It was concluded that the debris was most likely introduced into the pneumatic system as a result of system modifications performed in refuel outage (RF) 5.

Corrective Action:

The failed valves soft parts were replaced. The surveillance tests (STP) 057-7203 were re-performed satisfactorily for all seal pneumatic systems allowing the airlock doors to be returned to an operable status. Subsequently, concurrence was obtained from the vendor to cease lubricating the valve's soft parts and the site's lubrication manual was changed accordingly. The ball valve and check valve soft parts that have been in service through cycle 6 and passed the most recent leakage test have been scheduled to be replaced. Additionally, each air accumulator will be examined for signs of contaminants. The surveillance test frequency was modified so the test is performed more often until operating experience proves reliable operation of the system. A maintenance task will be developed to replace the check and ball valve's soft parts on a regular basis. The existing cleanliness requirements delineated in Station Operating Procedure, ADM-0081 (Cleanliness Control) for air systems were reviewed by engineering and determined to be adequate to provide an effective barrier to future incidents of entrained debris. However, the importance of foreign material exclusion on the air system was stressed with Mechanical Maintenance repairmen. The PM task being developed to replace the ball and check valve soft parts will include a reference to the requirements specified in ADM-0081.

Safety Assessment:

The design basis requires at least one of four containment seals per airlock remain pressurized to a minimum pressure sufficient to maintain containment integrity for 30 days post DBA. The design minimum pressure required to inflate the seals to assure a leaktight boundary is known. The actual leakage rates determined from surveillance test performances was used to calculate seal pressure after 30 days. This engineering analysis determined adequate margin was available during this time period to ensure containment integrity for 30 days post DBA.

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