



**GULF STATES UTILITIES COMPANY**

RIVER BEND STATION      POST OFFICE BOX 220      ST. FRANCISVILLE, LOUISIANA 70775  
AREA CODE 504      635-6094      346-6661

November 16, 1989  
RBG- 31778  
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U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555

Gentlemen:

River Bend Station - Unit 1  
Docket No. 50-458

Please find enclosed Licensee Event Report No. 89-036 for River Bend Station - Unit 1. This report is being submitted pursuant to 10CFR50.73.

Sincerely,

J. E. Booker  
Manager-River Bend Oversight  
River Bend Nuclear Group

JEB/TFP/RGW/JHM/CMC/ch

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) RIVER BEND STATION	DOCKET NUMBER (2) 0500045181	PAGE (3) 1 OF 05
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TITLE (4) Various System Motor Operated Valves Found Energized Contrary to Plant Fire Hazard Analyses Due to Failure to Implement Design Documents

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 NAMES			DOCKET NUMBER(S)								
1	0	7	8	9	0	3	6	0	1	1	6	8	9	0	5	0	0	0		

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)												
POWER LEVEL (10) 1,0,0	20.402(b)			20.405(e)			50.73(a)(2)(iv)			73.71(b)			
	20.405(a)(1)(i)			50.30(e)(1)			50.73(a)(2)(v)			73.71(c)			
	20.405(a)(1)(ii)			50.30(e)(2)			50.73(a)(2)(vi)			OTHER (Specify in Abstract below and in Text, NRC Form 366A)			
	20.405(a)(1)(iii)			50.73(a)(2)(ii)			50.73(a)(2)(viii)(A)						
	20.405(a)(1)(iv)			X 50.73(a)(2)(iii)			50.73(a)(2)(viii)(B)						
20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(ix)							

LICENSEE CONTACT FOR THIS LER (12)									
NAME L. A. England, Director-Nuclear Licensing							TELEPHONE NUMBER 51014 3181 1-1411 1415		

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
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input type="checkbox"/> NO			0	1	3

ABSTRACT (Limit to 1400 spaces, i.e. approximately fifteen single-space typewritten lines) (16)

At 1400 hours on 10/17/89, with the reactor at full power in Operational Condition 1, it was reported to the shift supervisor that various motor operated valves in the plant were energized, contrary to the assumptions contained in the plant fire hazards analysis. Because these valves were not de-energized, this event is reportable as a condition that is outside the design basis of the plant.

Operations initiated the required firewatches on the valves and associated raceways, or the valves were de-energized. All valves have been reanalyzed and procedures are being revised to require the valves to be de-energized or provide justification to leave the valves energized. These actions ensure that a fire in any area in the plant would leave at least one method of safe shutdown unaffected. Therefore, there was no significant impact on the health and safety of the public as a result of this event.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  RIVER BEND STATION	DOCKET NUMBER (2)  0 5 0 0 0 4 5 8	LER NUMBER (8)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 9	0 3 6	0 0	0 2	OF	0 5

TEXT (If more space is required, use additional NRC Form 288A's) (17)  
**REPORTED CONDITION**

At 1400 hours on 10/17/89, with the reactor at full power in Operational Condition 1, it was reported to the shift supervisor that various motor operated valves (MOVs) (\*V\*) in the plant were energized, contrary to the assumptions contained in the plant fire hazards analysis (FHA). These valves are listed in Tables 2 and 5 of design Specification 240.201, "Fire Analysis and Evaluation Criteria", and are shown to be assumed to have power removed during plant operation. The list of valves affected consists of thirteen valves in the residual heat removal system (\*BO\*), three in the fuel pool cooling system (\*DA\*), one in the reactor core isolation cooling system (\*BN\*), two in the standby service water system (\*KG\*), and one in the main steam system (\*TA\*).

Because these valves were not de-energized as assumed in the FHA, compliance with General Design Criteria 3 of Appendix A to 10CFR50 was not assured; therefore, this event is being considered reportable under 10CFR50.73(a)(2)(ii)(B) as a condition that is outside the design basis of the plant.

**INVESTIGATION**

A detailed study of the FHA was prompted by the investigation of an earlier condition involving improperly installed fire walls at the Division I remote shutdown panel (reference LER 88-009). Comparison of the FHA requirements to the valve lineups and station operating procedures (SOPs) noted that the valves listed as 'remove power' in the FHA were instead energized. The reasons why the FHA requirements were not reflected in procedures and operational practice is unknown. A review of the USAR and the original design criteria, and conversations with the Architect/Engineer (AE) Stone and Webster Engineering Corporation, demonstrated why these valves were shown to be de-energized. Two of the valves, 1E12\*MOV009 and 1B21\*MOV019 were considered potential LOCA pathways due to a fire in the main control room or in the remote shutdown panel.

In the case of the 1E12\*MOV009 valve, the concern is to prevent a fire-induced opening of the low pressure shutdown cooling residual heat removal (RHR) (\*BO\*) system to the reactor vessel at operating pressure. This high/low pressure interface valve is identified in section 9.5 of the USAR. An enable switch (\*IS\*) on valve 1E12\*MOV008, the outboard isolation valve (\*ISV\*), is used to protect the RHR system from spurious actuations generated in a fire in the main control room. This switch is located in the Division I remote shutdown room, along with the controls for 1E12\*MOV009. A fire assumed to affect the remote shutdown room could potentially open both inboard and outboard valves, over pressurizing the RHR system with vessel pressure. A review of the operating requirements for the 1E12\*MOV009 valve showed that plant operation in Operational Conditions 1, 2, and 3 with the valve de-energized is acceptable.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  RIVER BEND STATION	DOCKET NUMBER (2)  0 5 0 0 0 4 5 8 8 9	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
			0 3 6	0 1 0	0 3	OF 0 5

TEXT (If more space is required, use additional NRC Form 308A's) (17)

Valve 1B21\*MOV019 is the outboard isolation valve for the main steam isolation valve (MSIV) (\*IS\*) drains. A postulated control room fire could cause this valve to open spuriously, along with valves 1B21\*MOV016 and 1B21\*MOV085, dumping steam to the main condenser (\*CDU\*). When this scenario is considered with a loss of offsite power, as required by the FHA, this steam may be vented to the atmosphere as main condenser vacuum is lost.

The remaining valves were listed as 'power removed' by the A/E because the divisional separation of the raceway was never verified to meet 10CFR50 Appendix R standards. As a result of this event, GSU has identified all affected cabling, including associated circuits, and has evaluated their separation and fire area locations. This evaluation shows that all valves listed have adequate Appendix R separation. This analysis considers the effect of a fire anywhere in the plant, with the requisite loss of offsite power.

The three spent fuel pool cooling (SFC) (\*DA\*) valves require administrative control as a fire may effect either the inboard or outboard division, possibly causing a loss of fuel pool cooling to the containment fuel pools. This situation could only occur during refueling, and assuming worst case conditions, 1.25 hours is required to heat the pool to the upper limit of 150 degrees F. This is more than adequate time to manually reposition the valves if required.

A review of previously submitted LERs by River Bend Station revealed six previous LERs related to design requirements not being reflected in plant operating procedures. LERs 86-066 and 87-026 identified fire doors which were not listed on the appropriate surveillance test procedures (STPs), LER 88-010 identified a secondary containment door which was not listed on the appropriate STP, LER 89-003 identified a breaker which was not listed on the appropriate STP. Additionally, LER 86-059 identified that a design modification to the low pressure coolant injection line that changed the location of the piping high point vents was not reflected in the appropriate STP and LER 87-030 identified that the appropriate area temperatures were not being monitored in the reactor plant component cooling areas as required by the Technical Specifications. However, none of these events were related to ensuring that the assumptions of the FHA were properly reflected in the plant operating procedures.

**CORRECTIVE ACTION**

Engineering identified two possible methods to satisfy the requirements of the analysis and the plant Technical Specifications (TS). One method was to de-energize the MOVs as assumed in the FHA. The second method was to treat the valves and the associated electrical raceways as having missing installed fire barriers, and to take the action prescribed in TS 3/4.7.7, instituting a roving firewatch in the affected areas. The latter method was adopted and

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  RIVER BEND STATION	DOCKET NUMBER (2)  0 5 0 0 0 4 5 8	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
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TEXT (If more space is required, use additional NRC Form 305A's) (17)  
 the required firewatches were initiated. Two valves, 1E12\*MOVF009 and 1B21\*MOVF019 were in areas not accessible to firewatch personnel and were therefore de-energized. The choice of methods considered the effect on Operations personnel due to a number of de-energized valves, including the effect due to lit annunciators, and the additional requirement to enter the auxiliary building to de-energize the valves.

Operations will change the valve lineups to show valve 1E12\*MOVF009 de-energized until reactor pressure is reduced below 135 psig reactor pressure, which is the system pressure for shutdown cooling piping. Valve 1B21\*MOVF019 is required for startup and is used in some operational transients. Therefore, the status of this valve was changed to closed and de-energized. However, administrative controls will be implemented to allow station personnel while at local motor control centers to open the valve when needed. This will enable positive control of this pathway in the event of a control room fire. The valves are currently tagged out. Revision of the valve lineup and procedural changes will be completed by 1/15/90. The three SFC valves require administrative control under worst case conditions to be aligned to supply cooling to the upper pools within 1.25 hours to limit the upper pool temperature to 150 degrees F. This caution will be added to the pre-fire strategy for the area in the fuel and reactor buildings containing these valves. A change document will be initiated to revise Table 2 and 5 of the PHA. This document change will also be completed by 1/15/90.

**SAFETY ASSESSMENT**

As identified in the investigation, the majority of the valves and cabling were found to have sufficient separation to enable re-energizing. In the cases of SFC, a fire could potentially cause either division to close while the plant was in a refueling cycle and fuel pool cooling to the upper containment pools would be required. The closure of these valves would be noted with any gradual rise of pool temperature. Assuming a fire did affect these valves, upon detection of increasing pool temperature, valve positions could be determined and repositioned if necessary. Alternate methods exist to provide water to the upper pools (water from fire protection system (\*KP\*) for instance). Therefore, pool temperatures would not be expected to exceed design levels, i.e. operator actions would prevent any overheating in the upper pool.

For all valves except 1E12\*MOVF009 and 1B21\*MOVF019, analysis demonstrates that a fire in any area would leave at least one method of safe shutdown unaffected. The safety consequences of a fire potentially affecting valves 1E12\*MOVF009 or 1B21\*MOVF019 is more complex. The analysis of these valves will follow in a revision to this LER to be submitted by 1/31/90.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  RIVER BEND STATION	DOCKET NUMBER (2)  0   5   0   0   0   4   5   8   8   9   -   0   3   6   -   0   0   0   1   5   OF   0   5	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

TEXT (If more space is required, use additional NRC Form 308A's) (17)  
 Except for the two valves listed above, engineering evaluation shows all valves listed have adequate Appendix R separation and/or can be administratively controlled. No fires have occurred in these areas. There was no significant impact on the health and safety of the public as a result of this event.

NOTE: Energy Industry Identification System Codes are identified in the text as (\*XX\*).