



**GULF STATES UTILITIES COMPANY**

RIVER BEND STATION    POST OFFICE BOX 220    ST. FRANCISVILLE, LOUISIANA 70775  
AREA CODE 504    635-6094    346-8651

March 5, 1990  
RBG- 32427  
File Nos. G9.5, G9.25.1.3

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. 90-002 for River Bend Station - Unit 1. This report is being submitted pursuant to 10CFR50.73.

Sincerely,

W. H. Odell  
Manager-River Bend Oversight  
River Bend Nuclear Group

*ADJ by SW 2/28/90 RTO*  
WHO/PDG/RGW/DCH/RID/pg  
*mx*

cc: U.S. Nuclear Regulatory Commission  
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) RIVER BEND STATION - Unit 1

DOCKET NUMBER (2) 0 5 0 0 0 4 5 8 1 OF 0 1 4

TITLE (3) Loss of Both Divisions of the Control Building Ventilation System due to the Failure of Two Chillers to Start

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(S)
0 2	0 2	9 0	9 0	0 0 2	0 0	0 3	0 5	9 0			0 5 0 0 0
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following): (11)											

OPERATING MODE (9) 1	20.400(b)	20.400(c)	20.700(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 11010	20.400(a)(1)(ii)	20.200(a)(1)	20.700(a)(2)(iv)	73.71(a)
	20.400(a)(1)(i)	20.200(a)(2)	20.700(a)(2)(vi)	OTHER (Specify in Abstract Area and in Text, NRC Form 305A)
	20.400(a)(1)(iv)	X 20.700(a)(2)(ii)	20.700(a)(2)(viii)	
	20.400(a)(1)(iii)	20.700(a)(2)(i)	20.700(a)(2)(v)(i)	
	20.400(a)(1)(v)	20.700(a)(2)(iii)	20.700(a)(2)(v)(ii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME: L. A. England, Director-Nuclear Licensing

TELEPHONE NUMBER: AREA CODE 5 0 4 3 8 1 - 4 1 4 5

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
B	V I	C H U	C 1 5 0	N					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)

NO

EXPECTED SUBMISSION DATE (15) MONTH 0 9 DAY 0 4 YEAR 9 0

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

At 0956 hours on 02/02/90, with the unit at 100 percent power (Operational Condition 1), both divisions of the control building ventilation system were declared inoperable due to the loss of chillers 1HVK\*CHL1A (Division I) and 1HVK\*CHL1D (Division II) (note that each division consists of (2) 100 percent capacity chillers). This occurred as a result of an unsuccessful attempt to swap the operating Division from Division II to Division I. This was followed by unsuccessful attempts to return Division II to service after it had been secured. The remaining chiller in each Division was inoperable due to annual inspection activities. Therefore, all four chillers were inoperative for the duration of the event. Technical Specification 3.0.3 was entered since the Limiting Condition for Operation (LCO) of Technical Specification 3.7.2 could not be complied with. Therefore, this report is submitted pursuant to 10CFR50.73(a)(2)(i)(B). A plant shutdown was initiated in accordance with Technical Specification 3.0.3. However, NRC Region IV granted 6 hours of discretionary enforcement, providing relief from the six hour hot shutdown requirement. The inoperable division was restored within approximately 4 hours and the plant shutdown was terminated.

Corrective actions included revising the procedure for swapping control building ventilation divisions, rebalancing the flows in the chillers to provide adequate flow, and replacement of a circuit breaker which tripped on apparent overcurrent. GSU continues to evaluate the breaker overcurrent condition and will provide a supplemental report.

**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 (3)			PAGE (3)	
		YEAR 9 0	SEQUENTIAL NUMBER 0 0 2	REVISION NUMBER 0 0	0 2 OF 0 4	

TEXT (if more space is required, use additional NRC Form 200A's) (17)

**REPORTED CONDITION**

At 0956 hours on 02/02/90, with the unit at 100 percent power (Operational Condition 1), both divisions of the control building ventilation system (\*VI\*) were declared inoperable due to loss of chillers (\*CHU\*) 1HVK\*CHL1A (Division I) and 1HVK\*CHL1D (Division II) (note that each division consists of (2) 100 percent capacity chillers). This occurred as a result of an unsuccessful attempt to swap the operating division from Division II to Division I. This was followed by unsuccessful attempts to return Division II to service after it had been secured. The remaining chiller in each division was inoperable due to annual inspection activities. Therefore, all four chillers were inoperative for the duration of the event. Technical Specification 3.0.3 was entered since the Limiting Condition for Operation (LCO) of Technical Specification 3.7.2 could not be complied with. Therefore, this report is submitted pursuant to 10CFR50.73(a)(2)(i)(B). A plant shutdown was initiated in accordance with Technical Specification 3.0.3. However, NRC Region IV granted 6 hours of discretionary enforcement, providing relief from the six hour hot shutdown requirement. The inoperable division was restored within approximately 4 hours.

**INVESTIGATION**

The following sequence of events describes the entry into Technical Specification 3.0.3. At 0911 on 02/02/90, with the unit at 100 percent power (Operational Condition 1), operators attempted to swap the operating division of the control building ventilation system from Division II to Division I. The Division I chiller 1HVK\*CHL1A, did not start. At 0920 the operators attempted to restart the Division II chiller 1HVK\*CHL1D and it also did not start. At 0956 a second attempt to start the Division II chiller 1HVK\*CHL1D was unsuccessful. At this point, both divisions of the control building ventilation system were declared inoperable and Technical Specification 3.0.3 was entered.

Following a review of the process computer printout and discussions with plant operators in the control room and locally at the chiller, it was determined that the Division I chiller 1HVK\*CHL1A failed to start because of inadequate chilled water flow. This was due to the fact that all three temperature control valves were closed due to low building temperatures. In this configuration, these valves did not permit adequate flow through the bypass line to allow chiller 1HVK\*CHL1A to start. This bypass line originally had a pressure control valve which modulated open as the temperature control valves closed. The pressure control valve was changed to a manual valve in May of 1989 by Modification Request MR 89-0125. Upon completion of this modification, the system flow was balanced such that 210 GPM of flow would go through the chiller if two (2) of the three (3) temperature control valves were closed and the third valve was twenty percent open. This configuration was based on the worst-case scenario.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER				
		- 0 1 0 2	- 0 1 0	0 1 3	OF	0	4

TEXT (if more space is required, use additional NRC Form 200A's) (17)

At 1025 the operators took manual control of two (2) temperature control valves in order to increase the chilled water flow and 1HVK\*CHL1A was started. The Division I control building ventilation train was declared operable at 1307, section 3.0.3 of the Technical Specifications was exited, and the plant shutdown was terminated.

The control building ventilation system is designed such that a low chilled water flow signal in the opposite division starts the standby chiller's program timer. When 1HVK\*CHL1D was secured to shift to 1HVK\*CHL1A, chiller 1HVK\*CHL1D became the standby chiller. However, the logic for the chiller's (1HVK\*CHL1D) breaker needed to be reset in order for it to start and the program timer was operating in response to the low flow conditions in Division I.

The two (2) attempts to restart the Division II chiller 1HVK\*CHL1D were unsuccessful because the chiller program timer continued to cycle on and off until adequate chilled water flow was established in the Division I loop. This prevented a proper start sequence from occurring when the operator attempted to start the chiller because a breaker "close" signal was being given in the middle of the program timer sequence. The failure of chiller 1HVK\*CHL1D to restart was because the Division I chiller (1HVK\*CHL1A) failure to start was an abnormal occurrence that was not addressed in the operating procedures. If the "D" chiller had been reset immediately following the failure of Division I to start, the system would have attempted to start as designed. Once flow was established in the Division I loop, another attempt to start 1HVK\*CHL1D was unsuccessful and the breaker light and process computer printout indicated overcurrent. Instrumentation was installed on the 1HVK\*CHL1D breaker and two (2) additional start attempts were made. In both attempts, the breaker (\*BKR\*) tripped and overcurrent was indicated. However, the instrumentation installed on the breaker revealed that an actual overcurrent condition did not exist. The breaker was replaced with an identical breaker and 1HVK\*CHL1D started successfully. No root cause has yet been determined for the breaker overcurrent trips. Bench testing of the breaker is still in progress.

A review of previously submitted LERs revealed no cases in which both divisions of the control building ventilation system were rendered inoperable due to equipment failures.

**CORRECTIVE ACTION**

The operating procedure (SOP-0066) for swapping control building ventilation has been revised such that the division being stopped is reset in a timely manner to permit restart if the opposite division fails to start. This change will insure a smooth transition back to the division which was previously run.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  RIVER BEND STATION	DOCKET NUMBER (2)  0   5   0   0   0   4   5   8   9   10	LER NUMBER (3)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
			0   0   2	0   0	0   4	OF 0   4

TEXT (if more space is required, use additional NRC Form 200A's) (17)

Both divisions of control building chilled water have been rebalanced so that when all three (3) temperature control valves are closed the flow through the chiller via the bypass line is 210 GPM. This will allow adequate flow to the chiller regardless of the position of the temperature control valves.

The breaker for 1HVK\*CHL1D has been replaced with an identical spare which should prevent any future trips on apparent overcurrent. GSU continues to evaluate the breaker overcurrent trip. The results of this evaluation will be provided in a supplemental report by September 4, 1990.

**SAFETY ASSESSMENT**

Throughout the duration of the event, the control building ventilation system was not required to perform its safety function. Per Technical Specification 3.0.3, a plant shutdown had been initiated. Operability of the system was restored within 4 hours and the plant shutdown was terminated. Therefore, this event did not adversely affect the health and safety of the public.