

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>RIVER BEND STATION</b>	DOCKET NUMBER (2) <b>0 5 0 0 0 4 5 8</b>	PAGE (3) <b>1 OF 0 3</b>
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TITLE (4)  
**Spurious Reactor Water Cleanup System Isolation During Temperature Reading Surveillance**

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	
1	0	27	8	8	024	0	0	1123	DOCKET NUMBER(S) 0 5 0 0 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) <b>1</b>	<input type="checkbox"/> 20.405(b)	<input checked="" type="checkbox"/> 20.405(e)	<input type="checkbox"/> 60.73(a)(2)(ix)	<input type="checkbox"/> 73.71(b)
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 60.36(a)(1)	<input type="checkbox"/> 60.73(a)(2)(iv)	<input type="checkbox"/> 73.71(c)
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 60.36(a)(2)	<input type="checkbox"/> 60.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	<input type="checkbox"/> 20.405(a)(1)(vi)	<input type="checkbox"/> 60.73(a)(2)(i)	<input type="checkbox"/> 60.73(a)(2)(viii)(A)	
	<input type="checkbox"/> 20.405(a)(1)(viii)	<input type="checkbox"/> 60.73(a)(2)(ii)	<input type="checkbox"/> 60.73(a)(2)(viii)(B)	
	<input type="checkbox"/> 20.405(a)(1)(ix)	<input type="checkbox"/> 60.73(a)(2)(iii)	<input type="checkbox"/> 60.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME <b>L. A. England, Director-Nuclear Licensing</b>	TELEPHONE NUMBER <b>5 0 4 3 8 1 - 4 1 4 5</b>
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFAC TURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFAC TURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 words, i.e., approximately fifteen single-spaced typewritten lines) (16)

At 0932 hours on 10/27/88 with the unit in operational condition 1 (power operation at 100 percent power), an engineered safety feature (ESF) actuation occurred resulting in an isolation of the reactor water cleanup (RWCU) system. The actuation occurred during the performance of a surveillance test procedure when an adjacent temperature switch actuated causing a RWCU isolation. The Riley manufactured temperature switches have been identified earlier to cause spurious isolations when activating the "Read" function.

The cause of the spurious ESF actuation was determined to be a cross tripping phenomenon of the temperature switches and a procedural error. Changes to the surveillance test procedure to require bypassing all affected logic channels that could cause an actuation should prevent a recurrence of a similar isolation.

No actual high temperature existed, consequently, the safe operation of the plant and health and safety of the public were not adversely affected.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		8 8	0 2 4	0 0	0 2	OF	0 3

TEXT (if more space is required, use additional NRC Form 366A s/ (17))

REPORTED CONDITION

At 0932 hours on 10/27/88 with the unit in operational condition 1 (power operation) at 100 percent power, an engineered safety feature (ESF) actuation occurred resulting in an isolation of the reactor water cleanup system (\*CE\*) (RWCU). The actuation occurred during the performance of surveillance test procedure (STP)-207-3248, "Calibration and Logic System Functional Test," of a temperature switch (\*TS\*) (E31-N600A) which measures residual heat removal system (\*BO\*) (RHR) equipment area differential temperature. This event is being reported as an ESF actuation pursuant to 10 CFR 50.73(a)(2)(iv).

INVESTIGATION

While performing the surveillance test, an adjacent temperature switch, believed to be either E31-N604 or E31-N605A, actuated causing a reactor water cleanup (RWCU) isolation. As required by the test procedure, only the logic channel being calibrated was bypassed to prevent an actuation. The spurious trip of the unbypassed adjacent temperature switch occurred during the test. Therefore, the cause of the spurious ESF actuation was determined to be a cross tripping phenomenon peculiar to the temperature switches which could have been prevented by a procedure revision requiring all switches to be in the bypass position. Spurious trips of adjacent temperature switches (Riley Model Nos. 86-VEFF-EG and 86-VEGF-EG) have been observed by both operators and technicians on previous instances while performing readings or testings, but generally all channels normally would be bypassed thus preventing an ESF actuation.

The leak detection system (\*IJ\*) utilizing the Riley temperature monitoring system (\*IM\*) is made-up of 14 temperature monitoring modules and one meter module (\*TMTR\*), used for local reading of any ambient or differential temperature module, and arranged such that the trip of any one module will cause an isolation. The method used to display the temperature is a "Read-Set" switch on each temperature module. When the switch is placed in the "Read" position, the meter displays the temperature selected. Under normal operation, the module can cause an alarm (\*TA\*) and an isolation signal to be generated when placed in the "Read" position. The circuit is equipped with a bypass switch (\*HS\*) which will preclude an isolation should a spurious trip signal be generated. As long as the bypass switch is put in the bypass position, an isolation will not occur regardless of any voltage spikes generated during the read operation.

This type of temperature switch (manufactured by the U.S. Riley Corporation) has been identified before to cause a spurious isolation when activating the "Read" function. Similar problems have been reported in LERs 85-09, 029, 031, 040, 046, 048, 051, and LER 86-051.

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TEXT (if more space is required, use additional NRC Form 366A's) (17)

Earlier corrective actions taken relative to these earlier events would not have prevented this occurrence since until now the procedure did not require adjacent switches to be bypassed.

CORRECTIVE ACTION

The temperature switches which were believed to have caused the isolation were verified as not having sensed an actual high temperature condition in the residual heat removal (RHR) equipment area. The operators restored the isolations and returned the RWCU system to service. The affected STP was reviewed and a temporary change notice (TCN) was prepared to cause all bypass switches to be left in bypass while performing the procedure. This should prevent a recurrence of an isolation caused by an actuation of an adjacent temperature switch not being tested.

To address this problem, all Riley temperature modules have been modified by modification request (MR) 85-0589. One of these modifications was the installation of a resistor to eliminate the voltage spike caused by the "Read-Set" switch. MR 86-0391 was initiated to further improve the operability of some of the Riley temperature modules by replacing 16 AWG wire with thermocouple wire. GSU has also installed a permanent "Caution" plaque near the "Read-Set" switches which cautions the operators to place the bypass switches in the "Bypass" position prior to taking any temperature readings and to reset any isolations prior to and after taking any temperature readings. As evidenced by the fact that there have been no subsequent RWCU isolations due to bypass switch misoperation, strict adherence to the permanent "Caution" plaque should prevent future RWCU isolations of this type.

To further reduce the possibilities of similar isolations in the future, all STPs that test this type temperature switch will be reviewed and revised, as appropriate, to require bypassing all affected logic channels that could cause an actuation similar to this event. All required changes to the affected surveillances will be in place by February 15, 1989. No calibrations on these type switches will be performed without their respective surveillance procedure having been revised to reflect these new requirements.

SAFETY ASSESSMENT

No actual high temperature existed in the RHR equipment area, consequently, the safe operation of the plant and health and safety of the public were not adversely affected as a result of this event.

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

**GULF STATES UTILITIES COMPANY**



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AREA CODE 504 635-6084 345-8551

November 23, 1988  
RBG- 29384  
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. 88-024 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

*M. P. JHM*  
JEB/TFP/PDG/JHM/ch

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