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#### REPORTED CONDITION

At 0932 hours on 10/27/88 with the unit in operational condition 1 (power operation) at 100 percent power, an engineered soffety 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/FR50.73(a)(2)(iv).

## INVESTIGATION

While performing the surveillance test, an ad acent 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 callbrated 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 phenomonem 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 (\*T%\*) 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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US NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO 3150-0104 EXPIRES 8 31/88

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

## CORRECTIVE ACTION

RC Form 366A

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 isc.ation caused by an actuation of an adjacent temperature switch not being tested.

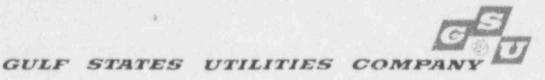
To address this problem, all Riley temperature modules have been modified by modification request (MR) 85-0589. One of these modifications was the installation of a resistor to eliminate the voltage spike caused by the "Read-Set" switch. MR 86-0391 was initiated to further improve the operability of 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\*).



AVER BEND STATION POST OFFICE FOX 220 ST FRANCISVILLE LOUISIANA 70775 AREA CODE 504 ESS, 6054 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,

Q. E. Bothy

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

JEB/TFP/PDG/JHM/ch

cc: U.S. Nuclear Regulatory Commission 611 Ryan Plaza Drive, Suite 1000 Arlington, TX 76011

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