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Director
Nuclear Safety

May 5, 1995

U.S. Nuclear Regulatory Commission
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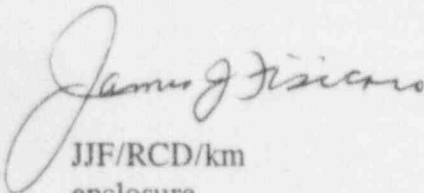
Subject: River Bend Station - Unit 1
Docket No. 50-458
License No. NPF-47
Licensee Event Report 50-458/95-001-01
File Nos. G9.5, G9.25.1.3

RBF1-95-0115
RBG-41494

Gentlemen:

In accordance with 10CFR50.73, enclosed is the subject report. This revision documents the results of the root cause investigation conducted by the Significant Event Response Team concerning the Engineered Safety Feature (ESF) actuation that occurred on January 25, 1995. Bars in the left margin of the document indicate changes made to the original LER.

Sincerely,


JJF/RCD/km
enclosure

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PDR ADOCK 05000458
S PDR

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Licensee Event Report 50-458/95-001-01

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cc: U. S. Nuclear Regulatory Commission
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NRC Sr. Resident Inspector
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Louisiana Department of Environmental Quality
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P.O. Box 82135
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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) 1 of 4					
TITLE (4) Unintentional Division 3 RCIC Isolation During Surveillance Testing																							
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											
									N/A			05000											
01	25	95	95	001	01	05	05	95	N/A			05000											
OPERATING MODE (9)		1		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more (11))																			
POWER LEVEL (10)		100		20.402(b)		20.405(c)		X		50.73(a)(2)(iv)			73.71(b)										
				20.405(a)(1)(i)		50.36(c)(1)				50.73(a)(2)(v)			73.71(c)										
				20.405(a)(1)(ii)		50.36(c)(2)				50.73(a)(2)(vii)			OTHER										
				20.405(a)(1)(iii)		50.73(a)(2)(i)				50.73(a)(2)(viii)(A)			(Specify in abstract below and in text, NRC Form 366A)										
				20.405(a)(1)(iv)		50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)													
				20.405(a)(1)(v)		50.73(a)(2)(iii)				50.73(a)(2)(x)													
LICENSEE CONTACT FOR THIS LER (12)																							
NAME						TELEPHONE NUMBER (Include Area Code)																	
T.W. Gates, Supervisor - Nuclear Licensing						504-381-4866																	
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																							
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS													
SUPPLEMENTAL REPORT EXPECTED (14)																							
YES				X NO				EXPECTED SUBMISSION DATE (15)				MONTH				DAY				YEAR			
(If yes, complete EXPECTED SUBMISSION DATE)																							
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)																							
<p>At 1718 on January 25, 1995 with the plant at 100 percent power and the unit in Operational Condition 1, an engineered safety feature (ESF) actuation occurred during the performance of a surveillance test procedure. During continuity measurements on the RCIC system, an isolation signal caused the automatic closure of the RCIC steam supply valve. This report is submitted pursuant to 10CFR50.73(a)(2)(iv) as an ESF actuation.</p> <p>Although the root cause for this event could not be determined conclusively, the most probable cause was personnel error. Significant management initiatives such as the Human Performance workshops have increased sensitivity to performance errors at River Bend Station by stressing the need for heightened awareness, good teamwork, and questioning attitudes. In addition, the Long Term Performance Improvement Plan (LTPIP) specifically addresses human performance problems and contains initiatives that are presently in progress for improving human performance at River Bend Station.</p> <p>The isolation was reset and the steam supply valve opened after the event. The STP, including the step which was in progress when the isolation occurred, was completed successfully after the isolation. This event was not safety significant.</p>																							

NRC FORM 366A (5-92)	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

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

REPORTED CONDITION

At 1718 on 25 January, 1995 with the plant at 100 percent power and the unit in Operational Condition 1, an engineered safety feature (ESF) actuation, the automatic closure of the RCIC steam supply valve, occurred during the performance of surveillance test procedure STP-207-5253, "RCIC/RHR System Isolation, RHR Equipment Area Ambient Temperature High Channel Calibration, Logic System Functional Testing." The ESF function of the containment isolation valve involved in the event provides for the mitigation of a break in the RCIC steam supply header. Specific and dedicated sensors and logic are provided to sense flow and/or temperature conditions that would be indicative of a break in the RCIC steam supply header. It is this circuitry that had its logic unintentionally satisfied during the performance of this STP and the unplanned full actuation of this ESF function occurred during this event. This report is therefore submitted pursuant to 10CFR50.73(a)(2)(iv) as an ESF actuation.

INVESTIGATION

While performing the 18 month Logic System Functional Test for the circuitry from the RHR Equipment Area Ambient Temperature High temperature switch to the RCIC relay contacts and wiring in 1H13*P642, Division II Leak Detection Cabinet, an isolation of the Division II RCIC inboard steam supply isolation valve 1E51*MOVFO63 occurred. Instrumentation and Controls technicians were performing a continuity check in the RCIC isolation logic when the isolation occurred.

After the isolation the Technician removed the multimeter test leads from the panel; therefore, the position of the leads at the time of the isolation could not be determined. When interviewed, the technicians involved expressed that, to the best of their knowledge, the Surveillance Test Procedure was followed as written.

A Significant Event Response Team was formed to perform a detailed investigation and Root Cause determination. During their research, possible failure modes for this type of isolation were analyzed. Through extensive investigative analysis and troubleshooting, the following possible failure modes were eliminated: cable fault, grounded terminal, procedure error, and antenna coupling/induced voltage (EMI). By eliminating the other potential causes, the SERT determined that technician error was the most probable root cause for this event.

The SERT concluded that no operability questions exist for this system.

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ROOT CAUSE

While the root cause for this event cannot be conclusively determined, the Significant Event Response Team investigating the isolation determined that the most probable root cause was technician error during performance of the Surveillance Test Procedure.

Kepner-Tregoe techniques and fault tree analysis were used to analyze and eliminate all possible causal factors. The potential causal factors identified by the Significant Event Response Team were a cable fault, a grounded terminal, procedure error, antenna coupling/induced voltage (EMI), and technician error (an incorrectly landed lead). The surveillance test procedure was reviewed in detail following the event. The SERT concluded that the procedure, if performed correctly could not have caused the isolation. On the basis of the results of exhaustive troubleshooting efforts combined with problem analysis techniques, the SERT determined that a cable fault, a grounded terminal and antenna coupling/induced voltage (EMI) were not credible failure modes for the unanticipated isolation. After exhausting all other possible causal factors for this event, the SERT concluded that technician error was the most plausible explanation for the RCIC isolation.

CORRECTIVE ACTIONS

Initial corrective actions taken in response to this event were that the RCIC system was restored to its normal status and the STP which caused the isolation was successfully performed subsequent to the event. A comparison of the panel circuitry to the connection diagrams and schematics was performed, and no discrepancies were noted. Also, voltage readings were taken at various points in the circuitry to verify proper operation. In addition, a Significant Event Response Team was formed to coordinate troubleshooting, investigate the root cause, and formulate corrective actions.

In addition, Surveillance Test Procedures which perform Logic System Functional testing on the isolation portion of the RCIC system were reviewed for possible procedure improvements. This review found that the tests could be significantly improved by eliminating unnecessary and redundant portions of the tests and by changing the methods used for verifying proper circuit operation. The SERT identified Surveillance Test Procedures for the RCIC isolation logic that should be reviewed for potential optimization. These Surveillance Test Procedures will be reviewed with revisions performed as necessary. In addition, the Long Term Performance Improvement Plan, using the guidance of the Procedure Upgrade Project, is currently improving the overall quality of procedures at River Bend Station in the area of human factors.

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Training will be provided to Operations, I&C, and Electrical Maintenance personnel on the need to preserve the status of equipment after an ESF actuation or similar type event. The training will stress the importance of leaving test equipment and initiation signals as they were prior to the isolation so that the root cause for the event can more easily be determined. The training will also stress that this policy should never take precedence over plant and personnel safety.

Significant and comprehensive initiatives have been implemented in accordance with the RBS Long Term Performance Improvement Plan (LTPIP) in the area of Human Performance. Especially pertinent to this event are the following initiatives:

1. Improve S.T.A.R. program implementation.
2. Reduce the number of problems resulting from human performance issues.
3. Establish a site-wide accountability program.
4. Perform an analysis of the key work processes with the greatest impact on human performance.

SAFETY ASSESSMENT

After the isolation, STP-207-5253 was reperformed and successfully completed. Since the RCIC isolation safety function occurred as designed, and no abnormalities were discovered, the RCIC isolation activation instrumentation was declared to be operable. Based on these investigations, this event was not safety significant.