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River Bend Station
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June 8, 1994

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

SUBJECT: River Bend Station - Unit 1
Docket No. 50-458
License No. NPF-47
Licensee Event Report 50-458/94-008-00
File Nos.: G9.5, G9.25.1.3

RBG - 40634

Gentlemen:

In accordance with 10CFR50.73(a)(2)(i)(B), enclosed is the subject report.

Very truly yours,

A handwritten signature in cursive script that reads "James J. Fisicaro".

James. J. Fisicaro
Director-Nuclear Safety
enclosure

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PDR ADOCK 05000458
S PDR

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cc: U.S. Nuclear Regulatory Commission
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ATTN: Administrator

NRC FORM 366 (5-82)		U.S. NUCLEAR REGULATORY COMMISSION				APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/96				
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) 65000-458		PAGE (3) 01 of 06		
TITLE (4) The Minimum Number of Operable Channels per Trip System for the Reactor Protection System was not Maintained due to Inadequate Work Package Review and Retest Requirements.										
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
05	09	94	94	008	00	06	08	94	N/A	05000
OPERATING MODE (9) 5 20.402(b) 20.405(c) 50.73(a)(2)(iv) 73.71(b)										
POWER LEVEL (10) 0 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) X 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 T.W. Gates, Supervisor - Nuclear Licensing						TELEPHONE NUMBER (Include Area Code) (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)						EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE) X NO										
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)										
<p>On May 9, 1994 with the plant in Operational Condition 5 (Refueling), a condition report was written to identify that post-maintenance operability testing had not been performed for reactor protection system trip system "B" prior to returning the system to operation. While subsequent testing verified the affected channel had indeed been functional, failure to take the actions required by T.S. 3.3.1 within the appropriate timeframe or to perform the required retest resulted in a condition in which less than the minimum number of operable channels were available for this trip system. The safety function of the RPS system was satisfied since all control rods were inserted. Subsequent investigation has revealed that the duration of the non-compliance was about 75 hours, from April 21, 1994 until April 24, 1994.</p> <p>The root cause of this event consisted of (1) an inadequate work package review by the work management center supervisor (WMCS) due to inattention to detail and incorrect assumptions, and (2) the work package specified an incorrect surveillance procedure for retest of the relay. Corrective actions include evaluating the planning process to define improvements required to assure that correct LCOs are specified in maintenance work packages and surveillances. A night order has been issued to ensure that the WMCS will attend infrequent evolution briefings, and reviews for operations and maintenance personnel emphasizing the importance of retest requirements were conducted.</p>										

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Reported Condition

On May 9, 1994 with the plant in Operational Condition 5 (Refueling), a condition was identified which affected compliance with the provisions of Technical Specification 3.3.1 concerning operability of the division II reactor protection system (RPS) (*JE*). Prior to replacement of a Potter and Brumfield MDR relay, RPS division II was placed in the tripped condition. Following completion of the work on April 21, 1994, the division II RPS trip was reset and the proper functional testing of the relay was not performed.

Since relay 1C71A*K68 was not tested and demonstrated operable following maintenance, the minimum number of operable channels per trip system as required by T.S. 3.3.1 were considered to be unavailable for RPS trip system B. Action "a" of T.S. 3.3.1 requires the inoperable trip system to be placed in the tripped condition within one hour. The trip system was reset following maintenance at 0307 on April 21, 1994, and the investigation revealed that the retest requirements applicable to Operational Condition 5 were successfully performed on April 24, 1994. Therefore, the duration of non-compliance was about 75 hours.

Investigation

At 2300 on April 19, 1994, three work packages concerning MDR relay replacements were presented to the work management center supervisor (WMCS) to be released for work. Two of these packages (maintenance work order (MWO) R165229 and R165242) shared common power and were being worked under the same clearance. Infrequent evolution briefings had already been conducted with the on-shift crew and the relays had been bench tested per the work package. The WMCS went to the control room and questioned the on-shift crew about the packages and inappropriately assumed the crew had performed a detailed package review. The three affected relays performed three different RPS functions, but the WMCS placed all three packages on tracking LCO 94-081. The required action specified on this LCO was "Do not withdraw a control rod in Mode 5." Only one of the packages should have been placed on this tracking LCO. MWO R165229 (the package associated with this report) should have been placed on an active LCO requiring a trip to be inserted on division II RPS. Maintenance work order R165242 replaced a different relay, 1C71*K81. This was the MSIV closure scram function and should have been placed on a separate tracking LCO for Operational Conditions 1, 2, and 3 since the retest for it was SIP-051-0201, which required the MSIVs to be stroked.

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Following relay replacement, the half-scrum was reset in preparation for retest. The work package step detailing the retest to be performed incorrectly identified STP-051-0201 for retest of relay 1C71A*K68. However, the procedure number specified did not match the procedure title listed or the remaining information in the paragraph. The number specified should have been STP-508-0201. This error led directly to the failure to perform the retest because plant equipment availability conditions at that time precluded the performance of STP-051-0201. The result was that the package was forwarded to the retest group for tracking.

Following discovery, a half-scrum was inserted on RPS "B," and LCO 94-353 was entered at 2300 on May 8, 1994. This LCO was written against T.S. 3.3.1 to document less than the required minimum channels available for one trip system of RPS. A condition report was written on May 9, 1994 to identify the condition and initiate event investigation. The retest was corrected in the work package and STP-508-0201 was performed and determined that the relay functioned correctly. As part of the STP post maintenance test requirements, system engineering reviewed the bench test time response data and determined that the new relay did not meet the circuit response time. Circuit response criteria was not applicable in Operational Condition 5, but is applicable for Operational Conditions 1 and 2. Thus, the relay needed to be replaced prior to start-up from the current refueling outage. The relay was replaced and retested under LCO 94-353. No problems were encountered with the remainder of the work and the LCO was cleared at 1237 on May 10, 1994. A review of surveillance test information revealed that STP-508-0201 had been successfully performed in its entirety on May 24, 1994, thus satisfying the surveillance requirements for the relay that were applicable in Operational Condition 5.

The investigation revealed the following failed barriers:

1. **Written Information:** The LCO identified was incorrect for the work activity.
2. **Verbal Communication:** The WMCS did not attend the infrequent evolution briefing concerning the work packages and as a consequence, pertinent information was not obtained.
3. **Change Management:** The work package referenced an incorrect retest STP which led directly to the retest not being performed. No evaluation of the retest was performed to determine if an acceptable alternative could be identified.

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4. **Written Information:** The work package failed to identify the required time frame for the retest following reset of the half-scrum. As a result, neither the worker nor the control room operators were aware of the limiting Technical Specification requirements.

Root Cause

The root cause of this event was twofold, as follows:

1. An inadequate work package review by the WMCS at the work management center. This was due to inattention to detail and incorrect assumptions by the WMCS. The result was incorrect identification of applicable technical specifications and LCO requirements.
2. The work package incorrectly identified STP-051-0201 for retest of relay 1C71A*K68. This led directly to the retest not being performed in a timely manner because the error was not identified during the package review (by the maintenance supervisor, on-shift crew, or the WMCS). The correct retest was STP-508-0201.

Contributing causes to this event were as follows:

1. The WMCS was not included in the briefing conducted by Maintenance and required his questions to be answered by the Operations crew.
2. Multiple work packages were processed at the same time with information indicating they were related.
3. Prompt review of the work package and retest requirements to determine if an alternative retest could be performed was not conducted by any of the individuals involved (i.e., the maintenance supervisor, on-shift senior reactor operators (SROs), WMCS, and the retest group).

A review of previous LERs which involved work control issues revealed the following similar events:

- LER 86-026: Work was performed on the main steam - positive leakage control system which resulted in rendering the system inoperable. In this event, the appropriate LCO action statement

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was not initiated and instrumentation and controls technicians improperly terminated a wire. Consequently, a violation of Technical Specification requirements occurred.

- LER 90-032: A snubber was removed from piping for a time period that exceeded Technical Specification limits due to a scheduling error, a lack of knowledge of system alignments by the in-service inspection (ISI) coordinator, and inadequate work package reviews.
- LER 94-002: A containment airlock interlock was rendered inoperable during maintenance without entry into the appropriate T.S. action statement. This condition was due to ineffective communication and failure to recognize cautions in a work package by the personnel authorizing and conducting the work.

Corrective Action

The Long-Term Performance Improvement Plan includes an initiative to address work control issues. The plan includes a multi-discipline, focused assessment of the work control process at RBS as part of an overall effort to restructure the work control process by December 1994. Also included in the plan are improving maintenance planning information in 1995, upgrading and enhancing maintenance management systems during 1996, and improving preventive and predictive maintenance performance in 1996. Details are provided in Section 15 of the Long-Term Performance Improvement Plan, submitted to the NRC on March 28, 1994 (RBG-40428).

The following corrective actions address the specific issues raised by this event (LER 94-008):

- A night order has been issued directing the shift superintendent to ensure the WMCS will attend infrequent evolution briefings conducted in the main control room.
- This event has been reviewed with all control room supervisors and shift superintendents with specific emphasis on the importance of ensuring the correct LCO is identified and applicable retest requirements are conducted within the appropriate time frames. This group includes all work management center SROs.

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- This event has been reviewed with all maintenance supervisors and superintendents emphasizing the importance of following through with retest requirements and verifying that retest requirements are consistent within the work package.
- Direction has been provided to maintenance planners to obtain system engineering evaluation of bench test data or acceptance criteria prior to installation of equipment.
- A review of all MDR relay packages still in the retest group was conducted to assure correct identification of all LCOs and tracking LCOs. MWOs R165242 and R166036 were identified as being listed on the wrong tracking LCOs. These discrepancies were corrected and an evaluation revealed that the discrepancies had no impact on operability or Technical Specification compliance.
- The manager-operations met with the retest group and discussed the importance of being proactive in getting retests accomplished. This discussion emphasized looking ahead at system window schedules and reviewing outstanding retest items to preclude impact on equipment required to be operable.
- The planning process will be evaluated to define improvements required to assure that correct LCOs and limiting time requirements are specified in MWO packages and surveillances by July 31, 1994. The objective is to add a barrier to recurrence by providing a review for LCOs and applicable Technical Specification requirements prior to review by operations personnel in the work management center and the control room.

Safety Assessment

The control rods remained fully inserted for the duration of this event; therefore, the safety function of the RPS system was satisfied. In addition, the surveillance on the relay, STP (508-0201) was performed on April 24, 1994 at 0602 in its entirety and found to be satisfactory. This confirmed that the relay was capable of performing its safety function during the period of non-compliance.