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March 6, 2006

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Subject: Licensee Event Report 50-458 / 06-001-00
River Bend Station – Unit 1
Docket No. 50-458
License No. NPF-47

File Nos. G9.5, G9.25.1.3

RBG-46544
RBF1-06-0045

Ladies and Gentlemen:

In accordance with 10CFR50.73, enclosed is the subject Licensee Event Report.
This document contains no commitments.

Sincerely,

A handwritten signature in black ink, appearing to read "DLorfing", written over a horizontal line.

David N. Lorfing
Manager – Licensing

DNL/dhw
Enclosure

IE22

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cc: U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
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NRC Sr. Resident Inspector
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LICENSEE EVENT REPORT (LER)

(See reverse for required number of
digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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4. TITLE Unanalyzed Condition Regarding RCIC Availability in Post-Fire Safe Shutdown Scenario
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5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
01	5	2006	2006	- 001 -	00	03	06	2006	FACILITY NAME	DOCKET NUMBER 05000

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)									
10. POWER LEVEL 100	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)						
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)						
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)						
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)						
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)						
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)						
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)						
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER						
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A							

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME David N. Lorfing, Manager – Licensing (acting)	TELEPHONE NUMBER (Include Area Code) 225-381-4157
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
NA									

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE) ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On January 5, 2006, an engineering assessment of the River Bend Station fire protection program identified a deficiency in the post-fire safe shutdown analysis. Specifically, the safe shutdown analysis assumes that the reactor core isolation cooling (RCIC) system is available for operation at the remote shutdown panel following a postulated main control room (MCR) fire. The assessment determined that motor-operated valve E51-MOVF063, the RCIC inboard steam supply isolation, would be rendered nonfunctional. This valve is normally open, but must be assumed to close spuriously due to postulated damage to its control circuitry during the MCR fire. In this specific scenario, the valve would not be controllable from the remote shutdown panel, and the RCIC system would not be available. This is being reported in accordance with 10CFR50.73(a)(2)(i)(B) as an unanalyzed condition that significantly degrades plant safety. This condition does not cause the RCIC system to be inoperable with respect to its functions required by plant Technical Specifications. At the time of this discovery, the plant was operating at 100 percent power. Interim compensatory actions have been implemented to preclude the postulated loss of the function of this valve.

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REPORTED CONDITION

On January 5, 2006, an engineering assessment of the River Bend Station fire protection program identified a deficiency in the post-fire safe shutdown analysis. Specifically, the safe shutdown analysis assumes that the reactor core isolation cooling (RCIC) (BN) system is available for operation at the remote shutdown panel following a postulated main control room (MCR) fire. The assessment determined that motor-operated valve (**ISV**) E51-MOVF063, the RCIC inboard steam supply isolation, would be rendered nonfunctional. This valve is normally open, but must be assumed to close spuriously due to postulated damage to its control circuitry during the MCR fire. In this specific scenario, the valve would not be controllable from the remote shutdown panel, and the RCIC system would not be available. This is being reported in accordance with 10CFR50.73(a)(2)(i)(B) as an unanalyzed condition that significantly degrades plant safety. This condition does not cause the RCIC system to be inoperable with respect to its functions required by plant Technical Specifications.

INVESTIGATION AND IMMEDIATE ACTIONS

10CFR50 Appendix R, Section III.L.1 states that for alternate shutdown capability (i.e. shutdown from outside the control room) reactor coolant system process variables shall be maintained within those predicted for a loss of normal AC power and the fission product boundary integrity shall not be affected. Generic Letter (GL) 86-10, "Implementation of Fire Protection Requirements", Response to Question 3.8.4, "Control Room Fire Considerations" states that the following conditions are assumed to occur during the evaluation of an MCR fire: fire induced spurious operation of safe shutdown components has occurred, offsite power is lost, and the automatic starting of the emergency diesel generators (DGs) does not occur.

Based on the assumptions imposed by GL 86-10, the following MCR fire scenario must be addressed: fire causes E51-MOVF063 to close, fire requires the MCR to be evacuated, during relocation to the Division 1 remote shutdown panel, offsite power is lost, and the DGs do not automatically start.

In order to achieve post-fire safe shutdown conditions during a main control Room fire, the River Bend post-fire safe shutdown analysis concluded that the RCIC system was available from the remote shutdown panel in order to maintain reactor water level and that the Division 1 and 3 DGs will be started locally. (At River Bend, the Division 2 DG is not analyzed to remain free from fire damage during an MCR fire). Since E51-MOVF063 is powered from Division 2 (both control power and motive power) and there is no Division 2 power available (credit cannot be taken for Div 2 power being available) to re-open the valve, steam will not be supplied to the RCIC turbine, as assumed in the analysis. Since E51-MOVF063 is located in the drywell, manually opening the valve is

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impractical. Therefore, RCIC would not be available to maintain the reactor water level. Establishing reactor water level control is a time-critical function required to occur within ten minutes of a main control room evacuation in order to meet the Appendix R safe shutdown performance goal of maintaining reactor coolant inventory to prevent core damage.

Until this condition is resolved, interim compensatory actions have been taken. Abnormal Operating Procedure (AOP)-0031, "Shutdown From Outside the Main Control Room" has been revised to add an action that, upon confirmation of an MCR fire, an operator will be dispatched to open the circuit breaker which powers E51-MOVF063. The intent of this action is to remove power from the valve before it can spuriously close. The required safe shutdown position for the valve is open. Establishing this action as a compensatory measure is consistent with the guidance provided in Regulatory Issue Summary (RIS) 2005-07, "Compensatory Measures to Satisfy the Fire Protection Program Requirements." Also, a prohibition on hot work within the MCR has been put in place pending the resolution of this issue.

CAUSAL ANALYSIS

Development of the original post-fire safe shutdown analysis methodology assumed that, for each fire area, each and every spurious actuation would occur individually. The analysis evaluated each potential fire induced spurious actuation, and identified the single worst case situation. After having selected the worst case spurious actuation, the analysis developed a mitigating action to overcome the malfunction of the fire damaged component. In the case of the MCR fire, RBS determined that a stuck-open reactor safety-relief valve (SRV) was the single worst case spurious actuation. The basis for deciding on a stuck-open SRV as the worst case spurious was the potential for uncovering the reactor core and damaging the fuel cladding. Using the stuck open SRV assumption, it was calculated that the operators had approximately ten minutes to align the RCIC system at the Division 1 remote shutdown panel in order to keep reactor water level above the top of active fuel. Without the stuck-open SRV, the minimum time needed to start the RCIC system is significantly greater than the ten minutes calculated. A loss of offsite power and the failure of the Division 2 DG were also assumed during the MCR fire. No concurrent spurious actions in addition to the open SRV were assumed.

When RIS 2004-03, "Risk-informed Approach for Post-fire Safe Shutdown Associated Circuit Inspections," was issued, it provided clarification of the position that multiple, simultaneous spurious actuations are to be included during implementation of the post-fire safe shutdown analysis. It was during the development of the RBS response to RIS 2004-03 that the reported condition was discovered.

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CORRECTIVE ACTION

Various options have been identified to correct this condition. An evaluation will determine which option is most appropriate. This action is being tracked in the station corrective action program.

SAFETY ANALYSIS

A post-fire safe shutdown circuit analysis using the guidance of RIS 2004-03, revision 1, was performed in late 2005. Safe shutdown related attributes involving the RBS fire protection licensing basis, procedural guidance, component selection, cable selection, and manual action procedural implementation were included in the analysis. All risk significant scenarios identified in the RIS were evaluated for applicability. The analysis considered multiple concurrent spurious component actuations due to fire-induced cable damage to the associated automatic logic circuits. The analysis considered component failure or spurious actuation to occur without regard to specific cable fault type or cable jacket material. This methodology resulted in a conservative analysis with respect to risk considerations. The inherent divisional separation between redundant safe shutdown components and cables due to physical plant construction, cable routing segregation has resulted in a robust safe shutdown analysis. The analysis concluded that the RBS post-fire safe shutdown analysis has little vulnerability to the issues associated with the RIS. It was the result of this investigation that the condition of valve E51-MOVF063 was discovered.

This condition does not cause the RCIC system to be incapable of performing its design function with regard to plant Technical Specifications. The RCIC system is not credited by the RBS Updated Safety Analysis Report for the mitigation of any design basis accident. This condition results in a noncompliance with the requirements of 10CFR50 Appendix R, for a specific scenario that has a low likelihood of occurrence.

(NOTE: Energy Industry Component Identification codes are annotated as (**XX**).)