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June 1, 2006

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

Subject: Licensee Event Report 50-458 / 06-003-00
River Bend Station – Unit 1
Docket No. 50-458
License No. NPF-47

File Nos. G9.5, G9.25.1.3

RBG-46573
RBF1-06-0087

Ladies and Gentlemen:

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

Sincerely,

David N. Lorfing
Manager – Licensing

DNL/dhw
Enclosure

IE22

cc: U. S. Nuclear Regulatory Commission
Region IV
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NRC FORM 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 06/30/2007

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.

LICENSEE EVENT REPORT (LER)

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

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4. TITLE

Automatic Start of Division 2 Standby Service Water System During Normal Service Water Pump Shift

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
										05000
04	04	2006	2006	- 003 -	00	06	01	2006	FACILITY NAME	DOCKET NUMBER 05000

9. OPERATING MODE

1

10. POWER LEVEL

98

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
David N. Lorfing, Manager – Licensing	225-381-4157

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 April 4, 2006, at approximately 2:46 p.m., the Division 2 standby service water system started automatically in response to a low pressure condition in the normal service water system. The plant was operating at 98 percent power at the time of the event. A planned shift of the running normal service water pumps was being performed, and system pressure momentarily dropped below the trip setpoint of the instrumentation that starts the standby service water pumps. This condition is being reported in accordance with 10CFR50.73(a)(2)(iv)(A) as an automatic actuation of the standby service water system. Operators implemented the appropriate response procedures, and the Division 2 SSW system was restored to its normal alignment at 5:36 p.m. that day. The standby service water system responded as designed to the low pressure condition in the normal service water system. This event was of minimal safety significance.

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REPORTED CONDITION

On April 4, 2006, at approximately 2:46 p.m., the Division 2 standby service water (SSW) (BS) system started automatically in response to a low pressure condition in the normal service water (NSW) (KG) system. The plant was operating at 98 percent power at the time of the event. A planned shift of the running NSW pumps (**P**) was being performed, and system pressure momentarily dropped below the trip setpoint of the instrumentation that starts the SSW pumps. This condition is being reported in accordance with 10CFR50.73(a)(2)(iv)(A) as an automatic actuation of the SSW system. Operators implemented the appropriate response procedures, and the Division 2 SSW system was restored to its normal alignment at 5:36 p.m. that day.

CAUSAL ANALYSIS AND IMMEDIATE ACTIONS

The NSW system contains three 50% capacity pumps that supply all service water loads in the plant. These pumps are rotated approximately every three months to equalize run time and to allow maintenance on the idle pump. The SSW system contains four pumps which serve safety-related components in the event there is a malfunction of the NSW pumps. An actuation of the SSW system causes a start of the pumps and a realignment of system valves to isolate the safety-related portions of the system. Divisional pressure transmitters (**PT**) monitor NSW pressure, and are set to trip at 76 psig. The initiation logic requires two trip signals within the same division to cause actuation of pumps and isolation valves in that division.

The NSW pump shift being performed at the time of the event was to secure the "B" pump, and to start the "C" pump. The procedure for this operation directs that the off-going pump be secured to allow the on-coming pump to automatically start on low header pressure (97 psig). The on-coming pump is not started first, as that would result in a header pressure greater than the lift point of relief valves in the system. The normal header pressure in the NSW system is approximately 115-117 psig. NSW pressure transmitters that provide only an alarm function actuate at 80 psig (header pressure "low") and at 70 psig (header pressure "extreme low").

At the start of this event, pressure and flow in the NSW system were within allowable values for a pump shift. The "B" pump was shut down, but the SSW initiation logic actuated prior to the automatic start of the "C" NSW pump.

Operators reported receiving the "extreme low" NSW header pressure alarm, even though the "C" NSW pump did start.

A review of recent NSW pump shifts was conducted to compare the responses of the system for each transient. This review found that the magnitude and duration of the NSW system pressure drop during a pump shift varies in response to a combination of factors:

- closure time of the tripped NSW pump discharge check valve
- header pressure at the time of the pump shift, influenced mainly by system heat load
- normal wear-related degradation of NSW pump capacity
- response time of the on-coming pump's start logic

The review of past pump shifts found that the influence of multiple factors causes the magnitude and duration of the pressure transient to vary unpredictably. It was concluded that pump shifts can cause NSW pressure to drop very near the actuation setpoint of the SSW initiation instruments. The exact reason for the magnitude of the pressure transient that occurred on April 4th could not be determined.

The initiation circuitry for the SSW system does not contain any built-in time delay. A condition that trips any two of the pressure transmitters in a division will immediately actuate that division. In this event, the Division 2 transmitters actuated in response to the brief pressure transient, while the Division 1 transmitters did not. This investigation reviewed recent calibration data for the affected transmitters, and discovered no anomalies. Given the instrument setpoint tolerances allowed by calibration procedures, the response of the system to the brief pressure transient was consistent with its design.

CORRECTIVE ACTIONS TO PREVENT RECURRENCE

Various options are being considered for reducing the susceptibility of the SSW system to spurious actuations. This action will be tracked in the station corrective action program.

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PREVIOUS OCCURRENCE EVALUATION

A similar event at River Bend Station occurred in May 2003, as reported in LER 50-458/03-006-00. The investigation of that event concluded that an abnormal alignment of heat exchangers in the turbine building component cooling water system likely contributed to the pressure transient that accompanied the NSW pump shift. Procedure changes were made regarding NSW flow and pressure requirements to be met prior to shifting pumps. At the time of the pump shift on April 4th, NSW operating parameters were within tolerances specified by the procedure.

SAFETY SIGNIFICANCE

The SSW system responded as designed to the low pressure condition in the NSW system. There was no interruption of cooling water flow to any safety-related components in the plant. This event was of minimal safety significance.

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