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March 10, 2008

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

Subject: Licensee Event Report 50-458 / 08-001-00  
River Bend Station – Unit 1  
Docket No. 50-458  
License No. NPF-47

File Nos. G9.5

RBG-46799  
RBF1-08-0028

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

JE22

KRR

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March 10, 2008  
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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  
P. O. Box 1050  
St. Francisville, LA 70775

INPO Records Center  
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P.O. Box 4312  
Baton Rouge, LA 70821-4312

**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, NE0B-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.

<b>1. FACILITY NAME</b> River Bend Station – Unit 1	<b>2. DOCKET NUMBER</b> 05000-458	<b>3. PAGE</b> 1 of 4
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**4. TITLE**  
Automatic Actuation of Standby Service Water System Due to Inadequate Work Instructions

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	08	2008	2008	- 001 -	00	03	10	2008	FACILITY NAME	DOCKET NUMBER
										05000
										05000

<b>9. OPERATING MODE</b>  5	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§:</b> (Check all that apply)							
<b>10. POWER LEVEL</b>  0	<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 checked="" 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 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	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	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
na									

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b>	MONTH	DAY	YEAR

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

On January 8, 2008, at 9:50 a.m. CST, an unplanned automatic actuation of the Division 1 and 3 standby service water (SWP) systems occurred during maintenance. The plant was shut down for a refueling outage at the time of the event. The work being performed at the time of the event involved the replacement of a power supply in the Division 1 containment penetration valve leakage control system. The work procedure required lifting a neutral ground lead. When this action was taken, power was interrupted in other parts of the connected circuitry. This was not an anticipated response. This loss of power caused an invalid initiation signal to the Division 1 SWP system, resulting in the automatic start of the "A" SWP pump. The configuration of the system and its normal response to such a signal inherently caused an actual momentary low pressure condition and subsequent initiation signal to the "C" SWP pump (Division 3). The actuation of the Division 1 SWP subsystem was invalid since the actual monitored parameter did not change. The actuation of the Division 3 subsystem was a valid actuation as it resulted from an actual low pressure condition in the system. This event is being reported in accordance with 10CFR50.73 (a)(2)(iv)(A) as an automatic actuation of the standby service water system.

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REPORTED CONDITION

On January 8, 2008, at 9:50 a.m. CST, an unplanned automatic actuation of the Division 1 and 3 standby service water (SWP) (\*\*BS\*\*) systems occurred during maintenance. The plant was shut down for a refueling outage at the time of the event.

The work being performed at the time of the event involved the replacement of a power supply (\*\*JX\*\*) in the Division 1 containment penetration valve leakage control system. The work procedure required lifting a neutral ground lead. When this action was taken, power was interrupted in other parts of the connected circuitry. This was not an anticipated response. This loss of power caused an invalid initiation signal to the Division 1 SWP system, resulting in the automatic start of the "A" SWP pump (\*\*P\*\*). The configuration of the system and its normal response to such a signal inherently caused an actual momentary low pressure condition and subsequent initiation signal to the "C" SWP pump (Division 3).

The actuation of the Division 1 SWP subsystem was invalid since the actual monitored parameter did not change. The actuation of the Division 3 subsystem was a valid actuation as it resulted from an actual low pressure condition in the system. This event is being reported in accordance with 10CFR50.73 (a)(2)(iv)(A) as an automatic actuation of the standby service water system.

BACKGROUND

The power supply in the Division 1 containment penetration valve leakage control system is a "critical component" as defined in the preventive maintenance program, and is periodically replaced to assure continued reliability. This work requires circuit isolation using the clearance tagging system, and the lifting of power and neutral wiring leads in order to remove the power supply.

The service water system is normally served by three pumps, which provide cooling to both safety-related and balance-of-plant (BOP) components. The standby service water system is a subset of the overall service water system, and is supplied by four pumps powered from the emergency electrical busses. When the standby service water system actuates, the pumps are started and motor-operated valves (MOVs) isolate the safety related loads from the BOP portions of the system. The initiation circuitry for the standby service water system monitors, among other parameters, pressure in the reactor plant component cooling water system (CCP) and in the normal service water system. The trip setpoint for CCP low pressure is 56 psi, and the low pressure signal for the normal service water system trips at 76 psi.

INVESTIGATION AND CAUSAL ANALYSIS

The investigation of this event found that relevant technical information had been inadvertently omitted from the work package. The maintenance history of this power supply was reviewed during the preparation of the work package. The work instructions for the last periodic replacement were used as a basis for developing a package for the current work. During that review, the planner did identify the fact that the neutral lead on the power supply was "daisy-chained" to other power supplies that were not

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related to the work to be performed. This characteristic of the wiring of these components causes all the power supplies along the connected circuits to lose power when the neutral lead on one power supply is lifted. Had this been recognized, the work package would have been written so as to maintain power to the connected circuits. Neither the maintenance planner's review of applicable drawings, the peer review of the package, nor the approval review by the maintenance discipline supervisor led to the recognition of the daisy-chain feature.

When the neutral lead was lifted from the power supply being replaced, several other power supplies in the same panel were unexpectedly de-energized. As a result, the instrumentation monitoring CCP pressure failed to a tripped condition. Since CCP pressure did not actually change during the event, this was an invalid signal. The actuation occurred as designed. Upon receipt of the low pressure signal from CCP, the "A" SWP pump automatically started, and the Division 1 MOVs isolated the safety-related standby service water headers. Following the realignment of the valves, the flow demand in the Division 1 SSW subsystem was such that the output pressure of the "A" pump remained below 76 psi. This valid low pressure signal resulted in the automatic start of the "C" SWP pump. Subsequent analysis of the sequence of events confirmed that the overall response of the standby service water system was as designed.

**CORRECTIVE ACTIONS TO PREVENT RECURRENCE**

The investigation team determined that the following corrective actions will address the deficiencies that led to this event. These actions are being tracked in the station's corrective action program.

1. Standards and expectations regarding the work planning process will be revised to ensure that "daisy-chained" components will be clearly noted in work instructions and in the operations impact review.
2. The planner's checklist will be revised to include a review for "daisy-chained" components when the work instructions will involve lifting any wiring leads.
3. Standards and expectations regarding work package review by Operations will be revised to reinforce the need to maintain an independent view and to avoid being overly reliant on the work package instructions and information.
4. The standards and expectations regarding field walkdowns, pre-job briefings, and procedure adherence will be reinforced with maintenance personnel and supervisors.

**PREVIOUS OCCURRENCE EVALUATION**

No other actuations of the standby service water systems at River Bend Station within the last five years were caused by conditions similar to those involved in this event.

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**SAFETY SIGNIFICANCE**

The standby service water system responded as designed to the initiation signals generated following the loss of power to the CCP pressure monitors. There was no loss of cooling water to any safety-related components served by the system during the event. Thus this event was of minimal safety significance to the health and safety of plant workers or the public.

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