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**Rick J. King**  
Director  
Nuclear Safety Assurance

November 29, 1999

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

Subject: River Bend Station  
Docket No. 50-458  
License No. NPF-47  
Licensee Event Report 50-458 / 99-014-00

File Nos. G9.5, G9.25.1.3

RBG-45179  
RBF1-99-0310

Ladies and Gentlemen:

In accordance with 10CFR50.73, enclosed is the subject Licensee Event Report.  
There are no commitments in this document.

Sincerely,

A handwritten signature in black ink that reads "Rick J. King".

RJK/dhw  
enclosure

IE22

PDR A00a 05W0458

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cc: U. S. Nuclear Regulatory Commission  
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<b>NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION</b> (6-1998)  <b>LICENSEE EVENT REPORT (LER)</b>  (See reverse for required number of digits/characters for each block)	<b>APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001</b> Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), 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. If 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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<b>FACILITY NAME (1)</b> River Bend Station	<b>DOCKET NUMBER (2)</b> 05000-458	<b>PAGE (3)</b> 1 of 3
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**TITLE (4)**  
Automatic Reactor Scram Due to Inappropriate Work Activities in the Plant Substation

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
10	29	1999	1999	14	00	11	29	1999	FACILITY NAME	DOCKET NUMBER

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

<b>LICENSEE CONTACT FOR THIS LER (12)</b>	
<b>NAME</b> D. N. Lorfing, Supervisor - Licensing	<b>TELEPHONE NUMBER (Include Area Code)</b> 225-381-4157

<b>COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)</b>									
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

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

**ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)**

On October 29, 1999, with the plant in Mode 1 (Power Operation) at 100 percent power, an automatic reactor scram occurred following a trip of the main generator. Plant systems responded to the event as expected, with the exception of Reactor Recirculation Pump 'A.' (\*\*AD/C2\*\*). This pump tripped from fast speed to "off," failing to downshift to slow speed as expected for this event. The scram is being reported in accordance with 10 CFR 50.73(a)(2)(iv) as an event that resulted in the automatic actuation of the reactor protection system.

The cause of this event was the inadvertent initiation of a trip signal in the main generator breaker protective relay circuit (\*\*EL/C38\*\*) by inappropriate work activities in the substation relay house. Contributing to the inappropriate action was poor labeling of the pilot wire terminal boards at the substation. A warning sign identifying the pilot wire cables has been installed at the termination board.

The reactor scram signal originated with the closure of the main turbine control valves (\*\*JK/C18\*\*). The event scenario is analyzed by the River Bend Updated Safety Analysis Report. This event was of no consequence to the health and safety of the public.

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**REPORTED CONDITION**

On October 29, 1999, with the plant in Mode 1 (Power Operation) at 100 percent power, an automatic reactor scram occurred following a trip of the main generator. Plant systems responded to the event as expected, with the exception of Reactor Recirculation Pump 'A.' (\*\*AD/C2\*\*). This pump tripped from fast speed to "off," failing to downshift to slow speed as expected for this event. The scram is being reported in accordance with 10 CFR 50.73(a)(2)(iv) as an event that resulted in the automatic actuation of the reactor protection system.

**BACKGROUND INFORMATION**

The Fancy Point substation is the interface point between River Bend Station (RBS) and the 230/500 kilovolt distribution system (\*\*EC\*\*). The main generator output breakers and the offsite power supply breakers leading into the plant are located at Fancy Point. Entergy relay and communications personnel were at the substation relay house installing new equipment for the communications circuits connecting Fancy Point to the system load dispatcher's control room in Beaumont, Texas. Applicable procedures for positive control of substation activities had been followed and control room logs indicate authorization for substation entry on the day of the event. This work had been in progress for several days. The scope of the work was only to install a communications microwave system, which was not intrusive to plant operations.

**INVESTIGATION**

An investigation was conducted following the event. This investigation included interviews of personnel involved, testing of systems and equipment, and diagnosis of available information.

An initial review of the event found that the main generator trip was caused by activities in the substation relay house. A more detailed investigation of the trip found two concerns. First, the technician was to have been installing panels, but not testing circuits or connecting the panel wiring to installed communications equipment in the relay room. Therefore, the work being performed was outside the scope of work authorized by the main control room personnel. Secondly, the technician incorrectly believed he was testing only communications circuits from the relay house to the communications microwave tower, and he believed his test instrument was a non-intrusive device for this activity. The technician mistakenly went to the termination points for the protective relay circuits for the main generator output breakers. A fault signal was sensed by the circuits when contact was made with the test instrument probes on the terminals. This resulted in a trip signal to the main generator output breakers (\*\*EL/C38\*\*). This main generator trip signal caused a turbine trip, which resulted in the automatic reactor scram signal, as designed. The 230 kilovolt lines leading to the plant's internal distribution system were not affected, and electrical power to plant systems was not interrupted.

The investigation of Reactor Recirculation Pump "A" (\*\*AD/C2\*\*) found that a sealed-in trip signal was present on the low-speed circuit breaker for the pump. This was due to a design that used a plant monitoring computer point which incorrectly applied a wetting voltage to a relay in the recirculation pump breaker trip circuit. This was the likely cause of the failure of the pump to downshift. The investigation also found that high resistance across

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a series of pump start permissive contacts may have prevented the pump control logic from generating a breaker close signal. Either of these conditions could have caused the response seen during the event. The computer monitoring connection lead was lifted, and the high resistance condition in the affected relays was corrected. The system was tested and successfully returned to service. The "B" recirculation pump successfully shifted to slow speed during the event. Corrective actions related to the computer monitoring connection were also implemented for the "B" pump.

**ROOT CAUSE ANALYSIS AND IMMEDIATE CORRECTIVE ACTIONS**

The cause of this event was the inadvertent initiation of a trip signal in the main generator breaker protective relay circuit (\*\*EL/C38\*\*) by inappropriate work activities in the substation relay house. Contributing to the inappropriate action was poor labeling of the pilot wire terminal boards at Fancy Point substation. A warning sign identifying the pilot wire cables has been installed at the termination board. In addition, a revised policy for controlling access to and work in the substation has been put in place. This policy requires the presence of RBS personnel in the switchyard during activities, other than non-intrusive inspections, patrols, or rounds, if any potential exists for impact on the plant. This individual will ensure that the activities remain within the predetermined scope and that control room personnel are informed of work progress. This policy is expected to be reviewed and revised in the future.

**CORRECTIVE ACTION TO PREVENT RECURRENCE**

Additional review and investigation of this event is being conducted. Any additional corrective actions will be documented and tracked in the RBS corrective action program.

**PREVIOUS OCCURRENCE EVALUATION**

A review of recent reactor scrams at River Bend found no similar events involving a plant transient resulting from work activities in the plant substation.

**SAFETY SIGNIFICANCE**

The reactor scram signal originated with the closure of the main turbine control valves. The event scenario is analyzed in the River Bend Updated Safety Analysis Report. The work being performed in the Fancy Point substation caused no interruption of electrical power in the plant. Plant systems responded to the event as designed with the exception of one reactor recirculation pump. The second pump operated as expected. Recirculation pump operation is not required for safe shutdown of the plant or accident mitigation. This event was of no consequence to the health and safety of the public.

(Note: Energy industry component identification codes are annotated in the text as (\*\*XXX\*\*).)