

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Surry Power Station, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 8 0	PAGE (3) 1 OF 0 3
--	--------------------------------------	----------------------

TITLE (4)  
Auto Start of Auxiliary Feedwater Pump

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 NAMES	DOCKET NUMBER(S)
0 2	1 3	8 6	8 6	0 0 8	0 0	0 3	0 4	8 6		0 5 0 0 0

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §. (Check one or more of the following) (11)									
POWER LEVEL (10) 1 1 0 1 0	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(a)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)						
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(a)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)							
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)							
	<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)							

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME R. F. Saunders, Station Manager	AREA CODE 8 1 0 4	3 1 5 1 7 1 - 1 3 1 8 1 4	

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS
E	BIA	IRILY	W I U 2 1 0	Y					

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

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

Unit 1 was at 100% power on 2-13-86 with PT-8.1 (Reactor Protection System Logic Test For Normal Operation) in progress when an unexpected start of auxiliary feed pump 2-FW-P-3B occurred. The pump started because of an open coil in BFD relay AFP-3XB.

The failed relay did not prevent 2-FW-P-3B from fulfilling its safety function. The relay was replaced and tested satisfactorily.

An investigation of BFD relay failures at Surry Power Station is complete and the conclusions and recommendations are under review. Some recommendations already implemented include cleaning of relays and improved cleaning techniques in the relay room. Improved relay room ventilation is also being evaluated.

CE22  
11

8603070584 860304  
PDR ADOCK 05C00280  
S PDR

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  Surry Power Station, Unit 1	DOCKET NUMBER (2)  0   5   0   0   0   2   8   0	LER NUMBER (6)			PAGE (7)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8   6	-   0   0   8	-   0   0	0   2	OF	0   3

TEXT (If more space is required, use additional NRC Form 365A's) (17)

Auto Start of Auxiliary Feedwater Pump1. Description of the Event

On 2-13-86, unit 1 was at 100% power with PT-8.1 (Protection System Logic Test for Normal Operation) in progress. At 0955 hours, the Instrument Technicians performing the test detected the odor of something burning. At the same time, the Control Room Operator observed auxiliary feedwater pump (EIS No.: P) 1-FW-P-3B running unexpectedly.

An investigation of the situation by the Instrument Technicians disclosed that relay (EIS No.: RLY) AFP-3XB was out of position. This failed relay was the source of the odor and the pump start.

2. Safety Consequences and Implications

The auxiliary feedwater pumps are used to assure that adequate heat sink is available when required. The failed relay would not have prevented an auto start of the pump if it was required. No other safety equipment was challenged, therefore an unreviewed safety question was not created and the public's health and safety remained unaffected.

3. Cause

The auxiliary feed pump start was due to a failed BFD relay (AFP-3XB). The relay failed due to an open coil (EIS No.: CL). Although specific cause for the open coil is not known with certainty, a recent internal investigation into BFD relay failures has identified some possible failure mechanisms. The most likely factor seems to be an accumulation of dust and dirt on the relay, particularly on the relay pole piece faces, which causes increased holding currents leading to increased coil temperatures.

4. Immediate Corrective Action

The Control Room Operator secured the auxiliary feedwater pump after it was determined it was not needed for existing plant conditions.

The Instrument Technicians stopped performing PT-8.1 and determined that the test was not the cause of the relay failure.

5. Additional Corrective Action

The relay was replaced and PT-8.1 was resumed which subsequently verified proper relay actuation.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  Surry Power Station, Unit 1	DOCKET NUMBER (2)  0   5   0   0   0   2   8   0	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8   6	-   0   0   8	-   0   0	0   3	OF 0   3

TEXT (If more space is required, use additional NRC Form 305A's) (17)

6. Action Taken to Prevent Recurrence

An investigation and analysis of BFD relay failures at Surry Power Station is complete and the conclusions and recommendations are under review.

Recommendations implemented include cleaning of the reactor protection BFD relays, and the use of improved cleaning techniques in the relay room. Improving relay room ventilation is also being evaluated.

7. Generic Implications

Similar failures have occurred at other plants. For a similar event at Surry, see unit 1 LER 85-021.

# Vepco

VIRGINIA ELECTRIC AND POWER COMPANY

Surry Power Station  
P. O. Box 315  
Surry, Virginia 23883

March 4, 1986

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

Serial No: 86-010  
Locket No: 50-280  
License No: DPR-32

Gentlemen:

Pursuant to Surry Power Station Technical Specifications, Virginia Electric and Power Company hereby submits the following Licensee Event Report for Surry Unit 1.

REPORT NUMBER

86-008-00

This report has been reviewed by the Station Nuclear Safety and Operating Committee and will be reviewed by Safety Evaluation and Control.

Very truly yours,

*R F Saunders*

R. F. Saunders  
Station Manager

Enclosure

cc: Dr. J. Nelson Grace  
Regional Administrator  
Suite 2900  
101 Marietta Street, NW  
Atlanta, Georgia 30323

*LE22*  
*11*