

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Surry Power Station, Unit 1 and Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 2 8 0	PAGE (3) 1 OF 0 3
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TITLE (4)  
Emergency Diesel Generator Auto-Start Due to Failed Relay and Blown Fuse

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)																																									
1	2	0 3	8	7	0 3 7	0	0	1 2 2 8 7			0 5 0 0 0																																									
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">OPERATING MODE (9) N</td> <td colspan="11">THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)</td> </tr> <tr> <td rowspan="5">POWER LEVEL (10) 1 0 0</td> <td>20.402(b)</td> <td>20.405(c)</td> <td><input checked="" type="checkbox"/></td> <td>50.73(a)(2)(iv)</td> <td>73.71(b)</td> </tr> <tr> <td>20.405(a)(1)(i)</td> <td>50.38(c)(1)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(v)</td> <td>73.71(c)</td> </tr> <tr> <td>20.405(a)(1)(ii)</td> <td>50.38(c)(2)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(vii)</td> <td rowspan="3">OTHER (Specify in Abstract below and in Text, NRC Form 366A)</td> </tr> <tr> <td>20.405(a)(1)(iii)</td> <td>50.73(a)(2)(i)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(viii)(A)</td> </tr> <tr> <td>20.405(a)(1)(iv)</td> <td>50.73(a)(2)(ii)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(viii)(B)</td> </tr> <tr> <td>20.405(a)(1)(v)</td> <td>50.73(a)(2)(iii)</td> <td><input type="checkbox"/></td> <td>50.73(a)(2)(x)</td> <td></td> </tr> </table>												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 0 0	20.402(b)	20.405(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)	20.405(a)(1)(i)	50.38(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	73.71(c)	20.405(a)(1)(ii)	50.38(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)	20.405(a)(1)(iii)	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)	20.405(a)(1)(iv)	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)	20.405(a)(1)(v)	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(x)	
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LICENSEE CONTACT FOR THIS LER (12)

NAME David L. Benson, Station Manager	TELEPHONE NUMBER AREA CODE: 8 0 4 3 5 7 - 3 1 8 4
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUF. TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUF. TURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15) MONTH:    DAY:    YEAR:
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On December 3, 1987, at 0928 hours, with Unit 1 and Unit 2 at 100% power, Bus 1J undervoltage alarm (EIIS-ANN) and Bus 1J overvoltage alarm (EIIS-ANN) were received. Operations personnel observed that the main station battery (EIIS-BTRY) ground lights flickered. Emergency Diesel Generator #3 (EDG) (EIIS-DG) automatically started, which is an engineered safety feature actuation. At 0930 hours, the alarms cleared. At 0946 hours, EDG #3 was placed in its cooldown cycle. At 0950 hours, it was returned to the automatic mode. At 0954 hours, the alarm for Bus 1J undervoltage was received, and the #3 EDG auto-started again and was manually loaded onto 1J Bus. The cause of the auto-start of #3 EDG was a blown DC fuse (EIIS-FU) in the degraded voltage circuit. Relay (EIIS-59) 59 ABC-1J1, the overvoltage relay surge capacitor, failed and shorted to the relay case. This caused the positive DC fuse in the degraded voltage circuit to blow. The first auto-start of #3 EDG at 0928 hours was due to the arcing of the surge capacitor with the relay case. When the surge capacitor failed and flashed to ground, DC power was lost, causing the undervoltage signal and the auto-start of the diesel at 0954 hours. The undervoltage relay 59 ABC-1J1 and the DC control fuse were replaced, and the circuit was returned to normal. The #3 EDG was stopped and placed in automatic at 1655 hours.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

TEXT IF more space is required, use additional NRC Form 288A's (17)

1.0 Description of the Event

On December 3, 1987, at 0928 hours, with Units 1 and Unit 2 at 100% power, Bus 1J undervoltage alarm {EIIS-ANN} and Bus 1J overvoltage alarm {EIIS-ANN} were received. Operations personnel observed that the main station battery {EIIS-BTRY} ground lights flickered. Emergency Diesel Generator #3 (EDG) {EIIS-DG} automatically started, which is an engineered safety feature actuation. At 0930 hours, the alarms cleared. At 0946 hours, EDG #3 was placed in its cooldown cycle. At 0950 hours, it was returned to the automatic mode. At 0954 hours, the alarm for Bus 1J undervoltage was received and the #3 EDG auto-started again and was manually loaded onto 1J Bus.

2.0 Safety Consequences and Implications

The #3 EDG is designed to supply power to either the Unit 1 (1J) emergency bus or the Unit 2 (2J) emergency bus. During this event, the #3 EDG was paralleled and loaded to the 1J emergency bus. During this time, #3 EDG remained capable of supplying power to Unit 2 (2J) emergency bus. Therefore, the health and safety of the public were not affected.

3.0 Cause

The cause of the auto-start of #3 EDG was a blown DC fuse {EIIS-FU} in the degraded voltage circuit. Relay {EIIS-59} 59 ABC-1J1, the overvoltage relay surge capacitor, failed and shorted to the relay case. This caused the positive DC fuse in the degraded voltage circuit to blow. The first auto-start of #3 EDG at 0928 hours was due to the arcing of the surge capacitor with the relay case. When the surge capacitor failed and flashed to ground, DC power was lost, causing the undervoltage signal and the auto-start of the diesel at 0954 hours.

4.0 Immediate Corrective Action

The immediate corrective actions included paralleling EDG #3 with 1J emergency bus's normal supply and loading the diesel onto the bus.

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		— 0 3 7	— 0 0	0 3	OF 0 3	

TEXT (If more space is required, use additional NRC Form 308A's) (17)

5.0 Additional Corrective Action(s)

The overvoltage relay 59 ABC-1J1, and the DC control fuse were replaced and the circuit was returned to normal. The #3 EDG was stopped and placed in automatic at 1655 hours.

6.0 Action(s) Taken to Prevent Recurrence

None required.

7.0 Similar Events

None.

8.0 Manufacturer/Model Number

General Electric/125LV 11A1A.

VIRGINIA ELECTRIC AND POWER COMPANY  
Surry Power Station  
P. O. Box 315  
Surry, Virginia 23883

December 22, 1987

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

Serial No.: 87-041  
Docket No.: 50-280  
50-281  
Licensee No.: DPR-32  
DPR-37

Gentlemen:

Pursuant to Surry Power Station Technical Specifications, Virginia Electric and Power Company hereby submits the following Licensee Event Report for Surry Unit 1 and Unit 2.

REPORT NUMBER

87-037-00

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,

*David L Benson*

David L. Benson  
Station Manager

Enclosure

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

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