POW 28-06-01-01

NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
SURRY POWER STATION, UNIT 2	0 5 0 0 0 2 8 1	1 OF 0 3

TITLE (4)

REACTOR TRIP (NI 43 FUSE BLEW)

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 5 0 0 0
0 8	0 7	8 4	8 4	—	0 1 3	— 0 0	0 9	0 6	8 4		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
N		20.402(b)	20.405(c)	√ 50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)	1 0 0	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	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)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
ROBERT SAUNDERS, STATION MANAGER	8 0 4 3 5 7 - 3 1 8 4

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	
X	B A	H C V	L 2 0 0	Y							

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
√ YES (If yes, complete EXPECTED SUBMISSION DATE) 1/31/85	NO				

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

On August 7, 1984, a reactor trip occurred from the completion of the 2 of 3 logic matrix on overpower delta T protection.

Prior to this event, instrument technicians were performing periodic testing on nuclear instrument (NI-43) when a blown control power fuse in the instrument drawer resulted in completion of the NIS dropped rod protection circuitry which caused a turbine runback. Approximately 2 minutes following the start of the turbine runback, a reactor trip occurred from the completion of the 2 of 3 logic matrix on overpower delta T protection. Initiation of the OPΔT trip function was caused by a decreasing OPΔT setpoint. The blown fuse in instrument drawer NI-43 was caused when technicians improperly used an ungrounded power lead with a digital voltmeter to obtain a detector current measurement. Adequate instructions will be furnished for test equipment setups.

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NRC Form 366A
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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
SURRY POWER STATION, UNIT 2	0 5 0 0 0 2 8 1	8 4	— 0 1 3	— 0 0	0 2 OF 0 3

TEXT (If more space is required, use additional NRC Form 366A's) (17)

1. Description of the Event

On August 7, 1984, at 1425, with unit 2 rod control in manual at 100% power, technicians began trouble shooting a failed delta flux indicator (NI-43). In preparation to measure the detector current for channel 3 (NI-43), digital voltmeter test probes were inserted across a 1K resistor in series with a drawer mounted ammeter. Upon insertion of the test probes, one of the control power fuses blew on Nuclear Instrument (NI) 43 resulting in loss of power to the protection bistables in the NI drawer. The loss of power to the drawer resulted in completion of the NIS dropped rod protection circuitry which resulted in a turbine run-back to approximately 70%. Upon detecting the runback, the control room operator placed rods in automatic. Immediately following the dropped rod run-back, a series of overpower delta T runbacks, of approximately 5% each, ramped the turbine generator to about 300 megawatts electric.

Approximately 2 minutes following the start of the turbine run-backs, a reactor trip occurred from the completion of the 2 of 3 logic matrix on overpower delta T protection. Immediately after the reactor trip, an overtemperature delta T trip was received.

Following the reactor trip, all control and protection systems were noted to function properly except for MOV-FW-251C (EIIS No. HCV), which would not manually remain closed after the operator manually closed it.

Operators followed appropriate plant procedures and quickly stabilized the plant following the trip.

2. Safety Consequences and Implications

Four dual section, uncompensated ionization chambers are used for power range neutron flux detection. Each chamber generates current signal outputs which provide core flux signals for the power range low power trip (two of four), the power range high power trip (two of four), and a bias signal (a function of nuclear flux profile) used in the overpower and overtemperature delta T reactor trip circuits.

During the period of time that NI-43 was inoperable, the remaining three Nuclear Power Range Instruments and their protection circuits remained operable and thereby capable of performing their intended functions. A similar trip from full power would not have caused any safety limits to be exceeded as analyzed in the UFSAR. For these reasons, an unreviewed safety question was not created and the health and safety of the public were unaffected.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

3. Cause

Instrument Technicians trouble shooting the NI 43 drawer determined that the blown fuse occurred when an AC voltage was superimposed into the protection circuitry. This happened when an ungrounded 120 VAC power cord was improperly used with a digital voltmeter to obtain detector current measurements. Grounded and ungrounded power cords can be interchanged with test equipment. In addition, the periodic test did not specify test equipment or the setup.

The initiation of the OPΔT trip function was caused by a decreasing OPΔT setpoint believed to be due to a negative swing in delta flux (as sensed by nuclear instrumentation).

Secondary Causes and Failures are:

Failure of the auxiliary feed MOV-FW-251C was caused by a malfunctioning timing control relay.

4. Immediate Corrective Action

Operators performed all appropriate emergency procedures and function restoration procedures to ensure the plant was returned to a stable condition.

Also, the STA performed the status tree review to ensure specific plant parameters were noted and appropriate procedures were used to maintain those parameters within safe bounds.

5. Additional Corrective Actions

The automatic control relay to the auxiliary feedwater valve MOV-FW-251C was replaced and the valve cycled satisfactorily. The reason for the decreasing OPΔT setpoint is still under investigation. Additional testing, during an upcoming outage, will be needed to complete the investigation.

6. Action Taken to Prevent Recurrence

Action taken to prevent recurrence include:

1) Adequate instructions will be furnished for test equipment setup.

2) Timing control relays to auxiliary feedwater valves are being replaced with new relays on unit 2 as a precautionary measure.

7. Generic Implications

None.

Vepco

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

SEP 6 1984

Serial No: 84-030

Docket No: 50-281

License No: DPR-37

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

Gentlemen:

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

REPORT NUMBER

84-013-00

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
Station Manager

Enclosure

cc: Mr. James P. O'Reilly
Regional Administrator
Suite 2900
101 Marietta Street, NW
Atlanta, Georgia 30303

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