POW 28-06

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 1	0 5 0 0 0 2 8 0	1 OF 0 3

TITLE (4)
REACTOR TRIP

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 1	0 6	8 4	8 4	– 0 0 1	– 0 0		0 2	0 3	8 4		0 5 0 0 0
											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 0 0	20.402(b)	20.405(c)	√ 50.73(a)(2)(iv)	73.71(b)
		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
Jack Wilson	AREA CODE 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	S J	F C V	C 6 3 5	Y							

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

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

On January 6, a reactor trip occured as a result of an Over Temperature Delta-T (OTΔT) signal. Plant parameters did not indicate a valid OTΔT condition.

At the time of the event, instrument technicians were performing a Periodic Test which required the ch II OTΔT bistables to be in the trip mode, and maintenance was being performed on the plant Gaitronics (P.A.) system. The Gaitronics system is powered from the Unit I Vital Bus I. When the Gaitronics was re-energized, an apparent power surge occured in the Gaitronics system. The power surge is believed to have induced a voltage transient in Vital Bus I which resulted in tripping the relays for OTΔT reactor trip ch I. Since ch II was in trip at the time in order to support performance of P.T. 2.1, the 2/3 matrix was completed and as a result, the reactor trip occured.

A special test will be written and performed to check the Gaitronics system for loads on its various branch circuits. Results of this test will be used to help develop a procedure which will allow maintenance to be performed on the Gaitronics system with minimal affect on the Vital Bus.

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NRC Form 366A (9-83)

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3 [illegible]104
EXPIRES: 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER	PAGE (3)
		YEAR / REVISION NUMBER	
SURRY POWER STATION, UNIT I	0 5 0 0 0 2 8 0	8 4 – [illegible] 0	0 2 OF 0 3

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

1.0 Event Description

On January 6, 1984 at 1324 hours, with the unit at 100% power, a reactor trip occured as a result of an Over Temperature Delta-T (OTΔT) signal. Plant parameters did not indicate a valid OTΔT condition at the time of the event.

At the time of the trip, instrument technicians were performing a Periodic Test (P.T.2.1-OTΔT Test ch II) which required the ch II OTΔT bistables to be in the trip mode, and maintenance was being performed on the plant Gaitronics (P.A.) system.

Immediately following the reactor trip, operators noted all control and protection systems to function properly except for the isolation of the 'A' main feedwater line and the automatic reinstatement of the source range channels. The 'A' feed regulation valve, FCV-FW-1478 (EIIS no. FCV) would not fully close and the under compensation of the intermediate range channel NI-36 (EIIS no. JI) prevented the source range from automatically reinstating.

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

2.0 Safety Consequences and Implications

The isolation of the feed reg. valves following a reactor trip in coincidence with low Tave, or a Safety Injection, minimizes excessive primary plant cooldown in the event of a steam line break. Source range channels when reinstated, prevent any uncontrolled power increases during a reactor startup.

The main feed pumps would have tripped in the event of a Safety Injection Signal and would have provided the required feedwater isolation. Also, the source range channels were manually reinstated prior to resetting the reactor trip breakers. In addition, all other safety related systems remained operable during the event and plant parameters remained within the bounds of the accident analysis. Therefore, this event did not constitute an unreviewed safety question nor affect the health and safety of the public.

3.0 Cause

The cause of the reactor trip was due to an OTΔT signal. At the time of the reactor trip, maintenance was being performed on the Gaitronics system, which is powered from Unit I Vital Bus I. When the Gaitronics was re-energized, an apparent power surge occured in the Gaitronics system. The power surge is believed to have induced a voltage transient in Vital Bus I which resulted in tripping the relays for OTΔT reactor trip ch I. Since ch II was in trip at the time in order to support performance of P.T. 2.1, the 2/3 matrix was completed and as a result, the reactor trip occured. In addition, the power surge in the Gaitronics tripped its feeder breaker from Vital Bus I.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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SURRY POWER STATION, UNIT 1	0 5 0 0 0 2 8 0	8 4	— 0 0 1	— 0 0	0 2 OF 0 3

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

The malfunction of the 'A' feed reg. valve was due to a 1/2" nut discovered in the valve internals which had lodged between the valve plug and cage preventing complete closure. The nut was not a part of the valve internals and it's origin is not known. The failure of the automatic reinstatement of the Source Range Channels was due to the undercompensation of intermediate range channel NI-36.

4.0 Immediate Corrective Action

Operators performed all appropriate Emergency Procedures and Function Restoration Procedures to ensure the plant was returned to a stable condition. This included isolating the feedwater to the 'A' steam generator by closing isolation valve MOV-FW-154A, and manually reinstating the source range channels.

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

5.0 Additional Corrective Actions

The 'A' main feed regulation valve was disassembled and the 1/2" nut was observed and removed. Although no damage was noted, the valve cage, plug and stem were replaced with new parts from spares.

6.0 Action Taken to Prevent Recurrence

A special test will be written and performed to check the Gaitronics system for loads on its various branch circuits. Results of this test will be used to help develop a procedure which will allow maintenance to be performed on the Gaitronics system with minimal affect on the Vital Bus.

7.0 Generic Implications

None.

Vepco

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

Serial No: 84-005

FEB 3 1984

Docket No: 50-280

License No: DPR-32

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

Dear Mr. O'Reilly

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

Report Number

84-001-00

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,

J. L. Wilson
Station Manager

Enclosure

cc: Document Control Desk, USNRC
016 Phillips Bldg.
Washington, D. C. 20555

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