

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) NORTH ANNA POWER STATION, UNIT 1	DOCKET NUMBER (2) 0 5 0 0 0 3 3 8 1	PAGE (3) OF 0 3
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TITLE (4)

UNIT 1 MANUAL REACTOR TRIP CAUSED BY DROPPED CONTROL RODS

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 9	1 7	8 5	8 5	0 1 7	0 1	1 2	1 6	8 5			0 5 0 0 0

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)											
	20.402(b)			20.406(c)			50.73(a)(2)(iv)			73.71(b)		
	20.406(a)(1)(i)			50.36(c)(1)			50.73(a)(2)(v)			73.71(c)		
	20.406(a)(1)(ii)			50.36(c)(2)			50.73(a)(2)(vii)			OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
	20.406(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(viii)(A)					
	20.406(a)(1)(iv)			50.73(a)(2)(ii)			50.73(a)(2)(viii)(B)					
POWER LEVEL (10) 0 1 1 6	20.406(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(ix)					

LICENSEE CONTACT FOR THIS LER (12)

NAME E. Wayne Harrell, Station Manager	TELEPHONE NUMBER	
	AREA CODE 7 1 0 3	8 1 9 4 1 - 5 1 1 5 1 1

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC
X	AIA	I XIA	W112 D	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	X				

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

On September 17, 1985 at 1118 hours, a Unit 1 reactor trip/turbine trip was manually initiated from 16 percent power. The Unit 1 control room operator observed that the four control bank D, group 1 control rods had dropped into the core via Individual Rod Position Indicators and Nuclear Instrumentation indication. The reactor and turbine were tripped in accordance with the immediate action requirements of the Reactor Trip or Safety Injection procedure (EP-0). All plant parameters responded normally.

The cause of the dropped control rods was determined to be an intermittent fault in the alarm circuit card associated with group 1 of shutdown bank B, control bank B and control bank D (power cabinet 1BD). There are four such alarm circuit cards in the rod control system, one in each of the four power cabinets. Two other alarm circuit cards were determined to also have intermittent faults and one was properly functioning (cabinet 1AC). The alarm circuit card in power cabinet 1BD was replaced with the operable alarm circuit card from power cabinet 1AC as replacement cards were not available on site. A Unit 1 reactor startup commenced and criticality was reached at 2014 on September 17, 1985, without incident. The three faulty alarm circuit cards were replaced on September 18, 1985. This event is reportable pursuant to 10 CFR 50.73(a)(2)(iv).

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
NORTH ANNA POWER STATION, UNIT 1	0 5 0 0 0 3 3 8	8 5	- 0 1 7	- 0 1	0 2	OF	0 3

TEXT (If more space is required, use additional NRC Form 360A's) (17)

On September 17, 1985 at 1118 hours, the Unit 1 reactor and turbine were manually tripped from 16 percent power when four control bank D, group 1 control rods (EIIS Component Identifier ROD) were observed to drop into the core. Based on the Individual Rod Position Indicators (IRPI) and Nuclear Instrumentation (NI) indication, the Unit 1 Control Room Operator (CRO) manually tripped the reactor and turbine in accordance with the immediate action requirements of the Reactor Trip or Safety Injection procedure (EP-0). All plant parameters responded normally. This event is reportable pursuant to 10 CFR 50.73(a)(2)(iv).

On the morning of September 17, 1985, a Unit 1 startup was in progress following a short outage to repair the B reactor coolant loop bypass valve. At 1022, while increasing power with D control bank at 85 steps, the Unit 1 CRO observed a disagreement between group 1 and group 2 of D control bank indicating an apparent misalignment of approximately 10 steps. Reactor power was subsequently stabilized at 16 percent. Troubleshooting of the rod control system (EIIS System Identifier AA) commenced but these efforts could not locate a problem that would have resulted in the indicated misalignment. A decision was made to re-align group 1 and group 2 of D control bank via an abnormal procedure (AP-1.5). This involved opening the lift disconnect switches (prevents lift coil from energizing) of group 1 and inserting group 2 approximately 10 steps. When the Unit 1 CRO began inserting control bank D group 2, the four group 1 control rods dropped. A manual reactor trip was initiated. Since the four group 1 control rods are located at the core periphery between the excore detectors (EIIS Component Identifier DET), a power decrease of approximately 2 percent occurred when they inserted. A high negative flux rate reactor trip was not received since a 5 percent decrease in less than or equal to 2 seconds is required.

The cause of the dropped control rods was determined to be an intermittent fault in the alarm circuit card (EIIS Component Identifier XA) associated with group 1 of B shutdown bank, B control bank and D control bank (power cabinet 1BD). The alarm circuit card generates the urgent failure alarm and associated signal to provide reduced current to the moveable and stationary gripper coils of all groups controlled by the power cabinet upon a detected failure. Attempting to move D control bank with all four group 1 lift disconnect switches open results in an urgent failure condition for group 1; however, the alarm circuit card did not function properly to maintain the position of the group 1 control rods. There are four such alarm circuit cards associated with the rod control system, one in each of the four power cabinets. The remaining three were checked and two of them were not functioning properly. The alarm circuit card in power cabinet 1AC was working properly. Improper operation of these failure alarm cards does not affect normal rod control operation. The alarm cards were manufactured by Westinghouse Electric Corporation, model number 6050D13G01.

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

Since replacement alarm circuit cards could not be readily obtained, the alarm circuit card in power cabinet 1BD was replaced with the operable alarm circuit card from cabinet 1AC. A Unit 1 startup was commenced and criticality was reached at 2014 on September 17, 1985 without incident. The three faulty alarm circuit cards were replaced on September 18, 1985.

In order to prevent future recurrence, the failure alarm circuit cards will be tested during refueling outages when the rod control system is not required to be functional.



VIRGINIA ELECTRIC AND POWER COMPANY

NORTH ANNA POWER STATION

P. O. BOX 402

MINERAL, VIRGINIA 23117

December 16, 1985

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

Serial No. N-85-010A
NO/JRR: cmt
Docket No. 50-338

License No. NPF-4

Dear Sirs:

The Virginia Electric and Power Company hereby submits the following updated Licensee Event Report applicable to North Anna Unit No. 1. This update reflects the correct power level in block 10.

Report No. LER 85-017-01

This report has been reviewed by the Station Nuclear Safety and Operating Committee and will be forwarded to Safety Evaluation and Control for their review.

Very Truly Yours,


E. Wayne Harrell
Station Manager

Enclosures (3 copies)

cc: Dr. J. Nelson Grace, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
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Atlanta, Georgia 30323

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