

Virginia Electric and Power Company
North Anna Power Station
P. O. Box 402
Mineral, Virginia 23117

February 18, 1994

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

NAPS:MPW
Docket No. 50-339
License No. NPF-7

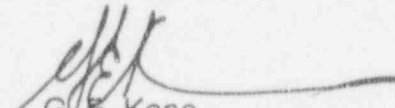
Dear Sirs:

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

Report No. 50-339/94-003-00

This Report has been reviewed by the Station Nuclear Safety and Operating Committee and will be forwarded to the Management Safety Review Committee for its review.

Very truly yours,


G. E. Kane
Station Manager

Enclosure:

cc: U.S. Nuclear Regulatory Commission
101 Marietta Street, N.W.
Suite 2900
Atlanta, Georgia 30323

R. D. McWhorter
NRC Senior Resident Inspector
North Anna Power Station

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LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) North Anna Unit 2	DOCKET NUMBER (2) 05000 339	PAGE (3) 1 OF 3
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TITLE (4)
AUTOMATIC REACTOR TRIP DUE TO CLOSURE OF MAIN FEEDWATER REGULATING VALVE

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)
01	22	94	94	003	00	02	18	94		05000
										05000

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(b)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
POWER LEVEL (10) 100	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(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(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> OTHER						
	<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)	(Specify in Abstract below and in Text, NRC Form 366A)						
	<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)(x)								

LICENSEE CONTACT FOR THIS LER (12)

NAME Greg Kane, Station Manager	TELEPHONE NUMBER (Include Area Code) (703) 894-2101
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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	SJ	FCV	C600	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

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

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On January 22, 1994, at 0644 hours with Unit 2 operating at 95 percent power (Mode 1) an automatic reactor trip occurred. The initiating signal was the "A" Steam Generator (SG) low level coincident with a steam flow greater than feedwater flow mismatch caused by closure of the "A" Main Feedwater Regulating Valve (MFRV). This resulted in a reactor and turbine trip. A four hour report was made to the NRC at 1014 hours pursuant to 10 CFR 50.72 (b)(2)(ii) and (vi). This event is reportable pursuant to 10CFR50.73 (a)(2)(iv) as an automatic actuation of a Reactor Protection System.

The cause of the "A" MFRV closure was due to a component failure of the upper pneumatic booster relay on the valve positioner.

No significant safety consequences resulted from this event because all safety systems responded appropriately. Therefore, the health and safety of the public were not affected at any time during this event.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) North Anna Unit 2	DOCKET NUMBER (2) 05000-339	LER NUMBER (6)			PAGE (3) 2 OF 3
		YEAR 94	SEQUENTIAL NUMBER 003	REVISION NUMBER 00	

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

1.0 Description of the Event

On January 22, 1994, at 0644 hours with Unit 2 operating at 95 percent power (Mode 1) an automatic reactor trip occurred. The initiating signal was the "A" Steam Generator (SG) (EISS System AB, Component SG) low level coincident with a steam flow greater than feedwater flow mismatch. The initiating signal was caused by closure of the "A" Main Feedwater Regulating Valve (MFRV) (EISS System SJ, Component FCV). This resulted in a reactor and turbine trip. A four hour report was made to the NRC at 1014 hours pursuant to 10 CFR 50.72 (b)(2)(ii) and (vi). This event is reportable pursuant to 10CFR50.73 (a)(2)(iv) as an automatic actuation of a Reactor Protection System.

On January 21, 1994, at 2328 hours Unit 2 was ramped down to 95 percent power to aid in controlling steam generator levels when the "A" MFRV malfunctioned causing an overfeed condition. Steam generator level control was obtained by using the main feedwater regulating bypass valve (EISS Component FCV) and throttling the MFRV motor operated isolation valve (EISS Component ISV). The "A" MFRV was then placed in manual override to facilitate troubleshooting and repair activities. Troubleshooting determined the "A" MFRV positioner's current to pneumatic (I/P) transducer (EISS Component TD) air supply regulator (EISS Component RG) had failed. Following replacement of the regulator and I/P transducer, the latter replaced as a precautionary measure, Operations personnel attempted to restore the "A" MFRV to auto-control in accordance with station procedures. The "A" MFRV exhibited stable conditions for approximately 15 seconds then commenced a slow ramp to the closed position. The MFRV did not respond to demand input from the Main Control Room. The resultant SG low level coincident with a steam flow greater than feedwater flow mismatch initiated the automatic reactor trip signal.

Control Room Operators responded to the event in accordance with Emergency Procedure E-0, Reactor Trip or Safety Injection. Reactor Coolant System (EISS System AB) temperature and pressure decreased to approximately 539 degrees Fahrenheit and 1920 psig before recovering to 547 degrees Fahrenheit and 2235 psig. Plant safety equipment responded appropriately during the reactor trip.

After event investigation and corrective actions were completed, Unit 2 was taken to critical at 2332 hours on January 22, 1994. It was determined that closure of the "A" MFRV was caused by a failure of the upper pneumatic booster relay (EISS System SJ, Component RLY) on the valve positioner.

2.0 Significant Safety Consequences and Implications

No significant safety consequences resulted from this event because all safety systems responded appropriately. Therefore, the health and safety of the public were not affected at any time during this event.

3.0 Cause of the Event

The overfeed malfunction of the "A" MFRV was due to failure of the valve positioner's I/P air supply regulator.

The automatic reactor trip occurred as a result of the "A" Steam Generator (SG) low level coincident with a steam flow greater than feedwater flow mismatch caused by closure of the "A" Main Feedwater Regulating Valve (MFRV).

Closure of the "A" MFRV was due to a failed upper pneumatic booster relay on the valve positioner. A root cause evaluation is being performed to determine the cause of the booster relay failure.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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

4.0 Immediate Corrective Actions

Following the reactor trip emergency Procedure 2-E-0, Reactor Trip or Safety Injection, was entered. Transition to Emergency Procedure 2-ES-0.1, Reactor Trip Response, occurred and unit conditions were stabilized. The "A" MFRV upper pneumatic booster relay was replaced and post maintenance testing was satisfactorily completed.

5.0 Additional Corrective Actions

The failed positioner air supply regulator was disassembled (i.e. cut apart) for evaluation. This evaluation did not identify any abnormalities which could have caused the regulator to fail.

A Root Cause Evaluation (RCE) was initiated to determine the cause of the pneumatic booster relay failure.

6.0 Actions to Prevent Recurrence

Results of the RCE will be used to initiate the appropriate corrective actions regarding the pneumatic booster relay.

7.0 Similar Events

North Anna has experienced automatic reactor trips due to MFRVs closing. However, the MFRV closures were due to driver card failures and/or instrument air line fatigue failure. There have been no similar events where the MFRV closed due to a pneumatic booster relay failure.

8.0 Additional Information

Unit 1 was operating at 100 percent power (mode 1) when the reactor trip occurred and was not affected by this event.

Failed component information for the "A" MFRV:

F/R Booster Relay
Manufacturer - Moore Products Company
MOD - 61H
B/M - 10342-/22NF