

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

October 6, 1994

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

NAPS: MPW  
Docket No. 50-338  
License No. NPF-4

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 1.

Report No. 50-338/94-005-00

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,



J. A. Stall  
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

JE02

## 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 HOURS. 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, DC 20503.

FACILITY NAME (1)

North Anna Power Station Unit 1

DOCKET NUMBER (2)

05000338

PAGE (3)

1 OF 4

TITLE (4)

ESF ACTUATION WHEN MAIN FEEDWATER PUMPS TRIPPED DUE TO STEAM GENERATOR HIGH HIGH LEVEL

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 NAME	DOCKET NUMBER	
09	09	94	94	005	00	10	06	94	FACILITY NAME	DOCKET NUMBER	
										05000	
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
1			20.402(b)			20.405(c)			X	50.73(a)(2)(iv)	73.71(B)
POWER LEVEL (10)			20.405(a)(1)(i)			50.36(c)(1)				50.73(a)(2)(v)	73.71(C)
8			20.405(a)(1)(ii)			50.36(c)(2)				50.73(a)(2)(vii)	OTHER
			20.405(a)(1)(iii)			50.73(a)(2)(i)				50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)
			20.405(a)(1)(iv)			50.73(a)(2)(i)				50.73(a)(2)(viii)(B)	
			20.405(a)(1)(v)			50.73(a)(2)(i)				50.73(a)(2)(x)	

## LICENSEE CONTACT FOR THIS LER (12)

NAME

Mr. J. A. Stall

TELEPHONE NUMBER (Include Area Code)

(703) 894-2101

## 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

## SUPPLEMENTAL REPORT EXPECTED (14)

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

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

On September 9, 1994, at 0020 hours with Unit 1 operating at 8 percent power (Mode 1), and being removed from service for a refueling outage, an Engineered Safety Feature (ESF) actuation occurred. A High High level in the "A" Steam Generator (S/G) resulted in isolation of the main feedwater (MFW) system. As a result, the auxiliary feedwater (AFW) pumps automatically started. A four hour report was made to the NRC at 0142 hours pursuant to 10 CFR 50.72 (b)(2)(ii). This event is reportable pursuant to 10CFR50.73 (a)(2)(iv) as an automatic actuation of ESF components.

The High High level in the "A" S/G was due to an unexpected turbine trip caused by a failed reheat pressure transmitter. Automatic actuation of the AFW pumps was due to the MFW system isolation.

No significant safety consequences resulted from this event because core cooling was maintained and 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)**

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FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
North Anna Power Station Unit 1		05000338		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4
				94	005	00	

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

**1.0 Description of the Event**

On September 8, 1994, at approximately 2100 hours, actions were initiated to ramp Unit 1 off line for a refueling outage. On September 9, 1994, at approximately 0017 hours with generator output at approximately 47 MWe, the main generator output breaker (G-12) (EISS System EL, Component BKR) was opened followed by opening of the generator field exciter breaker. Approximately ten seconds after the G-12 breaker was opened first stage turbine pressure spiked above its 15 percent power setpoint resulting in a turbine (EISS System TA, Component TRB) trip.

Turbine pressure spiking above 15 percent power was a result of a failed reheat pressure transmitter (EISS System SB, Component PT). The transmitter was found failed at 2.6 VDC which correlates to greater than 30 percent reheat pressure. At 30 percent reheat pressure, anticipatory actions occur to prevent turbine overspeed conditions. When the main generator breaker was opened the transmitter immediately sensed a false high reheat pressure reading. Subsequently, the load drop anticipator (LDA) circuit energized the overspeed protection circuits and closed the governor (EISS System SB, Component V) and intercept valves (EISS System SB, Component V). Approximately ten seconds after the time delay, for resetting the overspeed protection circuit was reached, the circuit functioned to open the intercept and governor valves. The influx of steam cause first stage turbine pressure to spike above the turbine trip setpoint.

When the turbine tripped Steam Generator (S/G) (EISS System AB, Component SG) levels began decreasing rapidly and the S/G's were manually fed on the Main Feedwater (MFW) Bypass valves (EISS System SJ, Component V). Primary temperature started to increase and the steam dump valves (EISS System SA, Component V) were not open. Control rods (EISS System AA, Component ROD) were inserted to maintain Reactor Coolant System (RCS) (EISS System AB) temperature. The steam header pressure was approximately 900 psig with the steam dump controller (EISS System SA, Component PMC) set at approximately 1005 psig, per design, to maintain T<sub>ave</sub> at 547 degrees Fahrenheit. The steam dump valves were placed in manual and opened. The S/G's started to swell and the MFW Bypass valves were closed. The S/G levels continued to increase until a 75 percent High High level trip was received on the "A" S/G at approximately 0020 hours. This was followed by a 75 percent High High level trip on the "C" S/G. The "A" S/G level trip caused the MFW pumps (EISS System SJ, Component P) to trip as designed. All MFW pump breakers opened initiating an automatic start of the Auxiliary FW pumps (EISS System BA, Component P). Levels in the S/G's were restored to within normal ranges and the "C" MFW pump was started. The AFW pumps were shutdown and placed in automatic.

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THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF  
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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
North Anna Power Station Unit 1	05000338	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 4
		94	005	00	

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

2.0 Significant Safety Consequences and Implications

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

A four hour report was made to the NRC at 0142 hours pursuant to 10 CFR 50.72 (b)(2)(ii). This event is reportable pursuant to 10CFR50.73 (a)(2)(iv) as an automatic actuation of an ESF component.

3.0 Cause of the Event

The High High level in the "A" S/G was due to an unexpected turbine trip caused by a failed reheat pressure transmitter. Automatic actuation of the AFW pumps was due to the MFW system isolation.

4.0 Immediate Corrective Actions

Steam generator levels were reduced and MFW pump 1C was started. Subsequently all three AFW pumps were shutdown and placed in automatic.

5.0 Additional Corrective Actions

The reheat pressure transmitter was repaired and calibrated satisfactorily and returned to service. Following the turbine trip the reactor was manually shutdown without incident.

6.0 Actions to Prevent Recurrence

Operations procedures were changed to provide a smooth transition when removing turbine from the line. The change will ensure the steam dumps are open and controlling primary temperature before the generator output breaker is opened. These changes will reduce the effect of an unexpected turbine trip.

Circumstances surrounding turbine trip and subsequent ESF will be included in the Licensed Operator Requalification Training Program.

7.0 Similar Events

None

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North Anna Power Station Unit 1	05000338	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 4
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## 8.0 Additional Information

The transmitter, 1-MS-PT-133, is calibrated on an eighteen month frequency.

Unit 2 was operating at 100 percent power (mode 1) when the ESF actuation occurred and was not affected by this event.