

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) DOCKET NUMBER (2) PAGE (3)
 North Anna Unit 1 0 5 0 0 0 3 3 8 1 OF 0 3

TITLE (4)
 Steam Generator Level Control Problem, Reactor Trips

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)
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THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)											

OPERATING MODE (9)	1	20.402(b)	20.406(e)	<input checked="" type="checkbox"/>	50.73(e)(2)(iv)	73.71(b)
		20.406(a)(1)(i)	50.38(e)(1)	<input type="checkbox"/>	50.73(e)(2)(v)	73.71(e)
		20.406(a)(1)(ii)	50.38(e)(2)	<input type="checkbox"/>	50.73(e)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 368A)
		20.406(a)(1)(iii)	50.73(e)(2)(i)	<input type="checkbox"/>	50.73(e)(2)(viii)(A)	
		20.406(a)(1)(iv)	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(e)(2)(viii)(B)	
	20.406(a)(1)(v)	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(e)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
E. Wayne Harrell	7 0 3 9 9 4 - 5 1 5 1

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	L 2 0 0	Y					
X	S J	I S V	C 6 3 5	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> YES (if yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

ABSTRACT

On September 28, 1984 at 1900 hours a rampdown of North Anna Unit 1 commenced from 30 percent power. The rampdown was initiated for the purpose of performing a Turbine Overspeed Trip Test and a Main Steam Trip Valve Stroke Test. At 2027 hours a Turbine Trip-Reactor Trip occurred. The turbine trip was initiated manually by the control room operator in anticipation of a Steam Generator 'B' Hi-Hi level turbine trip (Steam Generator Level > 75 percent). The Reactor Trip occurred from the turbine trip.

The overfeed condition leading up to and causing the Steam Generator 'B' high level condition was due to the incomplete closure of the main feed regulating valve, FCV-1488, and the incomplete closure of the main feed line motor operated block valve, MOV-FW-154B.

The reactor was returned critical at 0438 hours on September 29, 1984 and the generator was placed on line at 1532 hours on September 30, 1984. At 1616 hours on September 30, 1984 a reactor trip occurred from Steam Generator 'B' Lo-Lo Level (Steam Generator Level < 18 percent) due to control feedwater manipulation difficulties experienced at 20 percent power level.

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

On September 28, 1984 at 1900 hours a rampdown of North Anna Unit 1 commenced from 30 percent power. The rampdown was initiated for the purpose of performing a Turbine (EIIS Component Identifier TRB) Overspeed Trip Test and a Main Steam Trip Valve (EIIS Component Identifier ISV) Stroke Test. At 2027 hours a Turbine Trip-Reactor Trip occurred with nuclear power at 11 percent and generator megawatts at 74. The turbine trip was initiated manually by the control room operator in anticipation of a Steam Generator (EIIS Component Identifier SG) 'B' Hi-Hi level turbine trip (2 out of 3 steam generator level channels > 75 percent). The Reactor Trip occurred from the turbine trip above the P-7 permissive (Nuclear Power and Turbine Power < 10 percent).

Incomplete closure of the main feed regulating valve, (EIIS System Identifier SJ, Component FCV) FCV-1488, and the incomplete closure of the main feed line motor operated block valve, (EIIS Component Identifier ISV) MOV-FW-154B, allowed 'B' Steam Generator feed flow to exceed steam flow and caused the Steam Generator 'B' high level. When the main feed bypass valve, (EIIS Component Identifier FCV) FCV-1498, was closed from the control room manual/auto station a 600x10³ pounds per hour (1200 gpm) feed flow to 'B' steam generator still existed. The motor operated block valve MOV-FW-154B was closed in an attempt to isolate feed to 'B' steam generator. A slight decrease in flow was observed but an overfeed condition still existed. Operators were sent to manually isolate the 'B' main feed line by closure of the manual block valve, (EIIS Component Identifier ISV); however, the 'B' Steam Generator reached the 75 percent Turbine Trip setpoint while the operators were manually closing the block valve.

All plant parameter and equipment responded normally for a post trip condition with the exception of auxiliary feed flow indication to 'C' steam generator, FI-FW-100C (EIIS System Identifier SA Component IFI) and the reinstating of the source range nuclear instruments (EIIS System Identifier IG). The existence of auxiliary feed flow to 'C' steam generator was verified by high auxiliary feed pump amps and increasing generator level and the source range indicators were manually reinstated approximately 25 minutes following the trip.

Corrective actions taken subsequent to the trip were to replace a power supply (EIIS Component Identifier SX) card in the process racks for FI-FW-100C and adjust the compensation of the intermediate range flux detectors to allow automatic reenergization of the source ranges. The main feed regulation valve was tested for feed water isolation capability by deenergizing the feed water isolation air supply solenoid operated valves (EIIS Component Identifier PSV). The valve was observed to close an additional 1/2 inch from this test confirming the closure problem to be from the manual/auto control circuitry. The problem was found to be a one PSIG condition on the voltage to pressure converter (EIIS Component Identifier CNV) with zero manual/auto controller demand. Since the ability of FCV-1488 to close on a feedwater isolation signal is not affected by this control channel problem, isolation capabilities existed for events requiring a feedwater isolation. The limit switch on MOV-FW-154B was reset to assure positive closure.

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TEXT (If more space is required, use additional NRC Form 368A's) (17)

The reactor was returned critical at 0438 on September 29, 1984. The Main Steam Trip Valve Stroke Test and the Turbine Overspeed Trip Test were performed. 'A' Main Steam Trip Valve failed to meet timing requirements on 'A' train initiation and a SOV had to be overhauled to correct the closure timing problem. The generator was placed on line at 1532 hours on September 30, 1984. At 1616 hours on September 30, 1984 a reactor trip occurred from steam generator 'B' Lo-Lo level due to feedwater control manipulation difficulties commonly experienced at 20 percent power level. Manipulation difficulties at low power levels are caused by inaccuracies of steam flow and feed flow instrumentation at the low end of their scale. This defeats the ability of auto feed control and requires manual feed control with constant review of steam generator levels which make steam generator level control difficult. All parameters and equipment remained normal subsequent to the trip for a post trip condition, with the exception of Intermediate Range Detector N-35 which was undercompensated. The NI drawer compensation was subsequently corrected.

Vepco

VIRGINIA ELECTRIC AND POWER COMPANY

NORTH ANNA POWER STATION

P. O. BOX 402

MINERAL, VIRGINIA 23117

October 25, 1984

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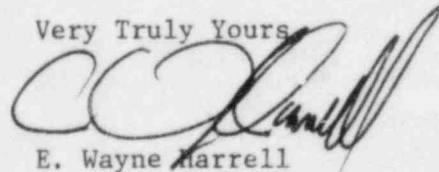
Dear Sirs:

The Virginia Electric and Power Company hereby submits the following License Event Report applicable to North Anna Unit No. 1.

Report No. LER 84-014

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: Mr. James P. O'Reilly, Regional Administrator
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