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VIRGINIA ELECTRIC AND POWER COMPANY

NORTH ANNA POWER STATION

P. O. BOX 402

MINERAL, VIRGINIA 23117

SEPTEMBER 5, 1989

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

Serial No. N-89-022
NO/DEQ: nih
Docket No. 50-339

License No. NPF-7

Dear Sirs:

The Virginia Electric and Power Company hereby submits the following
Licensee Event Report applicable to North Anna Unit 2.

Report No. LER 89-008-00

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,



G. E. Kane
Station Manager

Enclosure

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

Mr. J. L. Caldwell
NRC Senior Resident Inspector
North Anna Power Station

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) NORTH ANNA POWER STATION, UNIT 2										DOCKET NUMBER (2) 0 5 0 0 0 3 3 9					PAGE (3) 1 OF 0 5	
TITLE (4) INADVERTENT ESF ACTUATION DURING SSPS TESTING																
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 8	0 6	8 9	8 9	0 0 8	0 0 0	9	0 5	8 9					0 5 0 0 0			
OPERATING MODE (9) 1			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)													
POWER LEVEL (10) 11 01 0			20.402(b)				20.405(c)				<input checked="" type="checkbox"/> 50.73(a)(2)(iv)				73.71(b)	
			20.405(a)(1)(i)				50.36(c)(1)				<input type="checkbox"/> 50.73(a)(2)(iv)				73.71(c)	
			20.405(a)(1)(ii)				50.36(c)(2)				<input type="checkbox"/> 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)				<input type="checkbox"/> 50.73(a)(2)(viii)(A)					
			20.405(a)(1)(iv)				50.73(a)(2)(ii)				<input type="checkbox"/> 50.73(a)(2)(viii)(B)					
			20.405(a)(1)(v)				50.73(a)(2)(iii)				<input type="checkbox"/> 50.73(a)(2)(x)					
LICENSEE CONTACT FOR THIS LER (12)																
NAME G. E. Kane, Station Manger										TELEPHONE NUMBER 7 1 0 3 8 9 4 - 5 1 5 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		
SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED SUBMISSION DATE (15)				MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)										<input checked="" type="checkbox"/> NO						

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

At 1202 hours on August 6, 1989, with Unit 2 at 100 percent power (Mode 1), Engineered Safety Features valve 2-RS-MOV-201B was inadvertently closed during the initial on-line performance of 2-PT-36.5.3A, "Solid State Protection System Output Slave Relay Test (Train A)". This event is reportable pursuant to 10CFR50.73(a)(2)(iv) due to the inadvertent closure of Engineered Safety Features valve 2-RS-MOV-201B.

The inadvertent closure of 2-RS-MOV-201B resulted because an interlock for 2-RS-MOV-201B, energized by Train A slave relay K645, was not correctly identified during the development of 2-PT-36.5.3A. 2-RS-MOV-201B was opened following testing of slave relay K645. 2-PT-36.5.3A/B will be revised prior to the next scheduled on-line performance.

This event posed no significant safety implications because 2-RS-MOV-201B receives an "assure" open signal upon initiation of a containment depressurization signal and would have allowed casing cooling flow to 2-RS-P-2B. The health and safety of the general public were not affected at any time during this event.

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

1.0 Description of the Event

At 1202 hours on August 6, 1989, with Unit 2 at 100 percent power (Mode 1), a normally open casing cooling discharge motor operated valve, 2-RS-MOV-201B, (EHS System Identifier BE, Component Identifier V) was inadvertently closed during the initial on-line performance of 2-PT-36.5.3A, "Solid State Protection System Output Slave Relay Test (Train A)". This event is reportable pursuant to 10CFR50.73(a)(2)(iv) due to the inadvertent closure of Engineered Safety Features valve 2-RS-MOV-201B. A four hour report was made in accordance with 10CFR50.72(b)(2)(ii).

Technical Specification 3.6.2.2 allows one containment RS subsystem or casing cooling subsystem to be inoperable for 7 days or be in at least hot standby within the next six hours and then requires the inoperable subsystem to be restored within the next 48 hours or be in cold shutdown within the next 30 hours. A containment RS subsystem is composed of a spray pump, associated heat exchanger, and flow path. Two RS pumps are located outside containment and two RS pumps are located inside containment. During this event Inside Recirculation Spray (RS) pump 2-RS-P-1A was racked to the "Test" position.

The suction of the outside RS pumps receive casing cooling water, via casing cooling pumps, to increase the net positive suction head. A normally open and a normally closed motor operated valve are located on the discharge of each casing cooling pump. With inside RS pump 2-RS-P-1A racked to the "Test" position during the performance of 2-PT-36.5.3A, one containment RS subsystem was inoperable. As a result of discovering that 2-RS-MOV-201B had been closed while 2-RS-P-1A was racked to the "Test" position, it was believed that two subsystems were inoperable and Technical Specification 3.0.3 was entered.

2-PT-36.5.3A was being performed on-line for the first time to functionally test the Solid State Protection output slave relays using the Train A Safeguard Test Cabinets (STC). Slave relay K645 actuates outside RS pump 2-RS-P-1A and an auxiliary relay which energizes various 2-RS-MOV-201B interlock contacts. During the development of 2-PT-36.5.3A the elementary diagram for 2-RS-MOV-201B was reviewed. At the time of this review, the interlock for 2-RS-MOV-201B was misidentified as the interlock which blocked manual closure of 2-RS-MOV-201B. However, the same interlock causes numerous other relays to become energized and picks up a time delay relay that automatically closes 2-RS-MOV-201B if a low flow condition is simultaneously sensed on the recirculation flow line from casing cooling pump 2-RS-P-3B.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

1.0 Description of the Event Cont'd.

During the performance of 2-PT-36.5.3A the actuation of 2-RS-P-1A via slave relay K645 is blocked by circuitry in the STC. However, 2-RS-P-1A was placed in the "Test" position to prevent it from starting if the blocking circuitry failed, since this was the first on-line test ever conducted. Energizing the K645 auxiliary relay is not blocked during the performance of 2-PT-36.5.3A. Since casing cooling pump 2-RS-P-3B was not running at the time of the test, a low recirculation flow condition existed. Consequently, when the K645 auxiliary relay was energized the interlock logic was satisfied and 2-RS-MOV-201B closed. Subsequent to racking 2-RS-P-1A to connect, test personnel noticed that 2-RS-MOV-201B had closed. Slave relay K645 was retested with 2-RS-P-1A racked to connect since the previous test had verified that the blocking scheme worked. 2-RS-MOV-201B was subsequently opened.

Periodic Test 2-PT-36.5.3A did not state that 2-MOV-RS-201B would close because the interlock for 2-RS-MOV-201B was misidentified as the interlock which blocked manual closure of 2-RS-MOV-201B not the interlock which actuated numerous auxiliary relays that completed the logic to close 2-RS-MOV-201B when a simultaneous low flow condition existed. Verification of a similar test on Unit 1 during Mode 5 failed to detect this error because the corresponding Unit 1 RS valves were deenergized in the closed position, as required during Mode 5 operation. Periodic Tests 2-PT-36.5.3A and 2-PT-36.5.3B were satisfactorily completed on August 8, 1989.

2.0 Significant Safety Consequences and Implications

This event posed no significant safety implications because 2-RS-MOV-201B receives an "assure" open signal upon initiation of a containment depressurization signal and would have allowed casing cooling flow to 2-RS-P-2B.

The health and safety of the general public were not adversely affected at any time during this event.

3.0 Cause of the Event

The inadvertent closure of 2-RS-MOV-201B resulted because the interlock for 2-RS-MOV-201B, energized by Train A slave relay K645, was misidentified as the interlock which blocked manual closure of 2-RS-MOV-201B, not the interlock which actuated numerous auxiliary relays that completed the logic to close 2-RS-MOV-201B when a simultaneous low flow condition existed.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

4.0 Immediate Corrective Action

Upon discovering that 2-RS-MOV-201B had been closed while 2-RS-P-1A was racked to "Test", Technical Specification 3.0.3 was entered. A station deviation report was written to document the event. In addition, other relays were checked to verify additional ESF equipment had not inadvertently operated.

5.0 Additional Corrective Action

The following additional corrective actions were performed:

1. A procedure deviation was written to 2-PT-36.5.3A "Solid State Protection System Output Slave Relay Test (Train A)," and approved by the Station Nuclear Safety and Operating Committee prior to use to allow retesting Train A slave relay K645 with 2-RS-P-1A in connect after the blocking scheme was verified. The procedure deviation also added steps to verify the position of 2-RS-MOV-201B.
2. Retesting of Train A slave relay K645 was completed, and 2-RS-MOV-201B was subsequently opened.
3. 2-RS-MOV-201A was deenergized in the open position while testing Train B slave relay K645 with 2-RS-P-1B in the "Pull to Lock" position.
4. A procedure deviation was written to 2-PT-36.5.3B "Solid State Protection System Output Slave Relay Test (Train B)," and approved by the Station Nuclear Safety and Operating Committee prior to use to allow retesting Train B slave relay K645 with 2-RS-P-1B in connect after the blocking scheme was verified. The procedure deviation also added steps to verify the position of 2-RS-MOV-201A.

2-PT-36.5.3A and 2-PT-36.5.3B will be revised prior to the next scheduled on-line performance to include cycling 2-RS-MOV-201B and 2-RS-MOV-201A with 2-RS-P-1A and 2-RS-P-1B in connect, respectively. Corresponding Unit 1 procedures will be reviewed and revised as necessary prior to being performed during on-line operation.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

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

6.0 Actions to Prevent Recurrence

Additional actions are not necessary to prevent recurrence of similar events because the blocking scheme for both Train A and Train B slave relay K645 have been verified during the initial on-line testing. This will prevent having to place 2-RS-P-1A or 2-RS-P-1B in "Test" or "Pull to Lock" while 2-RS-MOV-201B or 2-RS-MOV-201A are tested, respectively.

7.0 Similar Events

On November 1, 1988 one recirculation spray subsystem and one casing cooling subsystem were simultaneously inoperable as reported in LER N1/2-88-025-00.

8.0 Additional Information

The test procedures were new and had not been performed previously on an operating unit. The corresponding Unit 1 procedures were performed during cold shutdown (Mode 5) to verify the procedure logic. The equivalent interlock for the Unit 1 RS motor operated valves was not identified during this performance because the valves were deenergized in the closed position, as required during Mode 5 operation.

On August 21, 1989, a one hour report per 10CFR50.72(b)(ii) was made to the NRC. At that time, it was believed that a design basis accident had to be applied to events where Technical Specification 3.0.3 is entered and therefore, we believed that we were in a condition that was outside the design basis of the plant. Since that time, the application of design basis accidents has been clarified and may not have to be applied to events where Technical Specification 3.0.3 is entered. Therefore, this event has been determined to no longer be reportable pursuant to 10CFR50.72(b)(ii) or 10CFR50.73(a)(2)(ii)(B).