

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

October 28, 1996

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

NAPS: MPW
Docket Nos. 50-338
50-339
License Nos. NPF-4
NPF-7

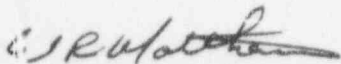
Dear Sirs:

Pursuant to North Anna Power Station Technical Specifications, Virginia Electric and Power Company hereby submits the following Licensee Event Report applicable to North Anna Units 1 & 2.

Report No. 50-338/96-006-00

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,



W. R. Matthews
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 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 Units 1 and 2

DOCKET NUMBER (2)

05000338

PAGE (3)

1 OF 3

TITLE (4)

CHARGING PUMP INTERLOCK LOGIC RENDER PUMPS INOPERABLE DUE TO A DESIGN ERROR

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
10	03	96	96	006	00	10	28	96	North Anna Unit 2	05000339
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)						
POWER LEVEL (10)	0	20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(B)
		20.405(a)(1)(i)		50.36(c)(1)	X	50.73(a)(2)(v)		73.71(C)
		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)(B)		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)(ii)		50.73(a)(2)(viii)(B)		
		20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Mr. W. R. Matthews	(540) 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 October 3, 1996, with Unit 2 in Mode 5 for a scheduled refueling outage, a lead was lifted in the "H" emergency bus DC control circuit resulting in the "C" charging pump tripping while running on the alternate power supply from the "J" emergency bus. At 2052 hours further investigation into this event revealed an anomaly which could result in having no operating charging pumps. As such, a four hour non-emergency event report was made to the NRC at 2217 hours pursuant to 10 CFR 50.72 (b)(2)(iii)(A & D). This event is reportable pursuant to 10CFR50.73 (a)(2)(v)(A & D) for a condition that alone could have prevented the fulfillment of the safety functions of structures or systems. The anomaly is applicable to both units. Unit 1 was operating in Mode 1 at 100 percent power.

The cause of the event has been determined to be an error in the original design of the charging pump interlock logic. The anomaly would occur upon a loss of the DC control power to one emergency bus if "C" charging pump was powered from the other bus.

This event posed no significant safety implications. Although the interlock logic would have tripped the "C" charging pump, the breaker for the charging pump supplied from the other emergency bus could be manually closed locally. Therefore, the health and safety of the public were not affected at any time during this event.

LICENSEE EVENT REPORT (LER)

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

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
North Anna Power Station Units 1 & 2	05000338	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3
		96	006	00	

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

1.0 Description of the Event

On October 3, 1996, with Unit 2 in Mode 5 for a scheduled refueling outage, a lead was lifted in the "H" emergency bus DC control (EIS System-EF) circuit resulting in the "C" charging pump (EIS System-BQ, Component-P) tripping while running on the alternate power supply from the "J" emergency bus. During the investigation of the "C" charging pump trip event an anomaly was identified in the charging pump interlock circuit logic regarding single failure criteria. The loss of DC control power de-energized the 3B auxiliary relay (EIS System-EF, Component-RLY) which provides a trip to prevent cross tying the emergency buses (EIS SYSTEM-EB, Component-BU) by closing both circuit breakers for "C" charging pump at the same time. This control action is correct for the current interlock design. However, further evaluation of this control action revealed that charging pump "A" would not start because of the loss of DC control power on the "H" emergency bus. If charging pump "B" was not available, due to maintenance during normal plant operations, this would result in no running charging pumps.

When the "C" charging pump is running and its associated bus pump (i.e., "A" if "C" is running on the "H" emergency bus or "B" if "C" is running on the "J" emergency bus) is out of service, a Technical Specification action would not be required. Therefore, the plant must be able to withstand a single failure. If the single failure is a loss of a DC bus, no charging pump would be running because the interlock logic would result in the "C" charging pump tripping on a loss of the opposite bus DC control power.

This anomaly is applicable to both units. At the time of discovery Unit 1 was operating in Mode 1 at 100 percent power.

2.0 Significant Safety Consequences and Implications

This event posed no significant safety implications. This event posed no significant safety implications. Although the interlock logic would have tripped the "C" charging pump, the breaker for the charging pump supplied from the other emergency bus could be manually closed locally. Therefore, the health and safety of the public were not affected at any time during this event.

A four hour non-emergency event report was made to the NRC at 2217 hours pursuant to 10 CFR 50.72 (b)(2)(iii)(A & D). The event is reportable pursuant to 10CFR50.73 (a)(2)(v)(A & D) for a condition that alone could have prevented the fulfillment of the safety functions of structures or systems that are needed to: shutdown the reactor and maintain it in a safe shutdown condition; or mitigate the consequences of an accident.

LICENSEE EVENT REPORT (LER)

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
North Anna Power Station Units 1 & 2	05000338	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 3
		96	006	00	

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

3.0 Cause of the Event

The cause of the event has been determined to be an error in the original design of the charging pump interlock logic. The anomaly would occur upon a loss of the DC control power to one emergency bus if "C" charging pump was powered from the other emergency bus.

4.0 Immediate Corrective Actions

An "information only" action statement was entered on both units to prevent a susceptible pump line-up (i.e. the "C" charging pumps were considered inoperable).

5.0 Additional Corrective Actions

A design change has been implemented to provide the charging pump interlock with a de-energized relay. This meets the single failure criteria in that only one relay is needed to prevent cross tying the emergency buses. There will still be two 3B relays in separate trains with separate DC control power. A de-energized relay will also eliminate the failure to meet single failure criteria upon loss of DC control power on an emergency bus. The 3B relay will no longer trip the "C" charging pump if running on the opposite bus and DC control power is lost.

6.0 Actions to Prevent Recurrence

None

7.0 Similar Events

None

8.0 Additional Information

None