

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

CONTROL BLOCK / / / / / / (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

/0/1/ /V/A/N/A/S/1/ (2) /0/0/-/0/0/0/0/0/-/0/0/ (3) /4/1/1/1/1/ (4) / / / (5)
LICENSEE CODE LICENSE NUMBER LICENSE TYPE CAT

/0/1/ REPORT /L/ (6) /0/5/0/0/0/3/3/8/ (7) /0/8/0/8/8/3/ (8) /1/0/0/5/8/3/ (9)
SOURCE DOCKET NUMBER EVENT DATE REPORT DATE

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

/0/2/ / On September 8, 1983, with Unit 1 in Mode 1, an incorrect alignment of the Charg-/
/0/3/ / ing/High Head Safety Injection (HHSI) pump breakers and control switches was /
/0/4/ / discovered. Neither of two available charging/HHSI pumps aligned to the "1H" /
/0/5/ / emergency bus would have automatically started during or after a "1H" emergency /
/0/6/ / bus undervoltage event. This event is reportable pursuant to T.S. 6.9.1.9.c. /
/0/7/ / The "1J" bus pump was operable and was not affected. The public health and /
/0/8/ / safety were not affected. /

SYSTEM CAUSE CAUSE COMP. VALVE
CODE CODE SUBCODE COMPONENT CODE SUBCODE SUBCODE

/0/9/ /S/F/ (11) /D/ (12) /Z/ (13) /C/K/T/B/R/K/ (14) /E/ (15) /Z/ (16)
LER/RO EVENT YEAR SEQUENTIAL OCCURRENCE REPORT REVISION
REPORT NO. TYPE NO.

(17) NUMBER /8/3/ /-/ /0/5/8/ / / /0/3/ /L/ /-/ /0/

ACTION FUTURE EFFECT SHUTDOWN ATTACHMENT NPRD-4 PRIME COMP. COMPONENT
TAKEN ACTION ON PLANT METHOD HOURS SUBMITTED FORM SUB. SUPPLIER MANUFACTURER

/X/ (18) /G/ (19) /Z/ (20) /Z/ (21) /0/0/0/0/ (22) /Y/ (23) /N/ (24) /N/ (25) /G/0/8/0/ (26)

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

/1/0/ / The root cause of the event was inadequate procedural guidance. Correct align- /
/1/1/ / ment was restored immediately. Procedures will be revised to prevent recurrence. /
/1/2/ / / /
/1/3/ / / /
/1/4/ / / /

FACILITY METHOD OF
STATUS %POWER OTHER STATUS DISCOVERY DISCOVERY DESCRIPTION (32)
/1/5/ /E/ (28) /1/0/0/ (29) / NA / (30) /B/ (31) / STA Review /

ACTIVITY CONTENT
RELEASED OF RELEASE AMOUNT OF ACTIVITY (35) LOCATION OF RELEASE (36)
/1/6/ /Z/ (33) /Z/ (34) / NA / / NA /

PERSONNEL EXPOSURES
NUMBER TYPE DESCRIPTION (39)
/1/7/ /0/0/0/ (37) /Z/ (38) / NA /

PERSONNEL INJURIES
NUMBER DESCRIPTION (41)
/1/8/ /0/0/0/ (40) / NA /

LOSS OF OR DAMAGE TO FACILITY (43)
TYPE DESCRIPTION
/1/9/ /Z/ (42) / NA /

PUBLICITY
ISSUED DESCRIPTION (45) NRC USE ONLY
/2/0/ /N/ (44) / NA / / / / / / / / / / / / / /

NAME OF PREPARER E. Wayne Harrell

PHONE (703) 894-5151

8310140161 831005
PDR ADOCK 05000338
S PDR

Description of Event

On September 8, 1983, with Unit 1 at 100 percent of rated power, during a routine review of plant status, the Shift Technical Advisor discovered an incorrect alignment of the Charging/High Head Safety Injection (HHSI) pump breakers and control switches. If a "1J" bus undervoltage condition had occurred coincident with an ECCS actuation signal, neither of the two charging/HHSI pumps aligned to the "1H" bus (A train ECCS) would have started automatically. This event is reportable pursuant to T.S. 6.9.1.9.c.

Probable Consequences of Occurrence

Charging/HHSI pump 1-CH-P-1B powered from the "1J" bus was operable and not affected by the event. Charging/HHSI pump 1-CH-P-1A powered from the "1H" bus would have failed to start automatically in response to an ECCS signal only if an undervoltage signal was received coincident with or prior to the ECCS actuation signal. Either charging pump 1-CH-P-1A or 1-CH-P-1C could have been started during a "1H" bus undervoltage event by realigning their control switches and/or supply breakers. Proper breaker alignment was restored immediately. The public health and safety were not affected.

Cause of Event

North Anna Unit 1 has three full size charging/HHSI pumps: 1-CH-P-1A, 1-CH-P-1B and 1-CH-P-1C. 1-CH-P-1A is powered from the "1H" emergency bus, 1-CH-P-1B is powered from the "1J" emergency bus, and 1-CH-P-1C can be powered from either the "1J" or "1H" emergency bus. A complex breaker interlock system is installed in the breaker control circuitry to accomplish the following objectives:

- 1) Prevent more than two charging/HHSI pumps from running simultaneously. Three pump operation could cause run-out of the low head safety injection pumps during the recirculation mode of operation.
- 2) Prevent loading of two charging/HHSI pumps on the same emergency bus during or following an emergency bus undervoltage condition.

On initiation of an ECCS signal all three charging/HHSI pumps receive a start signal. With 1-CH-P-1C aligned to the "1H" emergency bus (normal alignment), 1-CH-P-1A will trip automatically if 1-CH-P-1B and 1-CH-P-1C start. Pump 1-CH-P-1A will not start if pumps 1-CH-P-1B and 1-CH-P-1C are running.

During a "1J" emergency bus undervoltage, 1-CH-P-1B will ride the bus. If 1-CH-P-1C is aligned to the "1J" emergency bus, it will ride the bus during an undervoltage event. The "1J" breakers are interlocked to immediately lock out both the 1-CH-P-1C and 1-CH-P-1B pumps if both breakers are racked in simultaneously. This prevents two charging/HHSI pumps from loading on the "1J" bus.

During a "1H" emergency bus undervoltage, 1-CH-P-1C will ride the bus, 1-CH-P-1A will lock out immediately on the receipt of an "1H" emergency bus undervoltage signal if the "1H" emergency bus breaker for 1-CH-P-1C is racked in. If the "1H" emergency bus breaker for 1-CH-P-1C is racked out, 1-CH-P-1A will ride the "1H" emergency bus during a undervoltage condition.

On August 31, 1983, during piping modifications to the Service Water System, the cooling water supply to 1-CH-P-1C was isolated. The control switch for 1-CH-P-1C was placed in the pull-to-lock position. Placing the control switch in the pull-to-lock position prevented 1-CH-P-1C from starting in response to an ECCS actuation signal and insured that 1-CH-P-1A would start and operate in response to an ECCS signal.

Operators were not aware that the 1-CH-P-1A undervoltage lock out interlock came from the 1-CH-P-1C "1H" emergency bus breaker cell switch rather than the breaker auxiliary switch. The cell switch is made up anytime the 1-CH-P-1C "1H" emergency bus breaker is racked in. With 1-CH-P-1C in pull to lock and its "1H" emergency bus breaker racked in, 1-CH-P-1A would have immediately locked out during a "1H" bus undervoltage event. Neither 1-CH-P-1A or 1-CH-P-1C would have automatically loaded on to the "1H" emergency bus during a "1H" emergency bus undervoltage/ECCS actuation event.

Between August 31, 1983 and September 8, 1983 the control switch for 1-CH-P-1C remained in the pull-to-lock position except during a scheduled periodic surveillance test performed on 1-CH-P-1C on September 7, 1983. The "1H" emergency bus breaker remained racked in except during a preventative maintenance motor test on September 7, 1983. During most of the August 31, 1983 to September 8, 1983 period one of two redundant service water cooling lines to 1-CH-P-1C was operable. The control switch for 1-CH-P-1C was left in the pull-to-lock position to insure that 1-CH-P-1A, which had two operable redundant service water cooling lines, responded to any automatic start signals. The breaker for 1-CH-P-1C was left racked in to insure manual backup to 1-CH-P-1A was available. Operators were not aware that a "1H" emergency bus undervoltage event would have caused 1-CH-P-1A to lock out and defeat the automatic starting of 1-CH-P-1A.

The root cause of the event is inadequate procedural guidance in that the operating procedure, 1-OP-8.1, did not adequately address acceptable switch alignments for the charging pumps.

Immediate Corrective Action

The "1H" emergency bus breaker for 1-CH-P-1C was racked out on September 8, 1983. On September 9, 1983 the 1-CH-P-1C "1H" emergency breaker was racked in and its switch placed in the automatic position. A note was placed in the operations night order book specifying proper alignment of 1-CH-P-1C.

Scheduled Corrective Action

The operating procedures for the charging pumps will be revised for both units to include additional instructions for proper switch and breaker alignment.

Action Taken To Prevent Recurrence

The scheduled corrective actions should prevent recurrence.

Generic Implications

This event has no generic implications.

Vepco

VIRGINIA ELECTRIC AND POWER COMPANY
83 OCT 11 PT: 36
NORTH ANNA POWER STATION
P. O. BOX 402
MINERAL, VIRGINIA 23117

October 5, 1983

Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 2900
Atlanta, Georgia 30303

Serial No. N-83-138
NO/RCS: 11
Docket No. 50-338
License No. NPF-4

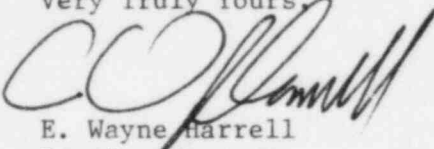
Dear Mr. O'Reilly:

Pursuant to North Anna Power Station Technical Specifications, the Virginia Electric and Power Company hereby submits the following License Event Report applicable to North Anna Unit No. 1.

Report No.	Applicable Technical Specifications
LER 83-058/03L-0	T.S. 6.9.1.9.c

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: Document Control Desk (1 copy)
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U.S. Nuclear Regulatory Commission
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