

LICENSEE EVENT REPORT (LER)

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

TITLE (4) **Improperly Electrical Sealing of Solenoid Valves**

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 2	0 2	8 4	8 4	0 0 5	0 0	0 5	0 5	8 4	North Anna Unit 2	0 5 0 0 0 3 3 9		
										0 5 0 0 0		

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

OPERATING MODE (9)	20.402(b)	20.406(e)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)	20.406(a)(1)(i)	50.38(c)(1)	50.73(a)(2)(v)	73.71(c)
	20.406(a)(1)(ii)	50.38(c)(2)	50.73(a)(2)(vii)	<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.406(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
	20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
	20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
E. Wayne Harrell	AREA CODE: 7 0 3, NUMBER: 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 NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
B	B, B	2 0	V 0 3 0	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

On February 2, 1984, a QC inspector discovered that a conduit seal, required by Valcor to maintain IEEE-323 qualifications of their Valcor Series 526 solenoid valves, had not been installed properly in at least one containment isolation valve. Unit 1 was in Mode 5 and Unit 2 was at 100 percent power when the discovery was made. An initial investigation made in February 1984 revealed that 22 Valcor valves on each unit (total of 44 valves) had been installed under four design changes in 1981 and 1982. A subsequent investigation conducted in May 1984 revealed that the design changes also specified the same conduit sealing method for 16 ASCO solenoid valve controllers. All of the valves are associated with either the Hydrogen Control System or the Post Accident Sampling System. All except 4 valves serve as containment isolation valves. All 60 valves (44 Valcor and 16 ASCO solenoid valves) have been inspected and resealed as required. All valves are of the fail closed type; therefore, the reliability of containment isolation system was not affected. The reliability of both the Post Accident Sampling System and Hydrogen Control System may have been reduced by this event. Six Valcor valve failures have been attributed to moisture intrusion. This event is being reported at the request of Region II.

8406110181 840505  
PDR ADOCK 05000338  
S PDR

IE 22  
1/1

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  North Anna Unit 1	DOCKET NUMBER (2)  0 5   0   0   0   3   3   8   8   4	LER NUMBER (8)			PAGE (3)  OF 0   3
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
		- 0   0   5	- 0   0   0   2		

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

On February 2, 1984, after observing maintenance on a containment isolation solenoid valve (EIIS component identifier 20) which had failed from water intrusion, a Quality Control Inspector reviewed the vendors maintenance manual and discovered that a conduit (EIIS component identifier CND) seal required by the vendor to maintain IEEE-323 qualifications was not installed. Subsequent examination of similar containment isolation valves (Valcor Solenoid Valves) revealed other improperly sealed valves on both Unit 1 and 2. Unit 1 was in Cold Shutdown (Mode 5) and Unit 2 was operating at 100 percent power when the discovery was made. This event is being reported at the request of NRC Region II pursuant to NUREG-1022 Supplement, Answer 14.5. This request was made verbally to VEPCO on May 7, 1984 by the NRC resident inspector.

An effort to inspect and seal all valves was begun immediately. By February 6, 1984, 38 Valcor valves had been inspected and sealed. A review of maintenance on Valcor valves on February 25, 1984, revealed that six Valcor valves had not been inspected. By April 7, 1984 all except one Unit 1 inside containment Valcor isolation valve had been inspected and resealed as required. This valve was inspected and resealed on May 25, 1984.

A total of 44 Valcor valves were involved in this event. All except four of the Valcor valves are containment isolation valves. All of the valves are part of either the Hydrogen Control System or the Post Accident Sampling System. All the valves had been installed under four separate design changes in 1981 and 1982. A review of equipment histories indicates that six Valcor valve failures can be attributed to moisture intrusion.

During the course of report preparation the installation of 16 air operated Copes-Vulcan valves (EIIS component identifier ISV) installed by the same design changes that installed the Valcor valves was reviewed. The design changes specified the same sealing method for the ASCO solenoid valve (EIIS component identifier 20) controllers which operate the Copes-Vulcan valves. Unit 1 was in cold shutdown (Mode 5) and Unit 2 was at 100 percent power when this discovery was made. The conduit seals on the ASCO valves have been inspected and resealed as required. All 16 valves are Hydrogen Control System containment isolation valves.

The ASCO control solenoids supply air to allow opening of the Copes-Vulcan valves which close on loss of air. The ASCO control solenoids fail to the vent position upon loss of power. Therefore, the Copes-Vulcan isolation valves fail closed on loss of power. The Valcor valves are hermetically sealed valves with an external solenoid which is magnetically coupled to the valve stem. The internal valve stem is spring loaded to close; therefore, the valve fails closed on a loss of power. The containment isolation function was not affected by improperly installed seals because the affected valves fail closed. The reliability of sampling and hydrogen control systems may have been reduced by the improperly installed seals. Had conduit or junction box (EIIS component identifier JBX) seals failed, water intrusion could have rendered the valves inoperable in the closed position.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  Unit Anna Unit 1	DOCKET NUMBER (2)  0 5 0 0 0 3 3 8 8 4 - 0 0 5 - 0 0 0 3 OF 0 3	LER NUMBER (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

TEXT (If more space is required, use additional NRC Form 368A's) (1..)

An investigation by the Site Quality Control Group revealed that all the affected valves were installed in 1981 and 1982 by design changes DC-80-S32A, DC-80-S32B, DC-80-S31A, and DC-80-S31B. The design changes had a specific step requiring sealing of the valve conduit connection and QC Hold Points for verification. The Design Change procedures were reviewed and found to be sufficiently detailed for proper installation. Of approximately nine QC inspectors who witnessed the sealing work, only two are still working for the Site Quality Control Group. Both inspectors were working together, one as a level II inspector and the other as a trainee, when the design changes were being implemented. Both inspectors stated, that to the best of the recollection, seals they inspected had been installed correctly. QC procedures were reviewed for any inadequacies. Existing QC practices at the time the design changes were being implemented were adequate to prevent the event.

Although the event was a result of personnel errors, the method of sealing the connections required use of sealant material at several locations which increased the probability of human error. Other methods of sealing are being evaluated.



VIRGINIA ELECTRIC AND POWER COMPANY

NORTH ANNA POWER STATION

P. O. BOX 402

MINERAL, VIRGINIA 23117

June 5, 1984

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

Serial No. N-84-010  
NO/RCS: 11  
Docket No. 50-338  
50-339

License No. NPF-4  
NPF-7

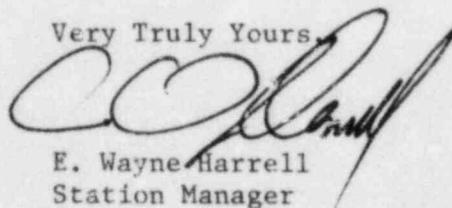
Dear Sirs:

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 and Unit No. 2.

Report No. LER 84-005-00

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,



E. Wayne Harrell  
Station Manager

Enclosures (3 copies)

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

IE22  
11