10 CFR 50.73

Vepco

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION
P. O. BOX 402
MINERAL, VIRGINIA 23117

January 11, 1990

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

Serial No. N-89-025
NAPS/DEQ:deq
Docket No. 50-338

License No. NPF-4

Dear Sirs:

The Virginia Electric and Power Company hereby submits the following Licensee Event Report applicable to North Anna Unit 1.

Report No. LER 89-018-00

This Report has been reviewed by the Station Nuclear 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

IE22

NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
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TITLE (4)

UNCERTAINTY ASSOCIATED WITH HARSH ENVIRONMENT BELOW ESF TRANSMITTER RANGE

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)
1 2	1 9	8 9	8 9	0 1 8	0 0	0 1	1 9	9 0	NORTH ANNA, UNIT 2	0 5 0 0 0 3 3 9
										0 5 0 0 0

OPERATING MODE (9)	5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	X 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)	50.73(a)(2)(viii)(A)	
		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
	AREA CODE
C. E. Kane, Station Manager	7 0 3 8 9 4 - 2 1 1 0 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	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

At 1430 hours on December 19, 1989, with Unit 1 in cold shutdown (Mode 5) and Unit 2 at 100 percent power, engineering personnel determined that the three Pressurizer (Pzr) Pressure - Safety Injection (SI) instrumentation channels may not have adequate margin between the SI actuation setpoint and the bottom of the instrument span to accomodate the errors associated with a harsh containment environment. As a result, the Pzr low pressure SI actuation may not occur because of the potential for the transmitter to saturate below its calibration span. Since all three channels could be affected if a harsh containment condition exists, this event is reportable pursuant to 10CFR50.73(a)(2)(vii).

Failure to accomodate the errors associated with a harsh containment environment following a small steam line break (SLB) inside containment is a result of assuming a more conservative approach with respect to the environmental qualification assumptions for the transmitters. An engineering evaluation was performed to verify acceptable performance with the existing conditions. License Amendments will be requested to incorporate the respective analyses which justifies elimination of the low pressure SI for small SLBs into the licensing bases.

This event posed minimal safety implications because the existing SBLOCA and the existing small SLB inside containment evaluations remained valid. 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 1430 hours on December 19, 1989, with Unit 1 in cold shutdown (Mode 5) and Unit 2 at 100 percent power, engineering personnel determined that the three Pressurizer (Pzr) Pressure - Safety Injection (SI) (EIIS System Identifier BQ) instrumentation channels (EIIS System Identifier JE, Component Identifier CHA) may not have adequate margin between the SI actuation setpoint and the bottom of the instrument span to accomodate the errors associated with a harsh containment environment. As a result, the Pzr low pressure SI actuation may not occur because of the potential for the transmitter to saturate below its calibration span. Since all three channels could be affected if a harsh containment condition exists, this event is reportable pursuant to 10CFR50.73(a)(2)(v).

The calibration span of the Pzr pressure SI instrumentation is between 1700 and 2500 psig. The calibration procedure for the three Pzr low pressure SI instrument channels specifies a setting of 1765 psig. This is consistent with the Technical Specifications which set forth a value of greater than or equal to 1765 psig with an allowable of greater than or equal to 1755 psig. The instrument loop uncertainty is 157.7 psig (based on the limiting containment environmental conditions expected prior to SI actuation following a steam line break inside containment equivalent to the UFSAR credible steam line break). The uncertainty of 157.7 psig subtracted from the 1765 psig setpoint of the instrument channels falls below the instrument span of 1700 psig. Consequently, an SI may not be initiated, if a harsh containment condition exists.

Additionally, the minimum SI actuation setting of 1755 psig specified by the Technical Specifications minus the uncertainty of 157.7 psig is equal to a value of 1597.3 psig. The safety analysis limit for the low Pzr pressure SI is 1595 psig. Since 1597.3 psig is above the safety analysis limit, full compliance with the Technical Specifications has been achieved and the safety analysis has been verified to adequately reflect the instrument uncertainties. However, as discussed above, the current calibration span for the transmitters may not be wide enough to accomodate these uncertainties.

2.0 Significant Safety Consequences and Implications

The small break Loss of Coolant Accident (SBLOCA) and the small steam line break (SLB) are the only two accident analyses in the current licensing basis which rely on the low Pzr pressure SI and for which a harsh containment environment would exist.

*U.S. GPO: 1988-520-589/QC070

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

2.0 Significant Safety Consequences and Implications Cont'd.

This event posed minimal safety implications because results of a safety evaluation for the Pzr low pressure SI channels has determined the following:

1. For the SBLOCA, it has been concluded that a SI is initiated before the containment environment becomes harsh, and therefore, the existing SBLOCA evaluation remains valid.

2. For the small SLB inside containment, it was determined that a SI would be initiated by a high containment pressure at or before the assumed SI from pressurizer low pressure. Additionally, even if no SI were to occur for any size SLB up to the equivalent of the credible SLB, the existing small SLB inside containment evaluation remains valid.

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

3.0 Cause of the Event

Failure to accomodate the errors associated with a harsh containment environment is a result of assuming a more conservative approach for the environmental qualification assumptions of the transmitters, than was used to establish the setpoint and calibration span.

4.0 Immediate Corrective Action

As an immediate corrective action, an engineering evaluation was performed to verify acceptable performance with the existing conditions.

5.0 Additional Corrective Action

License Amendments will be requested to incorporate the respective analyses which justifies elimination of the low pressure SI for small SLBs into the licensing bases. Appropriate changes will be made to the UFSAR as part of the License amendments.

Additionally, the other Engineered Safety Features (ESF) and Reactor Protection System (RPS) instrumentation setpoints stated in the Technical Specifications will be verified to assure that uncertainties have been adequately accounted for. This includes uncertainties associated with a harsh environment.

6.0 Actions to Prevent Recurrence

To prevent recurrence of similar events, the safety analysis limits for the ESF and RPS instrumentation stated in the Technical Specifications were verified to be within the range of the instrumentation.

7.0 Similar Events

Previous events involving environmental qualification issues have occurred at North Anna Unit 1 on August 19, 1987 (LER N1/87-018-00) and September 11, 1987 (LER N1/87-021-00 and its supplement).

8.0 Additional Information

It has been recognized that the potential elimination of the low pressure SI for small SLBs inside containment represents a change to the facility. Evaluation of this change in accordance with 10 CFR 50.59 has determined that an unreviewed safety question exists. However, the safety consequences are minimal, as described in section 2.0, and continued operation is justified. License Amendments will be requested to incorporate the respective analyses which justifies elimination of the low pressure SI for small SLBs into the licensing bases. Appropriate changes will be made to the UFSAR as part of the License Amendments.