



VIRGINIA ELECTRIC AND POWER COMPANY

NORTH ANNA POWER STATION

P. O. BOX 402

MINERAL, VIRGINIA 23117

10 CFR 50.73

April 8, 1993

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

NAPS:CSW
Docket Nos. 50-338
License Nos. 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. 50-338/93-009-00

This Report has been reviewed by the Station Nuclear Safety and Operating Committee and will be forwarded to the Corporate Management Safety Review Committee for its 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. M. S. Lesser
NRC Senior Resident Inspector
North Anna Power Station

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LICENSEE EVENT REPORT (LER)

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)
North Anna Power Station Unit 1

DOCKET NUMBER (2)
050003381

PAGE (3)
1 OF 03

TITLE (4) COLD LEG SAFETY INJECTION LINE FLOW BELOW TECHNICAL SPECIFICATION REQUIREMENTS DUE TO OVERLY RESTRICTIVE ACCEPTANCE CRITERIA

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	3	2	0	9	3	0	0	9	0	0	0	4	0	8	9	3	0	5	0	0	0	0	1	1

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)											
POWER LEVEL (10) 000	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)								
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)								
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	<input type="checkbox"/> OTHER (Specify in Abstract below and in Part III of Form 366A)								
	<input checked="" type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(vii)									
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)									
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)										

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
G. E. Kane, Station Manager	AREA CODE: 703, NUMBER: 894-2101

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	CAUSE	SYSTEM

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 March 20, 1993, with Unit 1 in Mode 6 (Refueling), while performing the High Head Safety Injection (HHSI) flow balance test, it was determined that the "as-found" cold leg branch line flows were below the Technical Specification (TS) requirements. Technical Specification 4.5.2.h.1.a requires that the sum of the two lowest branch line flows, to be at least 384 gpm. Using the single most limiting HHSI pump, the sum of the two lowest existing branch flows was 381 gpm. This event is a condition prohibited by the plant Technical Specifications and is reportable pursuant to 10CFR50.73(a)(2)(i)(B).

The cause of this event is a TS allowable flow rate that is too narrow to be consistently met with instrumentation uncertainties associated with the ultrasonic flow measurement that must be used during surveillance testing. The TS value of 384 gpm is conservative with respect to existing safety analysis values.

When the flows were discovered to be less than the TS required values, the Safety Injection cold leg throttle valves were adjusted such that the "as-left" two lowest flow branch lines equaled 396 gpm.

No significant safety consequences resulted from this event because the safety analysis requires a minimum flow rate of 359 gpm. Thus, Peak Clad Temperature would have remained well within the 2200°F limit of 10CFR50.46 during the postulated limiting small break loss of coolant accident. Therefore, the health and safety of the public was not affected at any time during this event.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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)

LER NUMBER (6)

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North Anna Power Station Unit 1

YEAR

SEQUENTIAL
NUMBERREVISION
NUMBER

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

1.0 Description of the Event

On March 20, 1993, with Unit 1 in Mode 6 (Refueling), while performing the High Head Safety Injection (HHSI) (EHS System Identifier BQ) flow balance test, it was determined that the "as-found" cold leg branch line flows were insufficient to meet Technical Specification (TS) requirements. Technical Specification 4.5.2.h.1.a requires that the sum of the two lowest branch line flows, to be at least 384 gpm. Using the single most limiting HHSI pump (Component Identifier P), the sum of the two lowest existing branch (Cold Leg Branches 'A' and 'C') flows was 381 gpm. This event is a condition prohibited by the plant Technical Specifications and is reportable pursuant to 10CFR50.73(a)(2)(i)(B).

When the "as-found" flows were discovered, the cold leg Safety Injection (SI) throttle valves were adjusted such that the "as-left" two lowest flow branch lines equaled 396 gpm.

2.0 Significant Safety Consequences and Implications

No significant safety consequences resulted from this event because the safety analysis requires a minimum flow rate of 359 gpm. Thus, Peak Clad Temperature would have remained well within the 2200°F limit of 10CFR50.46 during the postulated limiting small break loss of coolant accident. Therefore, the health and safety of the public was not affected at any time during this event.

In addition, a proposed Technical Specification Amendment was submitted to the NRC on March 10, 1993. The purpose of this proposed change is to account for SI flow testing uncertainties, while ensuring the required flow remained within the bounds of the limiting small break LOCA safety analysis. This proposed change amends the minimum required sum of the two lowest existing branch flows to be at least 359 gpm. The "as-found" results of the HHSI flow balance test (381 gpm) complies with the safety analysis and requirements of this proposed amendment.

3.0 Cause of the Event

The cause of this event is a TS allowable flow rate that is too narrow to be consistently met with instrumentation uncertainties associated with the ultrasonic flow measurement and other test variables. The TS value of 384 gpm is conservative with respect to existing safety analysis values.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1)

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

4.0 Immediate Corrective Actions

The SI cold leg throttle valves were adjusted such that the "as-left" two lowest flow branch lines equaled 396 gpm complying with the minimum flow required by the Technical Specifications.

5.0 Additional Corrective Actions

None.

6.0 Actions to Prevent Recurrence

A proposed Technical Specification Amendment to North Anna Unit 1 and 2 facility operating license (Serial No. 93-082, dated March 10, 1993) was submitted to specifically address the unnecessarily restrictive flow balance tolerances imposed by the current Technical Specifications.

7.0 Similar Events

LER 50-339/90-008-00 for Unit 2 documents the sum of the branch flows, excluding the highest branch flow, being less than the TS minimum requirement on October 20, 1990. The cause of the event was attributed to mispositioning of the SI branch flow throttle valves.

LER 50-339/92-010-00 for Unit 2 documents the sum of the branch flows, excluding the highest branch flow, being less than the TS minimum requirement on October 20, 1990. The cause of the event was attributed to repositioning of the valves using stem height measurement and instrument measurement uncertainties. The proposed Technical Specification Amendment on High Head Safety Injection flow balance measurements was written as a result of this LER.

8.0 Additional Information

North Anna Unit 2 was in mode 1 (100% power) throughout this event and was not affected.