

Virginia Electric and Power Company

North Anna Power Station

P. O. Box 402

Mineral, Virginia 23117

April 10, 1997

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

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

Dear Sirs:

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

Report No. 50-339/97-001-00

This Report has been reviewed by the Station Nuclear Safety Operating Committee and will be forwarded to the Management Safety Review Committee for its review.

Very truly yours,



W. R. Matthews
Station Manager

Enclosure:

Commitments contained in this report: None.

cc: U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

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 MANDATORY INFORMATION COLLECTION REQUEST 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (1-8-#33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) North Anna Power Station, Unit 2										DOCKET NUMBER (2) 05000339		PAGE (3) 1 OF 4		
TITLE (4) Reactor Vessel Level Dynamic Range Indication Inoperable on "A" Train Due to Procedural 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		DOCUMENT NUMBER			
03	14	97	97	001	00	04	10	97	FACILITY NAME		DOCUMENT NUMBER			
OPERATING MODE (9)		1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)											
POWER LEVEL (10)		100 %	20.2201(b)		20.2203(a)(2)(v)		X		50.73(a)(2)(i)		50.73(a)(2)(viii)			
			20.2203(a)(1)		20.2203(a)(3)(i)				50.73(a)(2)(ii)		50.73(a)(2)(x)			
			20.2203(a)(2)(i)		20.2203(a)(3)(ii)				50.73(a)(2)(iii)		73.71			
			20.2203(a)(2)(ii)		20.2203(a)(4)				50.73(a)(2)(iv)		OTHER			
			20.2203(a)(2)(iii)		50.36(c)(1)				50.73(a)(2)(v)		Specify in Abstract below			
			20.2203(a)(2)(iv)		50.36(c)(2)				50.73(a)(2)(vii)		or in NRC Form 366A			
LICENSEE CONTACT FOR THIS LER (12)														
NAME W. R. Matthews, Station Manager										TELEPHONE NUMBER (Include Area Code) (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)										EXPECTED SUBMISSION DATE		MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)					NO									
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16) On March 20, 1997, with Unit 2 in Mode 1, 100 percent power, the Reactor Vessel Level Indication System (RVLIS) "A" train was declared inoperable and the 7 day action of Technical Specification 3.3.3.6 was entered. Vendor specifications require the RVLIS dynamic range indications to be to renormalize at the beginning of each fuel cycle. The vendor specified an operability limit of +/- 4 percent for the RVLIS dynamic range indication at zero power with all reactor coolant pumps running. If the indication of +/- 4 percent is exceeded the RVLIS train is considered inoperable. The Unit 2 RVLIS "A" Train indication was at plus 5 percent for the dynamic range. This event is reportable pursuant to 10CFR50.73 (a)(2)(i)(B) for a condition prohibited by TS because the RVLIS dynamic range indication on one train was outside its allowed tolerance. The cause is attributed to inadequate translation of vendor requirements into station procedures. This event posed no significant safety implications since a one percent deviation in the RVLIS dynamic range indications is not expected to impact the effectiveness of the Inadequate Core Cooling Monitoring System. Therefore, the health and safety of the public were not affected at any time during this event.														

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		97	001	00	

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

1.0 Description of the Event

On March 13, 1997, it was identified that procedures did not exist to confirm the Reactor Vessel Level Indication System (RVLIS) (EIS System-IP) dynamic flow range indication. On March 14, 1997, information was received from the RVLIS manufacturer/supplier, Westinghouse, regarding initial and subsequent normalization of RVLIS dynamic flow range indication at the beginning of each fuel cycle. The dynamic range indication had not been renormalized since initial system startup after RVLIS was installed.

Based upon the results of the preliminary evaluation of the dynamic range indications, Westinghouse specifies a RVLIS tolerance during Power Generation (PG) and a tolerance for Hot Zero Power (HZP). During PG the two trains should indicate within 6 percent of each other. This is a quantitative channel check and provides indication that one train may be drifting out of specification. At HZP each train should be within +/- 4 percent of 100 percent. This tolerance is determined from the original specifications used in preparing the Emergency Response Guidelines (ERG). The ERGs assume a +/- 6 percent tolerance of indication for void fractions up to 50 percent at HZP. By accounting for uncertainties and working backwards to a zero void condition at HZP, the +/- 4 percent tolerance is established. Therefore, this tolerance cannot be adjusted without affecting the bases for the ERGs.

A recommendation in the Westinghouse Technical Manual calls for a renormalization of the RVLIS dynamic flow range indication at the beginning of each fuel cycle. The normalization is an electronic adjustment to the dynamic range level indication transmitter (EIS System-IP, Component-PDT). The purpose is to account for any hydraulic changes in the reactor coolant system (EIS System-AB). The renormalization returns the outputs to an indication of 100 percent at zero power with all pumps running.

In the event of an accident during the cycle leading to loss of coolant with continued reactor coolant pump (EIS System-AB, Component-P) operation, coolant would be circulated as a void mixture, and RVLIS dynamic range would indicate the increase in voids as a decrease in dynamic range output. By renormalizing the dynamic range to 100 percent at the beginning of each fuel cycle, the dynamic range output indicates the approximate void content relative to a zero void (100 percent) condition for the specific cycle.

Westinghouse advised that an operability limit of +/- 4 percent had been defined for the RVLIS dynamic range indication at zero power with all pumps running. If the indication exceeds +/- 4 percent, the RVLIS train is considered inoperable, and corrective actions must be taken to renormalize the indication. A review of recorder (EIS System-IP, Component-LR) data from recent startups of both units indicates that "A" train on Unit 1 was operating within the +/- 4 percent tolerance (104%), but the "A" train on Unit 2 was not (105%). The "B" trains on either unit are not recorded nor are they otherwise available. However, a

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review of at-power indications confirmed the "B" trains were shown to be below the "A" train values by 2 percent or less. As such, on March 20, 1997, at 1735 hours the Unit 2 RVLIS "A" Train was declared inoperable.

2.0 Significant Safety Consequences and Implications

The design basis events that defined the original plant design for the safety related systems did not credit operator action to provide adequate core cooling for loss of coolant accidents. RVLIS provides input for operator contingency actions that are to be taken only during design basis events. The RVLIS was added to the plant configuration in response to the action plans generated following the TMI-2 event. Since this system does not impact the normal operation of the systems used to mitigate the design basis events, the design basis event analyses are not impacted. If the plant experienced a beyond design basis event that required the use of the emergency procedures which rely on the RVLIS, the impact of the noted tolerance difference (105 percent versus 104 percent) is expected to be minimal. The operators would already be attempting to provide additional cooling for the core (EISS System-AC, Component-RCT) prior to reaching any EOP decision point based on RVLIS indication. As such, this event posed no significant safety implications and the health and safety of the public were not affected at any time during this event.

This event is reportable pursuant to 10CFR50.73 (a)(2)(i)(B) for a condition prohibited by TS.

3.0 Cause of the Event

The cause of this event is attributed to inadequate translation of vendor information into station procedures. The Westinghouse Technical Manual states that, "the flow delta P head loss is initially a calculated value based upon reactor coolant pump head characteristics and flow resistance's of the reactor vessel internals, nozzles, and the like. This value will be confirmed in initial and subsequent plant startups to correct for analytical uncertainties as well as changes in flow characteristics which may result from maintenance factors throughout plant lifetimes." Westinghouse points to this discussion as the requirement for performing HZP calibration of the dynamic range portion of RVLIS. This is a vague reference and does not clearly define surveillance requirements for this piece of equipment. In addition, the tolerance of +/- 4 percent at HZP has just recently been provided to North Anna. Explicit guidance was not provided for this calibration in the Vendor Technical Manual.

4.0 Immediate Corrective Actions

The RVLIS "A" train was declared inoperable and the 7 day action for TS 3.3.3.6 was entered.

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5.0 Additional Corrective Actions

The calibration procedures were changed to provide direction for normalizing the dynamic range indication on both trains for Units 1 & 2. The Unit 1 & 2 "A" and "B" trains were normalized based on readings from recorders for the "A" train since these indications are higher on both units. On March 27, 1997, following completion of work, the Unit 2 RVLIS "A" train was declared operable and returned to service. The procedures will be revised to ensure dynamic range indication is logged and normalized during future startups at HZP.

6.0 Actions to Prevent Recurrence

The actions completed, along with procedure revisions will ensure the dynamic range indication is logged and normalized during future startups at HZP.

7.0 Similar Events

None

8.0 Additional Information

None