

**Virginia Electric and Power Company
North Anna Power Station
P. O. Box 402
Mineral, Virginia 23117**

April 24, 2003

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555-0001

Serial No.: 03-180
NAPS: MPW
Docket No.: 50-338
License No.: NPF-4

Dear Sirs:

Pursuant to 10CFR50.73, Virginia Electric and Power Company hereby submits the following Licensee Event Report applicable to North Anna Power Station Unit 1.

Report No. 50-338/2003-001-00

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

Very truly yours,



D. A. Heacock, Site Vice President
North Anna Power Station

Enclosure

Commitments contained in this letter: None

cc: United States Nuclear Regulatory Commission
Region II
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW, Suite 23 T85
Atlanta, Georgia 30303-8931

Mr. M. J. Morgan
NRC Senior Resident Inspector
North Anna Power Station

IE22

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 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

FACILITY NAME (1) NORTH ANNA POWER STATION , UNIT 1	DOCKET NUMBER (2) 05000 - 338	PAGE (3) 1 OF 3
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TITLE (4)
Reactor Vessel Head Penetration Nozzle Leakage

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	04	2003	2003	-- 001 --	00	04	24	2003	FACILITY NAME	DOCUMENT NUMBER 05000-
									FACILITY NAME	DOCUMENT NUMBER 05000-

OPERATING MODE (9) 6	POWER LEVEL (10) 0 %	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11)								
		20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)					
		20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)					
		20.2203(a)(1)	50.36(c)(1)(i)(A)	50.73(a)(2)(iv)(A)	73.71(a)(4)					
		20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)					
		20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER					
		20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)	Specify in Abstract below or in NRC Form 366A					
		20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)						
		20.2203(a)(2)(v)	X 50.73(a)(2)(i)(B)	50.73(a)(2)(vii)						
		20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)						
		20.2203(a)(3)(i)	X 50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)						

LICENSEE CONTACT FOR THIS LER (12)

NAME D. A. Heacock, Site Vice President	TELEPHONE NUMBER (Include Area Code) (540) 894-2101
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
B	AB	RPV	R380	Y					

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 15 single-spaced typewritten lines) (16)

On February 22, 2003, at 2100 hours Unit 1 was ramped offline for a scheduled refueling outage. On March 4, 2003, at 0854 hours, with Unit 1 defueled, an apparent reactor vessel head through-wall leak was noted during visual inspection of penetration 50. The reactor vessel head was being visually inspected at penetration 50 to follow up on inspection results from the previous outage in 2001. Penetration 50 was found to exhibit boric acid approximately one half inch in diameter at the lower side of the penetration-to-head transition. There was no sign of wastage on the reactor vessel head. This through wall leak has been assessed as a degradation of a principal safety barrier in accordance with 10 CFR 50.72(b)(3)(ii)(A). An 8-hour Non-Emergency Report was made to the NRC at 1033 hours on March 4, 2003. No significant safety consequences resulted from this event since RCS unidentified leakage was well below Technical Specification limits. The health and safety of the public were not affected at any time during this event.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

FACILITY NAME (1) NORTH ANNA POWER STATION UNIT 1	DOCKET 05000 - 338	LER NUMBER (6)			PAGE (3) 2 OF 3
		YEAR 2003	SEQUENTIAL NUMBER --001 --	REVISION NUMBER 00	

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

1.0 DESCRIPTION OF THE EVENT

On February 22, 2003, at 2100 hours Unit 1 was ramped offline for a scheduled refueling outage. On March 4, 2003, at 0854 hours, with Unit 1 defueled, an apparent reactor vessel head through-wall leak was noted during visual inspection of penetration 50 (EIS System AB, Component PEN). The reactor vessel head (EIS Component RPV) was being visually inspected at penetration 50 to follow up on inspection results from the previous outage in 2001. Penetration 50 was found to exhibit boric acid approximately one half inch in diameter at the lower side of the penetration-to-head transition. There was no sign of wastage on the reactor vessel head. This through wall leak has been assessed as a degradation of a principal safety barrier in accordance with 10 CFR 50.72(b)(3)(ii)(A). An 8-hour Non-Emergency Report was made to the NRC at 1033 hours on March 3, 2003. The event is reportable in accordance with 10CFR50.73(a)(2)(ii)(A).

In addition, Technical Specification (TS) 3.4.6.2 prohibits reactor coolant system (RCS) (EIS System AB) pressure boundary leakage in Modes 1 through 4. Although the apparent leakage was identified with the unit defueled, it is reasonable to assume that the leakage occurred during Modes 1 through 4. This event is also reportable in accordance with 10CFR50.73(a)(2)(i)(B) for a condition prohibited by TS.

Notification was made to the NRC in a letter dated January 23, 2003 noting the decision to replace the Unit 1 reactor vessel head during the 2003 refueling outage. Consequently, no additional inspections were planned or performed for the existing reactor vessel head and penetration nozzles.

2.0 SIGNIFICANT SAFETY CONSEQUENCES AND IMPLICATIONS

No significant safety consequences resulted from this event since RCS unidentified leakage was well below Technical Specification limits. Reactor Coolant System leakage, including unidentified leakage, is quantified every 72 hours per TS 3.4.6.2. Prior to the Unit 1 shutdown, unidentified leakage was measured at 0.08 gpm and containment sump inleakage was measured at 0.12 gpm.

With the apparent cause believed to be hot short cracking WCAP-14552, "Structural Evaluation of Reactor Vessel Upper Head Penetrations to Support Continued Operation: North Anna and Surry Units," previously documented that as much as 83.9% of a weld may be unfused, and the allowable stress limits can still be met. Even a complete lack of fusion in the zone between the weld and the head would not result in rod ejection because the weld to the tube would prevent it. Therefore, catastrophic failure of a penetration is unlikely. The health and safety of the public were not affected at any time during this event.

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

3.0 CAUSE

The apparent cause of the Penetration 50 leakage was hot-short cracking, which occurred during original fabrication of the reactor vessel head. The leakage was accelerated by primary water stress corrosion cracking.

4.0 IMMEDIATE CORRECTIVE ACTION(S)

An 8-hour Non-Emergency Report was made to the NRC at 1033 hours on March 3, 2003.

5.0 ADDITIONAL CORRECTIVE ACTIONS

A management decision was made to replace the North Anna Unit 1 reactor head with one constructed of materials that are known to be more resistant to cracking rather than perform penetration repairs.

6.0 ACTIONS TO PREVENT RECURRENCE

Future reactor vessel head inspections will be performed in accordance with our responses to NRC Bulletin 2002-02.

7.0 SIMILAR EVENTS

LER 50-339/02-001-00 documents the Unit 2 nozzle through-wall leakage of three reactor vessel head penetrations.

LER 50-339/01-003-00 and Supplemental LER 50-339/01-003-01 documents the Unit 2 nozzle through-wall leakage of three reactor vessel head penetrations.

LER 50-339/94-005-00 documents leakage on a nozzle weld on the seal injection line entering the "B" RCP thermal barrier housing. This line is part of the RCS pressure boundary leakage.

8.0 MANUFACTURER/MODEL NUMBER

Rotterdam Dockyard Company/Serial Number 30662

9.0 ADDITIONAL INFORMATION

None