

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

December 4, 1990

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

Serial No.	88-433D
NL/RPC	R5
Docket Nos.	50-280
	50-281
	50-338
	50-339
License Nos.	DPR-32
	DPR-37
	NPF-4
	NPF-7

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
NORTH ANNA POWER STATION UNITS 1 AND 2
RESPONSE TO NRC BULLETIN NO. 88-08
THERMAL STRESSES IN PIPING CONNECTED
TO REACTOR COOLANT SYSTEMS

As described in letters (Serial Nos. 88-433, 88-433A, 88-433B, and 88-443C) dated October 3, 1988, March 15, 1989, June 8, 1989, and August 17, 1989, Virginia Electric and Power Company has performed inspections at Surry and North Anna Power Stations to provide assurance that there are no existing flaws in piping which may have been subjected to excessive thermal stresses in accordance with NRC Bulletin 88-08. The results of these inspections and scope and schedule of our evaluation methods were reported in the series of correspondence noted above.

Attachment 1 summarizes the program that we have implemented which is expected to conclude at the end of each unit's next operating cycle. Attachment 2 provides a response to the concerns of Supplement 3 of NRC Bulletin 88-08 and the results of the Residual Heat Removal line examination for North Anna Power Station Units 1 and 2 and Surry Power Station Units 1 and 2.

Should you require any further information, please contact us.

Very truly yours,



W. L. Stewart
Senior Vice President - Nuclear

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cc: U. S. Nuclear Regulatory Commission
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Mr. W. E. Holland
NRC Senior Resident Inspector
Surry Power Station

Mr. M. S. Lesser
NRC Senior Resident Inspector
North Anna Power Station

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by E. W. Harrell, who is Vice President - Nuclear Operations, for W. L. Stewart, who is Senior Vice President - Nuclear, of Virginia Electric and Power Company. He is duly authorized to execute and file the foregoing document in behalf of that Company, and the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 4th day of December, 1990.

My Commission Expires: May 31, 1994.

Nicci L. Hull
Notary Public

(SEAL)

ATTACHMENT 1

SUMMARY OF

CONTINUING PROGRAM

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Virginia Electric and Power Company has monitored for thermal stratification on the safety injection lines listed in our letter dated October 3, 1988 (Serial No. 88-433) for one operating cycle on Surry Unit 1 and North Anna Unit 2. No indications of significant temperature oscillations have been identified to date. North Anna Unit 1 and Surry Unit 2 will complete their current operating cycles and enter into refueling outages in January 1991 and April 1991 respectively. To date, no significant temperature oscillations have been recorded on North Anna Unit 1 or Surry Unit 2.

Programs have been established such that periodic temperature monitoring and evaluation of recorded data will continue through the next fuel cycle for both units at Surry and North Anna. It has been determined that the auxiliary spray line on each unit at Surry has a small enough diameter (1.7 inches) such that significant temperature differential between the top and bottom of the pipe is unlikely. However, considerations of auxiliary spray lines at North Anna require more thorough examination as described below.

Nondestructive examinations performed on auxiliary spray line (4"-CH-815-1502-Q1) on North Anna Unit 2 indicate no relevant indications. Additional thermocouples have been installed at suitable locations on line 4"-CH-815-1502-Q1. In addition, nondestructive examinations will be performed and additional thermocouples will be placed at suitable locations on auxiliary spray line (4"-CH-A14-1502-Q1) to monitor for thermal stratification on North Anna Unit 1. The results of nondestructive examinations on the auxiliary spray line, which are scheduled for the 1991 Unit 1 refueling outage at North Anna, will be submitted to you upon completion. Also, an additional manual isolation valve was installed in series with the existing globe valve in the Boron Injection Tank (BIT) bypass line on North Anna Unit 2. A similar modification is scheduled to be installed on North Anna Unit 1 during the 1991 refueling outage.

Should the analysis of recorded temperature data over the next operating cycle indicate problems similar to those cited in NRC Bulletin 88-08, an appropriate course of action will be taken. However, given that there has been no indication of a temperature oscillation problem, this additional period of data collection may provide justification to remove temporary monitoring instrumentation and eliminate further actions with regard to this issue.

ATTACHMENT 2

DISPOSITION OF
NRC BULLETIN 88-08
SUPPLEMENT 3 ISSUE

DISPOSITION OF
NRC BULLETIN 88-08
SUPPLEMENT 3 ISSUE

Nondestructive examination (NDE) of the Residual Heat Removal (RHR) suction piping has been performed at Surry Power Station Units 1 and 2 (14"-RH-1-1502 and 14"-RH-101-1502) and North Anna Units 1 and 2 (14"-RH-1-1502-Q1 and 14"-RH-401-1502-Q1). No crack indications were shown in the examination reports.

A review of the seat leakage scenario of the RHR isolation valves described in Supplement 3 to NRC Bulletin 88-08 has been performed. We believe that it is unlikely that stratification of the RHR line at Surry and North Anna would lead to cyclic fatigue. The RHR isolation valves at both Surry and North Anna are spring loaded double disk gate valves. The leaking gate valve described in Supplement 3 is a flexible wedge type. We have evaluated the performance of the Surry and North Anna valves under the following scenarios that could lead to seat gap opening or closing (i.e. cyclic fatigue):

- Small leakage through the packing.
- Continuous leakage through the packing.
- A pressure drop in the valve bonnet due to cooling of water in the bonnet.

Since there is no continuous fluctuation between hot and cold water under any of the above scenarios, we conclude that thermal stratification and fatigue cycling will not occur.