

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

U.S. Nuclear Regulatory Commission April 24, 1990  
Attention: Document Control Desk  
Washington, D.C. 20555

Serial No. 90-179  
NAPS/DEQ; R2  
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**  
**UNRESOLVED ITEM SECONDARY SYSTEM REPAIRED LEAKAGE**

We have reviewed unresolved item nos. 338/89-12-02, 339/89-12-02 for North Anna and 280/88-19-01, 281/88-19-01 for Surry Power Stations. The unresolved items were issued based on the inspector's concern that secondary systems and associated piping and components inside containment are a part of the post accident containment boundary and leakage from containment through this barrier must be considered containment leakage. Our position on the secondary side leakage issue is addressed in the attachment to this letter.

If you have any questions or require additional information, please contact us.

Very truly yours,



W. L. Stewart  
Senior Vice President - Nuclear

Attachment

cc: U.S. Nuclear Regulatory Commission  
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Mr. M. S. Lesser  
NRC Senior Resident Inspector  
North Anna Power Station

Mr. W. E. Holland  
NRC Senior Resident Inspector  
Surry Power Station

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## ATTACHMENT

### Response to Unresolved Items noted in North Anna Inspection Report Nos. 338 & 339/89-12 Surry Inspection Report Nos. 280 & 281/88-19

#### NRC Concern

As identified in North Anna IR 89-12, North Anna performs "...an air pressure test on the secondary system inside containment to identify and repair leakage paths. This test is performed only as a prerequisite to the Type A test. Repaired secondary side leakage is not quantified for the purpose of adjusting the Type A test result to an 'as-found' condition. The inspector concluded that secondary systems and associated piping and components inside containment are a part of the post accident containment boundary. Therefore, leakage from containment through this barrier must be considered containment leakage. Further, leakage corrected as a result of repairing this boundary prior to the Type A test must be quantified and used in evaluating the overall performance of the containment. The licensee maintains that the secondary system will be pressurized at a pressure greater than containment post accident. Therefore, any leakage would be from the secondary system into and not out of the containment. This position would not normally be acceptable to the NRC which requires that any containment leakage seal can be established and maintained for 30 days at a pressure greater than Pa. However, North Anna is in a unique condition. The containment is maintained at subatmospheric pressure during normal operation. Further, the accident analysis shows that the containment will again be at subatmospheric pressure in about one hour post accident. Maintaining the secondary pressure seal for one hour may be feasible. However, where actions based on judgement are contrary to the regulation, the NRC must concur in this judgement."

The technical content of the unresolved item in the Surry inspection report is identical.

#### Virginia Electric and Power Company Position on Secondary System Leakage inside Containment

Both units at the Surry and North Anna Power Stations operate with the containment at subatmospheric conditions. Each unit has containment spray, inside recirculation spray and outside recirculation spray systems that are designed to return the containment pressure to subatmospheric within the first hour following a design basis Loss of Coolant Accident (LOCA). After the containment pressure becomes subatmospheric, direct leakage paths would only be in-leakage. Containment out-leakage is assumed to be effectively terminated. In order for out-leakage through the steam generator secondary side to occur during the first hour, steam generator secondary pressure would have to be brought below containment pressure (e.g., accident design pressure). This is precluded by the Emergency Operating Procedures used following design basis LOCAs. Consistent with the EOPs, steam generator cooling of the Reactor Coolant System is restricted to 100°F /hour down to 350°F. Consequently, steam generator pressure remains higher than the containment pressure during this first hour.

Since steam generator pressure is maintained higher than containment peak accident pressure during the first hour of the accident, no credible leakage path can exist through the steam generators. We conclude that secondary system leakage need not be quantified and should not be included in the total "as-found" containment leakage for the Surry and North Anna Power Stations.