VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

January 25, 2002

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

Serial No.:	01- 560A
CM/RAB	R0
Docket Nos.:	50-338
	50-339
License Nos.:	NPF-4
	NPF-7

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)
NORTH ANNA POWER STATION UNITS 1 AND 2
PROPOSED IMPROVED TECHNICAL SPECIFICATIONS
REQUEST FOR ADDITIONAL INFORMATION
ISTS 3.7.7 AND ITS 3.7.9
BEYOND SCOPE ISSUE (TAC Nos. MB1439, MB1440, MB1451, and MB1452)

This letter transmits our response to the NRC's request for additional information (RAI) regarding the North Anna Power Station (NAPS) Units 1 and 2 proposed Improved Technical Specifications (ITS). The North Anna ITS license amendment request was submitted to the NRC in a December 11, 2000 letter (Serial No. 00-606). The NRC requested additional information regarding Improved Standard Technical Specification 3.7.7, "Component Cooling," and ITS 3.7.9, "Ultimate Heat Sink." This information was requested in a NRC letter dated September 6, 2001 (TAC Nos. MB1439, MB1440, MB1451, and MB1452). On November 19, 2001, Dominion submitted responses to the NRC's RAIs (Serial Number 01-560).

In a subsequent telephone call with members of your staff, Dominion agreed to revise one response and to submit additional information to address certain questions in the September 6, 2001 letter. Attached are our revised response and the additional information.

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

Very truly yours,

Leslie N. Hartz
Vice President - Nuclear Engineering

Attachment

Commitments made in this letter: None

A001

cc: U.S. Nuclear Regulatory Commission
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SN: 01-560A
Docket Nos.: 50-338/339
Subject: ITS RAI – ISTS 3.7.7 & ITS 3.7.9

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Leslie N. Hartz, who is Vice President - Nuclear Engineering, of Virginia Electric and Power Company. She has affirmed before me that she is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of her knowledge and belief.

Acknowledged before me this 25th day of January, 2002.

My Commission Expires: March 31, 2004.

Maggie McClure
Notary Public

(SEAL)

Attachment

Proposed Improved Technical Specifications
Revised Response to Request for Additional Information
ISTS 3.7.7, "Component Cooling"
ITS 3.7.9, "Ultimate Heat Sink"

Virginia Electric and Power Company
(Dominion)

North Anna Power Station Units 1 and 2

North Anna Improved Technical Specifications (ITS) Review Comments
Component Cooling Water (CC) System and Ultimate Heat Sink (UHS)
(TAC Nos. MB1439, MB1440, MB1451, AND MB1452)

Improved Standard Technical Specifications 3.7.7, "Component Cooling Water"

RAI (NRC letter dated September 6, 2001):

RAI 2.e: Please provide an estimate of the change in CDF and LERF assuming that the system is unavailable (the RAW value), the percentages of the current CDF and LERF that include the failure of the system (the Fussell-Vesely value), and an estimate of the change in CDF and LERF expected given the change in treatment after the requirements are relocated.

REVISED RESPONSE:

A telephone conference call was held on December 14, 2001 to discuss the previous response. As a result of that discussion, the response to 3.7.7 RAI 2.e is revised to reflect a new analysis. This new analysis demonstrates that the risk significance of the Component Cooling (CC) System is almost entirely due to its function as a support system for the Residual Heat Removal (RHR) System.

The Risk Achievement Worth (RAW) for the CC System is 29. This figure is obtained by failing all of the CC pumps to determine the increase in the Core Damage Frequency (CDF) and the Large Early Release Frequency (LERF). The PRA model credits the RHR System as the primary long-term heat sink following a Steam Generator Tube Rupture (SGTR). The model does not credit the steam dumps, so that the only alternative to RHR for long term cooling is the atmospheric-release main steam PORV system. Following a SGTR, the secondary side is contaminated, and use of the RHR System limits the direct release of radionuclides to the atmosphere. As a result, the CC and RHR systems are conservatively assumed to be required following a SGTR to prevent a large, early release, and that assumption results in these high LERF RAWs. If the steam dumps were credited for long-term cooling, the RAWs for the CC and RHR systems would be significantly lower. In fact, unless there is fuel damage prior to the tube rupture, any release is likely to be small rather than large.

A complete failure of the RHR system resulted in a RAW of 28. The system is LERF-limiting. Clearly, the RHR dependency upon CC as its heat sink is the dominant factor in the risk significance of the Component Cooling system.

In order to confirm that the risk importance of the CC system is due to the RHR dependency on CC and not due to Reactor Coolant Pump (RCP) thermal barrier CC cooling, the CC flow to the thermal barriers was failed. The thermal barrier is a moderate contributor to CDF and a negligible contributor to LERF. The PRA model takes no credit for the potential recovery of CC to the thermal barriers when their trip valves fail. If it did, the risk significance of the thermal barriers and the CC system as a whole would both diminish.

From a practical perspective, the plant cannot operate at length without the CC system. The CC system provides cooling to the RCP motor bearings and stator via the same containment penetration that supplies the RCP thermal barrier. On a loss of CC to the RCPs, the motor bearings will heat up. Within about 30 minutes, the operator is directed by plant procedures to trip the reactor and the RCPs to prevent damage to the RCP motors.

The RHR System is required to be OPERABLE by the Technical Specifications, and the definition of OPERABILITY will require the CC System to be capable of performing its support functions for RHR. There is no benefit to retaining the CC specification, as the risk benefit is already accomplished by the RHR requirement.

The numerical results are summarized below.

Summary of CC System Risk Data		
System	**Core Damage Frequency**	**Large Early Release Frequency**
Baseline (average maintenance)	1.28E-5/yr	1.81E-6/yr
Results with CC system failed	2.37E-4/yr (RAW = 19)	5.32E-5/yr (RAW = 29)
Results with RHR system failed	6.11e-5/yr (RAW = 4.8)	5.01E-5/yr (RAW = 28)
Results with CC to RCPs failed	5.34E-5/yr (RAW = 4.2)	1.86E-6/yr (RAW = 1.0)

Some of these results differ slightly from the numbers cited in the previous RAI response. Those results were generated with the zero-maintenance (a)(4) model, which uses a higher truncation for speed. These numbers have been generated with the average-maintenance model.

Improved Technical Specifications 3.7.9, "Ultimate Heat Sink"

RAI (Telephone Call on December 14, 2001):

The NRC staff requested the total CDF and LERF numbers for the Lake Anna reservoir.

Additional Response:

The following information is provided, per the NRC's request.

Summary of Lake Anna Risk Data		
System	**Core Damage Frequency**	**Large Early Release Frequency**
Results with Lake Anna unavailable	2.55E-5/yr (RAW = 2.0)	5.25E-6/yr (RAW = 2.9)

These numbers have been generated with the average-maintenance model.