May 21, 2003

Mr. David A. Christian
Senior Vice President - Nuclear
Virginia Electric and Power Company
5000 Dominion Blvd.
Glen Allen, Virginia 23060

SUBJECT: NORTH ANNA POWER STATION, UNIT 2 - REVIEW OF ANNUAL STEAM GENERATOR TUBE INSERVICE INSPECTION REPORT FOR THE 2002 REFUELING OUTAGE (TAC NO. MB7992)

Dear Mr. Christian:

By letter dated February 26, 2003, Virginia Electric and Power Company (VEPCO) submitted a report summarizing the steam generator tube inspections performed during the fall 2002 refueling outage at North Anna Power Station, Unit 2. In addition, VEPCO, in its submittal dated October 9, 2002, reported the number of tubes that were plugged during this same outage.

The NRC staff's review of this submittal is enclosed. As documented in the enclosed assessment, the NRC staff concludes that VEPCO provided the information required by the North Anna, Unit 2, Technical Specifications; therefore, no additional information is required at this time.

Sincerely,

/RA/

Stephen R. Monarque, Project Manager, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-339

Enclosure: As stated

cc w/encl: See next page

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U.S. NUCLEAR REGULATORY COMMISSION

STAFF ASSESSMENT OF THE FALL 2002 REFUELING OUTAGE

STEAM GENERATOR INSERVICE INSPECTION SUMMARY REPORT

NORTH ANNA POWER STATION, UNIT 2

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NUMBER 50-339

By letter dated February 26, 2003, Virginia Electric and Power Company (the licensee) submitted a report summarizing the steam generator (SG) tube inspections performed on SG A during the fall 2002 refueling outage at North Anna Power Station, Unit 2. In addition, the licensee, in its submittal dated October 9, 2002, reported the number of tubes that were plugged in SG A during this same outage. The licensee submitted these reports in accordance with North Anna, Unit 2, Technical Specification (TS) Sections 5.6.7.a, 5.6.7.b, and 5.5.8. The NRC staff's evaluation of the results from the SG tube inspections is provided below.

North Anna, Unit 2, has three SGs, designated A, B, and C. Only SG A was inspected during the fall 2002 refueling outage at North Anna, Unit 2. SG A, a Westinghouse Model 54F, consists of 3592 total tubes that have an outside diameter of 7/8 inch and a wall thickness of 0.050 inch. The tubes have been hydraulically expanded into the tubesheet, and the stainless steel Type 405 tube support plates contain broached quatrefoil holes. SG A began operation in 1995 and has thermally treated Inconel 690 tubing.

In its submittal dated February 26, 2003, the licensee stated it had conducted a full-length (tube end cold to tube end hot) inspection of approximately 60 percent of the tubes in SG A (2156 tubes) using a bobbin probe. A +Point™ probe was used to inspect approximately 20 percent (719 tubes) of the tubes in the hot-leg expansion transition region and 100 percent (98 tubes) of the tubes in the U-bend region in Row 1 (top hot leg support to top cold leg support). Prior to this inspection, there was no existing degradation being monitored and no areas of concern were noted during the pre-outage assessment. Also, there was no primary-to-secondary leakage reported during the last cycle of operation for SG A.

Due to the inspection results, the licensee reported that one SG tube was plugged. A permeability variation (PV) was reported in tube R9C45 at the hot leg top of the tubesheet. PV is a material condition representing the response variation a material has to eddy current. This material condition is not related to a decrease in wall thickness or a flaw indication. The +Point™ probe data reported the signal as an axial band extending over the entire length of the inspection area. The structural integrity of the tube is not affected by the presence of a PV but potentially reduces the ability to detect actual flaws with eddy current. Due to the potential for detection reduction, the tube was preventively plugged.

The bobbin inspection results indicated four tubes with dent (DNT) signals (R5C19, R29C56, R33C20, and R46C57). A +Point™ probe was used to further examine the DNT locations in

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order to define an appropriate baseline for future inspections. These examinations also provided sufficient assurance that no degradation existed in the DNT signal area. The four DNT signals were left in service.

Seventeen tubes were identified with Manufacturing Buff Marks (MBMs). The MBM indications reported for this inspection were compared to the 1995 baseline inspection results and exhibited no change from the baseline inspection.

The licensee also reported that no antivibration bar wear indications were identified. It was concluded that no substantial amount of sludge had accumulated at or in the SG support structures based on +Point™ probe data. It was determined that conditions that would jeopardize SG tubing integrity did not exist based on secondary side visual examinations.

The licensee conducted a condition monitoring assessment that concluded that there is no known existing conditions that would exceed structural and leakage requirements before the end of the next cycle of operation. The operational assessment satisfied the structural integrity and leakage performance criteria for the next cycle of operation.

Based on the review of the information provided by the licensee, the NRC staff concludes that the licensee provided the information required by the North Anna, Unit 2, TS; therefore, no additional information is required at this time.

Mr. David A. Christian
Virginia Electric and Power Company

North Anna Power Station
Units 1 and 2

cc:

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