VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

10 CFR 50.54(f)

January 5, 2004

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Serial No. 02-689A
NL&OS/GDM R0
Docket Nos. 50-280/281
50-338/339
License Nos. DPR-32/37
NPF-4/7

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA AND SURRY POWER STATIONS UNITS 1 AND 2
NRC BULLETIN 2002-01 - REACTOR PRESSURE VESSEL HEAD DEGRADATION AND REACTOR COOLANT PRESSURE BOUNDARY INTEGRITY
SUPPLEMENTAL RESPONSE

On March 18, 2002, the Nuclear Regulatory Commission (NRC) issued Bulletin 2002-01, "Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity." The bulletin required all holders of operating licenses for pressurized water reactors to submit their basis for concluding that their boric acid inspection programs provide reasonable assurance of compliance with the applicable regulatory requirements discussed in Generic Letter 88-05 and within the bulletin. If a documented basis did not exist, licensees were requested to provide their plans, if any, for a review of their programs. Virginia Electric and Power Company (Dominion) provided a description of its boric acid corrosion control programs for Surry and North Anna Power Stations in a letter dated May 16, 2002 (Serial No. 02-168A). In a subsequent request for additional information dated November 21, 2002, the NRC requested North Anna and Surry to address six additional questions associated with their boric acid corrosion control programs. Dominion responded to the NRC's request in a letter dated January 31, 2003 (Serial No. 02-689). In that letter, Dominion provided a discussion of the enhanced boric acid corrosion control (BACC) program that was being implemented as a common program for North Anna and Surry Power Stations. We also stated in that letter that "ASME Class 1 bolted connections and Alloy 600 tubing and Alloy 82/182 weldments will be inspected every refueling outage." The list of Alloy 600 tubing locations provided in the tables included in the January 31, 2003 letter were based on Westinghouse data from original construction.

During a recent design change package review, it was noted that a design change was previously implemented at both stations to eliminate the resistance temperature detector (RTD) bypass lines in the reactor coolant system (RCS). As a part of this

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design change, three new RTD thermowells were installed in each RCS hot leg, and one new RTD thermowell was installed in each RCS cold leg for a total of twelve per unit (i.e., four thermowells per RCS loop). The thermowells were fabricated from Inconel Alloy 600 and installed with Alloy 82/182 seal welds. These Alloy 600 components and Alloy 82/182 welds had not been included in station procedures for boric acid leakage inspection each refueling outage.

The discovery of the additional Alloy 600 material was evaluated to determine whether a potential operability concern existed in light of the recent industry experience with reactor pressure vessel head (RPVH) penetration cracking. Exposure to primary water and high temperatures for an extended period of time are essential conditions for initiation of primary water stress corrosion cracking (PWSCC). The RCS RTD thermowells were installed approximately ten years ago and therefore have been exposed to primary coolant water for a shorter duration than the original RPVHs. Since the Alloy 600 thermowells and associated Alloy 82/182 seal welds are of newer construction and are exposed to lower temperatures than the original RPVHs, initiation of PWSCC is not expected in these components. Furthermore, bare metal visual inspections of the twelve Surry Unit 2 RCS RTD thermowells were performed during the recently completed refueling outage. No indication of cracking or RCS leakage was identified. The North Anna and Surry RCS RTD Alloy 600 thermowells will be incorporated into the boric acid corrosion control program, and bare metal visual inspections of the thermowells will be performed during future refueling outages.

A comprehensive search of design change packages, engineering work requests, engineering transmittals and technical reports completed since original plant construction was performed to determine whether any other Alloy 600 components and/or Alloy 82/182 welds were previously installed in borated water systems. No other plant modifications involving Alloy 600 or Alloy 82/182 were identified. An Operating Experience (OE) report was prepared and issued by Dominion on the INPO OE network to advise other utilities of this incident for their consideration.

If you have any questions or require additional information, please contact Mr. Gary D. Miller at (804) 273-2771.

Very truly yours,

L. N. Hartz
Vice President - Nuclear Engineering

Commitments made in this letter are as follows:

1. The North Anna and Surry RCS RTD Alloy 600 thermowells will be incorporated into the boric acid corrosion control program.

2. Bare metal visual inspections of the RCS RTD Alloy 600 thermowells will be performed during future refueling outages at North Anna and Surry.

cc: U. S. Nuclear Regulatory Commission
Region II
Sam Nunn Atlanta Federal Center
61 Forsyth St., SW, Suite 23 T85
Atlanta, Georgia 30303-8931

Mr. G. J. McCoy
NRC Senior Resident Inspector
Surry Power Station

Mr. M. T. Widmann
NRC Senior Resident Inspector
North Anna Power Station

Mr. R. A. Smith
Authorized Nuclear Inspector
Surry Power Station

Mr. M. M. Grace
Authorized Nuclear Inspector
North Anna Power Station

Mr. J. E. Reasor, Jr.
Old Dominion Electric Cooperative
Innsbrook Corporate Center, Suite 300
4201 Dominion Blvd.
Glen Allen, Virginia 23060

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Supplemental Response – NRC Bulletin 2002-01

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 5th day of January, 2004.

My Commission Expires: 3/31/04.

Maggie McClure
Notary Public

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