VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261
June 15, 2007

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
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Serial No. 07-0421
NLOS /ETS
Docket Nos. 50-338/339
License Nos. NPF-4/7

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)
NORTH ANNA POWER STATION UNIT 1 - CMP-022R1
NORTH ANNA POWER STATION UNIT 2 - CMP-023R1
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
WELD OVERLAYS AS AN ALTERNATIVE REPAIR TECHNIQUE

In a letter dated March 17, 2007 (Serial No. 06-1007A), Dominion requested approval to use the proposed alternative to apply dissimilar metal weld overlays for repair/replacement activities. That request contained alternative requirements for the Inservice Inspection (ISI) program for scheduled full structural preemptive weld overlays (PWOLs) that are planned to mitigate the potential for primary water stress corrosion cracking (PWSCC) susceptibility at North Anna Units 1 and 2. Since that time, several issues associated with the application of the weld overlays have been identified by the NRC and industry experience. Based on the ongoing industry experience with the application of weld overlays, on May 24, 2007 the NRC requested further clarification of our March 17, 2007 alternative. The attachment to this letter contains the requested information.

PWOLs were completed on the North Anna Unit 2 pressurizer welds in the spring 2007 refueling outage and are scheduled to be completed on North Anna Unit 1 pressurizer welds in the fall 2007 refueling outage. No pre-weld overlay ultrasonic examinations are planned. This is part of the control and remediation plan for Alloy 82/182 dissimilar metal piping butt welds susceptible to potential PWSCC at North Anna Units 1 and 2.

If you have any questions regarding this submittal, please contact Mr. Thomas Shaub at (804) 273-2763.

Very truly yours,

Gerald T. Bischof
Vice President – Nuclear Engineering

Commitments made in this letter: None

Attachment

1. Response to NRC May 24, 2007 Request for Additional Information.

cc: U.S. Nuclear Regulatory Commission
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ATTACHMENT 1

RESPONSE TO MAY 24, 2007 REQUEST FOR ADDITIONAL INFORMATION WELD OVERLAYS AS AN ALTERNATIVE REPAIR TECHNIQUE CMP-022 R1 AND CMP-023 R1

NORTH ANNA POWER STATION UNITS 1 AND 2
VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION WELD OVERLAYS AS AN ALTERNATIVE REPAIR TECHNIQUE CMP-022 R1 AND CMP-023 R1

NRC Question 1

Section 2(a)(2)(c) does not specify the depth of the base metal that ultrasonic (UT) testing would be qualified to detect flaws after weld overlay installation. The staff believes that a region of the base metal MAY not be qualified. In such case, the staff considers that the initial flaw size assumed in the crack growth calculation should be the as-found flaw depth plus the postulated worst-case flaw in the unqualified region of the base metal. The postulated worst-case flaw size should be the depth of the base metal that UT is not qualified (to examine). The initial flaw size should be clarified.

Dominion Response

The provisions of Section 2(a)(2)(c) will not be used. Since an examination prior to the application of the preemptive weld overlay is not practical, an assumed initial flaw size of 100% original wall thickness will be used for the crack growth calculations, as stated in Paragraph 2(a)(2)(b) of the Enclosure in Dominion's March 17, 2007 proposed alternative.

NRC Question 2

In Section 2(a)(2)(d), the current UT is not qualified to inspect the inner 75% of the base metal once the weld overlay is installed on the pipe. Therefore, UT is not capable of detecting any indication that is connected to the inside surface of the pipe during pre-service inspection. Does Dominion agree that the pre-service inspection is the post-installation pre-service inspection, not pre-installation inspection?

Dominion Response

Yes, Dominion agrees that the pre-service inspection is the post-installation pre-service inspection, not pre-installation inspection.

NRC Question 3

In Section 3(b)(2), the licensee stated that ...if flaws are found in the outer 25% of the existing base metal or original weld and cannot be determined to be isolated from the inside diameter (ID) of the existing base metal or weld, the flaw depth will be conservatively sized by adding the thickness of the remaining 75% of the original existing base metal or weld thickness to the through wall dimension for any flaw growth calculations performed.

The Staff's position is that the Licensee will use the actual UT determined through wall dimension in the crack growth analysis for those flaws that do not intrude on the interface between the outer 25% of the original base metal or weld thickness and the inner 75% of the same existing materials and that can be determined by the qualified UT examination to not be connected to the interface between the outer 25% and the inner 75% of the base metal or weld. For the actual UT determined flaw in the outer 25% of the base metal that is connected to the interface between the outer 25% and the inner 75% of the pipe wall thickness, the initial flaw size would be the as-found flaw size plus the inner 75% pipe wall thickness. Clarify the initial flaw size that will be used in the crack growth calculation.

Dominion Response

Dominion agrees with the staff position stated above for Section 3(b)(2). As stated in the response to Question 1, the assumed initial flaw size of 100% original wall thickness will be used for the crack growth calculations.

NRC Question 4

Section 3(c)(4) relates to accepting flaws found in weld overlay. The licensee should add that IWB-3600 is not permitted to accept PWSCC flaws.

Dominion Response

Section 4.3.1, Required Activities, in the March 17, 2007 proposed alternative includes the following statement.

> "If flaw growth in the weld overlay occurs and acceptance Standards of IWB-3514-2 cannot be met, a determination will be made to prove that the flaw is not PWSCC. If the cause is determined to be PWSCC or the cause of the flaw can not be determined, North Anna will repair the flaw and will not use IWB-3600, IWC-3600, or IWD-3600 to accept these types of flaws."