

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

July 21, 2000

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No. 00-215A
NL&P/ETS
Docket No. 50-339
License No. NPF-7

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNIT 2
ADDITIONAL INFORMATION TO SUPPORT ASME SECTION XI INSERVICE
INSPECTION PROGRAM RELIEF REQUESTS

In an April 24, 2000 letter (Serial No. 00-215), Virginia Electric and Power Company requested relief from ASME XI Code examination requirements. In several instances, interferences or weld geometry prohibited the complete examination of the welds. Therefore, relief requests NDE-43, 44 and 45 were submitted for NRC approval.

During a June 23, 2000 telephone conference call, the NRC staff requested 1) a description of other Code required examinations performed on the welds associated with NDE-44 and 45, and 2) additional discussion of the examination difficulty presented by the material of construction for the welds associated with NDE-45. The information that was requested is provided below.

Relief Request NDE-44 describes the reduction in ultrasonic scan coverage for the boron injection tank (BIT) inlet to head weld No. 3 and the BIT outlet nozzle to head weld No. 4 due to geometric restrictions. The ASME Code requires that these welds receive volumetric and surface examinations. For the required surface examinations, these welds received 100 percent coverage using the magnetic particle examination method. The 100 percent coverage achieved by the surface examinations, along with the partial coverage achieved by the ultrasonic examinations provide adequate assurance of weld integrity.

Relief Request NDE-45 describes the reduction in ultrasonic scan coverage for the inlet pipe to reactor coolant pump (2-RC-P-1A) weld No. 8 and the reactor coolant pump (2-RC-P-1B) to discharge pipe weld No. 21 due to geometric restrictions. A radiograph is the only other method for performing volumetric examinations. However, radiographic examination of these welds is not practical due to limitations in accessibility, local radiation levels, and pipe to pump transitions. We believe that this combination of factors would reduce the quality and definition of any radiographs such that no meaningful results would be obtained.

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Specifically, the inside of the pipe is not accessible. Therefore, a double wall exposure would be required. The outside of the pipe where the film would be placed has a contact radiation dose from approximately 700 mr/hr to 2000 mr/hr. This radiation dose would reduce the contrast of the radiograph over the long exposure times needed for large diameter (27.5 and 31 inches) and thick (2.32 and 2.59 inches) pipes. Radiographs of very poor quality would be expected.

The geometry of the weld joints involves pipe to pump casing welds where the pump casing is much thicker than the pipe wall. This transition in section thickness affects the latitude that could be obtained with radiography. Poor latitude would be expected for the radiograph. Also, the large grain size of the cast austenitic material tends to scatter the radiation beam as it passes through the material. Having the beam pass through 5 inches of austenitic material will further reduce the definition of the radiographs.

These welds received 100 percent surface examinations using the liquid penetrant examination method. The 100 percent coverage achieved by the surface examinations, along with the partial coverage achieved by the ultrasonic examinations provide adequate assurance of weld integrity.

If you have any additional questions concerning this request, please contact us.

Very truly yours,

A handwritten signature in black ink, appearing to read 'L. Hartz', with a stylized, flowing script.

Leslie N. Hartz
Vice President - Nuclear Engineering and Services

Attachment

Commitments made in this letter: None

cc: U. S. Nuclear Regulatory Commission
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