

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

May 8, 2000

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

Serial No. 00-246
NL&OS/ETS
Docket No. 50-338
License No. NPF-4

Gentlemen:

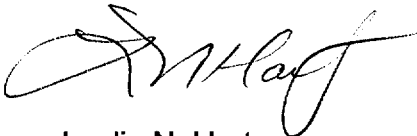
VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNIT 1
ASME SECTION XI INSERVICE INSPECTION PROGRAM
REQUEST FOR ALTERNATIVE EXAMINATION

10 CFR 50.55a(g)(6)(ii)(A) requires licensees to augment their reactor vessel examinations by implementing once, as part of the inservice inspection interval in effect on September 8, 1992, the extent of examinations for reactor vessel welds specified in Item B1.10 of Examination Category B-A, "Pressure Retaining Welds in Reactor Vessel," in Table IWB-2500-1 of Subsection IWB of the 1989 Edition of ASME Section XI, Division 1 of the ASME Boiler and Pressure Vessel Code. To meet the requirements of 10 CFR 50.55a(g)(6)(ii)(A), more than 90 percent of the examination volume of each weld must be examined. Due to internal reactor vessel interferences, the required 90% examination volume could not be obtained for one of the three reactor vessel shell welds examined during the recently completed refueling outage.

Therefore, pursuant to 10 CFR 50.55a(g)(6)(ii)(A)(5), a proposed alternative from the 10 CFR 50.55a(g)(6)(ii)(A) requirement is requested where only partial (<90%) reactor vessel shell weld examination coverage could be obtained for one of the three welds examined. The proposed alternative examination coverage is attached and also provides the bases for the reduced examination coverage.

This proposed alternative examination coverage has been approved by the Station Nuclear Safety and Operating Committee. If you have questions concerning these requests, please contact us.

Very truly yours,



Leslie N. Hartz
Vice President - Nuclear Engineering and Services

Attachment

Commitments made in this letter: None

AD47

cc: U. S. Nuclear Regulatory Commission
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Mr. M. J. Morgan
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Attachment

**Alternative Examination Coverage
Reactor Vessel Shell Welds**

**Virginia Electric and Power Company
North Anna Power Station Unit 1**

**REQUEST FOR ALTERNATIVE
TO THE REQUIREMENTS OF
10 CFR 50.55a(g)(6)(ii)(A)**

I. IDENTIFICATION OF COMPONENTS

<u>Mark/Weld#</u>	<u>Line#</u>	<u>Drawing#</u>	<u>Class</u>
2	1-RC-R-1	11715-WMKS-RC-R-1	1
3	1-RC-R-1	11715-WMKS-RC-R-1	1
4	1-RC-R-1	11715-WMKS-RC-R-1	1

II. REQUIREMENTS OF 10 CFR 50.55a(g)(6)(ii)(A)

According to 10 CFR 50.55a(g)(6)(ii)(A), all licensees shall augment their reactor vessel examinations by implementing once, as part of the inservice inspection interval in effect on September 8, 1992, the extent of examinations for reactor vessel welds specified in Item B1.10 of Examination Category B-A, "Pressure Retaining Welds in Reactor Vessel," in Table IWB-2500-1 of Subsection IWB of the 1989 Edition of ASME Section XI, Division 1 of the ASME Boiler and Pressure Vessel Code. To meet the requirements of 10 CFR 50.55a(g)(6)(ii)(A), more than 90 percent of the examination volume of each weld must be examined.

III. RESULTS OF EXAMINATIONS

Welds 2, 3 and 4 were inspected to the extent practical using a remote reactor vessel ultrasonic examination tool. These examinations were performed to satisfy the requirements of the 1983 Edition of ASME Section XI with Addenda through Summer 1983. Also, the requirements of Regulatory Guide 1.150 were followed. The results of the examinations were acceptable according to the flaw indication criteria given in IWB-3510.

The examination volumes for Welds 2 and 3 were 100% of the required coverage. The examination volume for Weld 4 was less than 90 % due to interference from four integrally attached core support lugs located on the vessel interior. Table 1 provides a summary of the limitations associated with the examination of Weld 4. Amplifying sketches are also provided in Figures 1 and 2. Alternative components could not be substituted for examination due to the mandatory selection requirements of the ASME Code and 10 CFR 50.55a(g)(6)(ii)(A).

IV. ALTERNATE PROVISIONS

As shown in Table 1, the Weld 4 examinations covered 80.86% for a beam angle of 45° shear wave, 81.1% for a beam angle of 60° shear wave, and 78.63% for a beam angle of 70° refracted longitudinal wave. However, because the examination volumes of Welds 2 and 3 were each 100%, the total volume

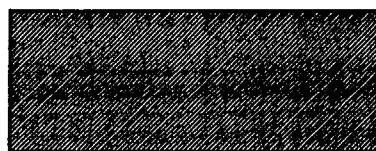
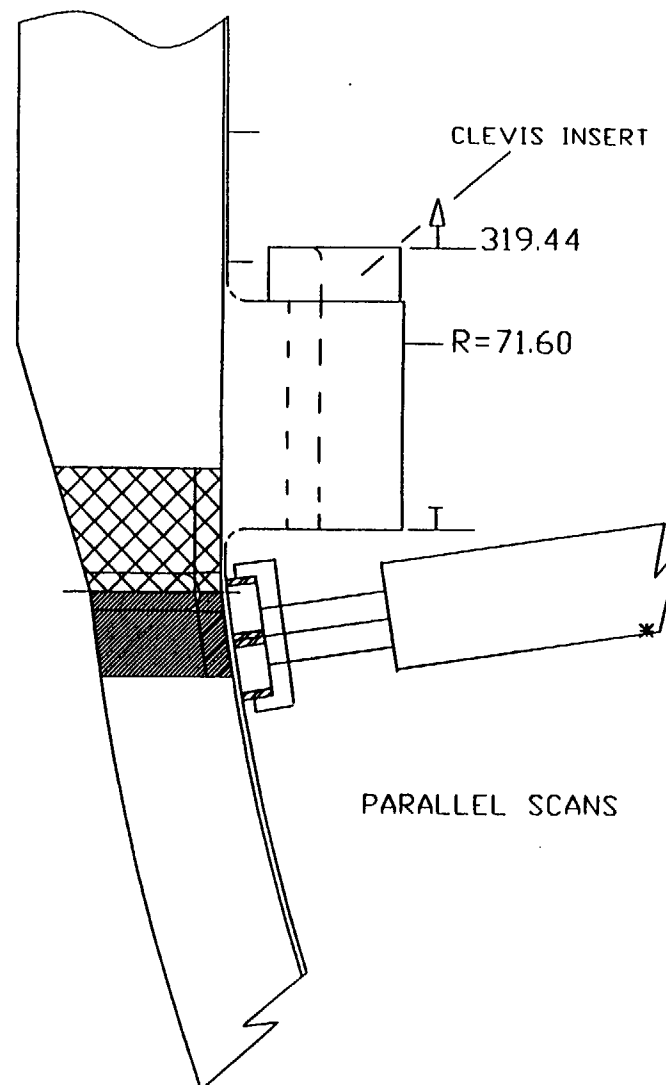
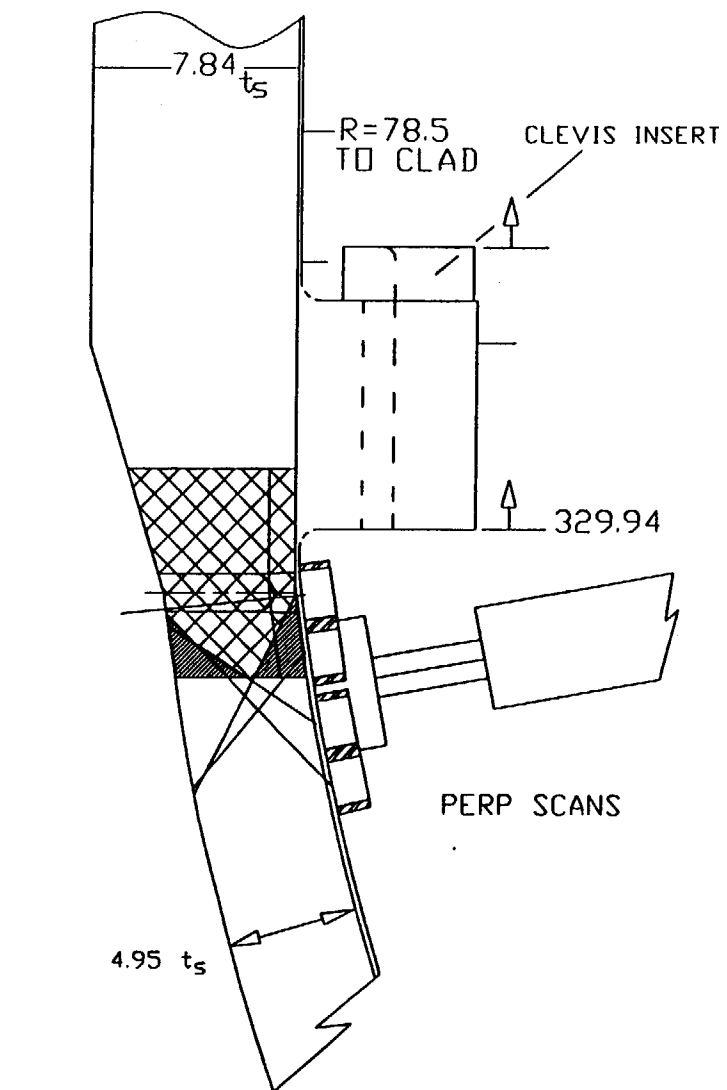
examined for all three welds was greater than 93% of the total volume subject to the requirements of 10 CFR 50.55a(g)(6)(ii)(A). The examination of over 93% of the required total volume for the three welds provides reasonable assurance that unacceptable service induced flaws have not developed and that the reactor vessel shell weld integrity is maintained. Also, these examinations provide an acceptable level of quality and safety. Therefore, as an alternative to examining greater than 90% of each weld examination volume as described in 10 CFR 50.55a(g)(6)(ii)(A), it is proposed that the examinations of Welds 2, 3 and 4 be taken as a whole and the total coverage be over 93% of the sum of the required examination volumes for Welds 2, 3 and 4.

Table 1
North Anna Unit 1
Examination Coverage Estimates (Reactor Vessel 1-RC-R-1)
Category B-A, Item B1.11
Weld 4

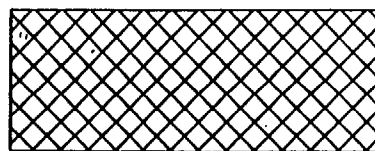
BEAM DIRECTION	BEAM ANGLES							
	45° Shear Wave		60° Shear Wave		70° Refracted Longitudinal Wave		0°	
	Weld ¹ Coverage (%)	Volume ² Coverage (%)	Weld Coverage (%)	Volume Coverage (%)	Weld Coverage (%)	Volume Coverage (%)	Weld Coverage (%)	Volume Coverage (%)
Counter Clockwise	80.32	84.16	80.32	84.16	76.00	79.60		
Clockwise	80.32	84.16	80.32	84.16	76.00	79.60		
Up	79.00	80.63	79.00	80.61	79.00	79.00	83.20	82.36
Down	79.00	79.28	79.40	80.83	79.00	80.83		
Total Coverage per Beam Angle (%)	80.86		81.10		78.63		82.78	

Notes: 1) Weld refers to the weld material.

2) Volume refers to the required examination volume as defined in Figure IWB-2500-1 of the Code.



AREA EXAMINED



AREA NOT EXAMINED

Figure 2
Weld 4 Coverage