



ESK-96-211

November 22, 1996

United States Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Document Control Desk

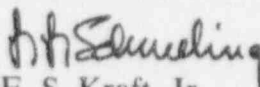
Subject: Quad Cities Nuclear Power Station Unit 1
Results Of Augmented Examination Of The RPV Shell Welds And Relief
Request Pursuant To 10 CFR 50.55a(g)(6)(ii)(A)
NRC Docket No. 50-265

Reference: (1) Bob Rybak, ComEd to U.S. Nuclear Regulatory Commission letter
dated January 4, 1996

ComEd conducted an augmented examination of the Reactor Pressure Vessel (RPV) shell welds pursuant to the requirements stipulated in 10 CFR 50.55a(g)(6)(ii)(A). Subsection 6(ii)(A)(5) requires licensees that are unable to completely satisfy the augmented RPV shell weld examination requirement to submit information to the Commission to support such determination and propose alternatives to the examination requirements that would provide an acceptable level of quality and safety.

This letter provides the shell weld examination results (reference (1)) and requests relief from examination of certain reactor vessel shell welds pursuant to 50.55a(g)(6)(ii)(A)(5) in Attachment A.

Respectfully,

for 
E. S. Kraft, Jr.
Site Vice President
Quad Cities Station

Attachment (A), Relief Request Number: CR-18 (4 pages)

cc: A. B. Beach, Regional Administrator, Region III
R. M. Pulsifer, Project Manager, NRR
C. G. Miller, Senior Resident Inspector, Quad Cities
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COMPONENT IDENTIFICATION

Code Class:	1
References:	IWB-2500 Table IWB-2500-1
Examination Category:	B-A
Item Number:	B1.10
Description:	Examination of RPV shell welds

CODE REQUIREMENT

IWB-2500 states that components shall be examined and tested as specified in Table IWB-2500-1.

Table IWB-2500-1, Category B-A, Item B1.10 requires a volumetric examination to be performed on the Reactor Pressure Vessel shell welds each inspection interval.

BASIS FOR RELIEF

Pursuant to 10 CFR 50.55a(g)(6)(ii)(A)(5), relief is requested on the basis that the alternate method of examination and the achieved weld coverage provide an acceptable level of quality and safety.

The RPV was examined from the internal surface to the extent practical with an alternate method which is qualified to the highest standard available. Further examination from the inside surface is not practical without disassembly of vessel internal components. For weld areas that could not be examined from the inside surface, examination from the outside surface was evaluated. The exterior vessel surface is covered with permanent insulation located in close proximity to the RPV outside surface. The lower exterior vessel surface is also covered with a structural steel bioshield wall. Access is limited to nozzle and inspection port penetrations in the insulation and bioshield wall. It was determined that supplemental manual examination from the outside surface were not practical due to the bioshield wall, insulation, and dose considerations.

The RPV shell weld examinations confirmed no flaws in the vessel, even though greater than 90% coverage was not attained for all RPV shell welds. Performing additional examinations to achieve the greater than 90% coverage presents hardship and would incur unnecessary radiological exposure and requires RPV internal, RPV bioshield, or insulation disassembly.

Since the examination results confirm that there are no flaws, the underlying objectives of the augmented examination requirements have been met. Additionally, a VT-2 examination

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BASIS FOR RELIEF (Con't)

performed on the RPV during system pressure test per examination category B-P each refueling outage provides additional assurance that the structural integrity of the subject welds is maintained. For these reasons, ComEd requests relief from additional augmented examination of the RPV shell welds.

PROPOSED ALTERNATE EXAMINATION

The shell welds of the RPV were ultrasonically examined remotely from the inside of the vessel to the extent practical. Personnel performing the examinations were certified to the requirements of the 1989 Edition of ASME Section XI. The remote examinations were performed in accordance with an examination procedure developed by General Electric. This procedure was demonstrated at the "Performance Demonstration Initiative" (PDI) qualification in accordance with the 1992 edition 1993 addenda of ASME Section XI, Appendix VIII requirements. The procedure does not comply with ASME Section XI 1989 Edition, paragraph IWA-2232; ASME Section V Article 4; or NRC Regulatory Guide 1.150 and, as such, is considered an alternate examination technique. This procedure was made available to the NRC Inspectors during the examinations.

The use of PDI qualified procedures results in a more sensitive examination for the detection of potential flaws than the Code described techniques. The error band for sizing has been established within the limits of Appendix VIII. This examination method's capability to reliably detect flaws in areas of restricted access was satisfactorily demonstrated at PDI Session No. 61-02.

Table 1 presents the weld specific examination coverage achieved and associated interferences. Figure 1 shows the weld seams examined by the GERIS 2000.

The examination identified 53 indications, all of which were within the applicable acceptance standards of subarticle IWB-3500 of ASME Section XI. These indications are concluded to be from small acceptable flaws created at RPV fabrication.

APPLICABLE TIME PERIOD

Relief is requested for the third ten-year interval of the Inservice Inspection Program for Quad Cities Unit 1, which concludes on February 18, 2003.

Table 1: Quad Cities Nuclear Power Station Unit 1 RPV Augmented Examination Results

ComEd Weld Identification	Code Item	Relief** Requested	Weld Length (in)	Length Scanned (in)	% Total Volume Coverage Achieved	Number of Flaws identified	Limitations
RPV-CW-C3C4	B1.11	NO	790.1	753.8	95.4%	27	Guide Rods at 0° and 180° Azimuths
RPV-CW-C2C3	B1.11	YES	790.1	564.1	71.4%	2	Surveillance Specimen Brackets; Nozzles N9-A, B12-A, and N12-B
RPV-CW-C1C2	B1.11	YES	790.1	416.4	52.7%	12	Surveillance Specimen Brackets; Jet Pump Riser Braces; Guide Rods at 20° and 200° Azimuth; Core Spray Piping
RPV-CW-LHC1	B1.11	YES	790.1	0.0	0.0%	n/a	Manipulator lower scan limit
RPV-VSC4-99	B1.12	NO	129.9	129.9	100.0%	0	
RPV-VSC4-219	B1.12	YES	129.9	102.6	79.0%	0	Steam Dryer support Bracket; Nozzle N11-B
RPV-VSC4-261	B1.12	NO	129.9	129.9	100.0%	0	
RPV-VSC4-339	B1.12	NO	129.9	129.9	100.0%	0	
RPV-VSC3-77	B1.12	YES	133.0	29.5	22.2%	2	Feedwater Spargers; Core Spray Piping
RPV-VSC3-197	B1.12	YES	133.0	30.9	23.2%	0	Feedwater Spargers; Core Spray Piping; Guide Rod at 200°
RPV-VSC3-317	B1.12	YES	133.0	95.8	72.0%	0	Feedwater Spargers; Core Spray Piping
RPV-VSC2-22	B1.12	YES	133.0	73.9	55.6%	3	Jet Pump Riser Braces; Guide Rod at 20° Azimuth
RPV-VSC2-141	B1.12	NO	133.0	133.0	100.0%	5	
RPV-VSC2-261	B1.12	YES	133.0	73.9	55.6%	0	Jet Pump Riser Braces
RPV-VSC2-323	B1.12	NO	133.0	133.0	100.0%	1	
RPV-VSC1-55	B1.12	YES	133.0	114.0	85.7%	1	Manipulator lower scan limit; Nozzle N2-C
RPV-VSC1-77	B1.12	YES	133.0	0.0	0.0%	n/a	Core Spray piping
RPV-VSC1-197	B1.12	YES	133.0	0.0	0.0%	n/a	Guide Rod at 200° Azimuth
RPV-VSC1-317	B1.12	YES	133.0	114.0	85.7%	0	Manipulator lower scan limit; Nozzle N2-K

** Based on 90% Volume Coverage

QUAD CITIES - UNIT 1

