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October 29, 1999

SVP-99-194

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Quad Cities Nuclear Power Station, Units 1 and 2
Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Relief Request CR-32, Inservice Inspection Program Relief regarding Examination Coverage for Third Inservice Inspection Program Interval

Reference: Letter from J. P. Dimmette, Jr. (ComEd), SVP-99-063, to USNRC, dated April 9, 1999, "Reply to a Notice of Violation NRC Inspection Report Nos. 50-254/98021 and 50-265/98021"

As committed in the reference letter, Quad Cities Nuclear Power Station is submitting this Relief Request for those ASME Section XI weld examinations performed to date during the Third Inservice Inspection (ISI) Program Interval where the coverage achieved was less than or equal to 90%. Specifically, this includes the first period of the Third ISI Program Interval and two refueling outages that have been completed in the second period of the Third ISI Program Interval.

Relief is being requested in accordance with 10 CFR 50.55a(g)(5)(iii) on the basis that compliance with the specified requirements is impractical due to plant design. The proposed relief request is provided as an attachment to this letter.

Should you have any questions concerning his letter, please contact Mr. C. C. Peterson at (309) 654-2241, extension 3609.

Respectfully,

Joel P. Dimmette, Jr.
Site Vice President
Quad Cities Nuclear Power Station

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station

PDR ADOCK
A Unicom Company

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COMPONENT IDENTIFICATION

Code Classes: 1
2
References: Subarticle IWB-2500
Subarticle IWC-2500
Examination Categories: B-A, B-D, B-F & B-J
C-C & C-F-2
Item Numbers: B1.51, B3.90, B3.100, B5.130 & B9.11
C3.20, C5.51 & C5.81
Description: Volumetric and Surface Examination Coverage
Component Numbers: Various, see TABLE CR-32.1 and TABLE CR-32.2

CODE REQUIREMENT

Subarticle IWB-2500 states in part "Components shall be examined and tested as specified in Table IWB-2500-1". Table IWB-2500-1 requires a volumetric examination or a surface and volumetric examination be performed on the component based on Category and Item Number. The applicable examination area or volume and method required is as shown below from Table IWB-2500-1:

Examination Category	Item Number	Examination Requirements /Figure Number	Examination Method
B-A	B1.51	IWB-2500-1 IWB-2500-2	Volumetric
B-D	B3.90	IWB-2500-7(a) IWB-2500-7(b)	Volumetric
B-D	B3.100	IWB-2500-7(a) IWB-2500-7(b)	Volumetric
B-F	B5.130	IWB-2500-8(c)	Volumetric and Surface
B-J	B9.11	IWB-2500-8(c)	Surface and Volumetric

Subarticle IWC-2500 states in part "Components shall be examined and pressure tested as specified in Table IWC-2500-1". Table IWC-2500-1 requires a surface examination or a surface and volumetric examination be performed on the component based on Category and Item Number. The applicable examination area or volume and method required is as shown below from Table IWC-2500-1:

Examination Category	Item Number	Examination Requirements /Figure Number	Examination Method
C-C	C3.20	IWC-2500-5(a)	Surface
C-F-2	C5.51	IWC-2500-7(a)	Surface & Volumetric
C-F-2	C5.81	IWC-2500-12	Surface

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CODE REQUIREMENT FROM WHICH RELIEF IS REQUESTED

Relief is requested from performing a complete coverage examination of the entire volume or area required. Entire volume or area required is defined by ASME Section XI Code Case N-460 titled Alternative Examination Coverage for Class 1 and Class 2 Welds, Section XI, Division 1. Code Case N-460 states in part, "...when the entire examination volume or area cannot be examined...a reduction in examination coverage...may be accepted provided the reduction in coverage for that weld is less than 10%". Quad Cities Nuclear Power Station invokes Code Case N-460 for use during the Third Inservice Inspection Interval.

NRC Information Notice 98-42 titled Implementation of 10 CFR 50.55a(g) Inservice Inspection Requirements termed the reduction in coverage of less than 10% to be "essentially 100 percent". Information Notice 98-42 states in part, "The NRC has adopted and further refined the definition of "essentially 100 percent" to mean "greater than 90 percent"...has been applied to all examinations of welds or other areas required by ASME Section XI".

Relief is requested from performing an examination of "essentially 100%" of the required volume or area as applicable for the identified components in TABLE CR-32.1 and TABLE CR-32.2.

BACKGROUND

Commonwealth Edison (ComEd) Company, Quad Cities Nuclear Power Station misinterpreted the intent of 10 CFR 50.55a(g)(4) requirements regarding the examination of components to the extent practical within the limitations of design, geometry and materials of construction. ComEd's interpretation of the requirements resulted in the conclusion that relief was not required, on the basis that the examinations were performed to the extent practical within the constraints of design, geometry and materials of construction.

The issuance of NRC Information Notice 98-42 alerted the industry to certain aspects of requesting relief from ASME Code examinations that received less than "essentially 100%" coverage and resulted in our review of this issue with discovery of the misinterpretation. As a result of this misinterpretation, relief is being submitted for examinations performed during the completed portion of this third interval and are listed collectively in TABLE CR-32.1 and TABLE CR-32.2.

BASIS FOR RELIEF

In accordance with 10 CFR 50.55a(g)(5)(iii), relief is requested on the basis that the required "essentially 100%" coverage examination is impractical due to physical obstructions and limitations imposed by design, geometry and materials of construction for the components of TABLE CR-32.1 and TABLE CR-32.2.

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BASIS FOR RELIEF (CONT'D)

Quad Cities Nuclear Power Station, Units 1 and 2, obtained Construction Permits CPPR-23 and CPPR-24, respectively, on February 15, 1967. The piping systems and associated components were designed and fabricated before the examination requirements of ASME Section XI were formalized and published. Since this plant was not specifically designed to meet the requirements of ASME Section XI, compliance is not feasible or practical within the limits of the current plant design.

Physical obstructions imposed by design, geometry and materials of construction are typical of vessel appurtenances and sacrificial shield, insulation support rings, structural and component support members, adjacent component weldments in close proximity, unique component configurations and dissimilar metal weldments. Typical drawings or sketches are depicted in FIGURE CR-32.1 through FIGURE CR-32.5.

Improved examination techniques have been progressively upgraded during this interval to augment the required Section XI examinations. We have used the Electric Power Research Institute (EPRI), the Performance Demonstration Initiative (PDI), Inservice Inspection (ISI) vendors and other industry sources to encourage the development of and provide an awareness of improved examination techniques to enhance coverage and flaw detection commensurate with radiation dose reduction.

ComEd examination procedures are revised on a continuing basis to incorporate proven techniques for a higher level of safety and quality as they become available. The examinations and techniques used today exceed the examinations conducted in the past on each component.

All components received as a minimum, the required examination(s) applicable to the extent practical due to the limited or lack of access available. The examinations conducted, confirmed satisfactory results evidencing no unacceptable flaws present, even though "essentially 100%" coverage was not attained. ComEd has concluded that if any active degradation mechanisms were to exist in the subject welds, those degradations would have been identified in the examinations performed.

Based on the above, with our earlier design, the underlying objectives of the code required volumetric and surface examinations have been met. The examinations were completed to the extent practical and evidenced no unacceptable flaws present. Additionally, a VT-2 examination performed on the subject components during system pressure test per examination category B-P each refueling outage and category C-H each period provides additional assurance that the structural integrity of the subject components is maintained.

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PROPOSED ALTERNATE EXAMINATIONS

Quad Cities Nuclear Power Station Units 1 and 2 will revisit the subject components in TABLE CR-32.1 and TABLE CR-32.2 during the Fourth Inservice Inspection Interval with plans for increased coverage.

Units 1 and 2, System Reactor Pressure Vessel (RPV), Components (N1A IRS) and (N3A IRS) each received 0.00% coverage from the ultrasonic examination conducted during the first period of this interval, due to procedure inadequacies identified during our review for this relief request. Both components of both units will be reexamined as Proposed Alternate Examinations with updated procedures and techniques. The N3A IRS component will be examined during Q2R15 in January of 2000. The remaining components will be examined during the 3rd period of the current interval.

APPLICABLE TIME PERIOD

Relief is requested for the Third Inservice Inspection Interval of the Inservice Inspection Program for Quad Cities Nuclear Power Station Units 1 and Unit 2.

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TABLE CR-32.1

UNIT 1 COMPONENTS WITH LESS THAN "ESSENTIALLY 100%" COVERAGE

Section XI Category & Item No.	Component System & Number	Component Description	Condition Limiting Coverage	Exam & Coverage Percent
B-A B1.51	RPV BMR-167-305	RPV Weld Beltline Repair Area	RPV internal Jet Pump Riser braces & guide rod See drawing of limited area, FIGURE CR-32.1	UT 79.50
B-A B1.51	RPV BMR-018-310	RPV Weld Beltline Repair Area	RPV internal Jet Pump Riser braces & guide rod	UT 62.60
B-A B1.51	RPV BMR-016-295	RPV Weld Beltline Repair Area	RPV internal Jet Pump Riser braces & guide rod	UT 0.00
B-D B3.90	RPV N1A NOZ	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 20.70
B-D B3.90	RPV N2A NOZ	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 24.78
B-D B3.90	RPV N2B NOZ	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 24.78
B-D B3.90	RPV N2C NOZ	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 40.26
B-D B3.90	RPV N2D NOZ	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 40.26
B-D B3.90	RPV N2E NOZ	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 40.26
B-D B3.90	RPV N3A NOZ	Vessel-Nozzle (Main Steam)	Nozzle, radius blend & weld configuration	UT 21.43
B-D B3.90	RPV N3B NOZ	Vessel-Nozzle (Main Steam)	Nozzle, radius blend & weld configuration	UT 46.65
B-D B3.90	RPV N4A NOZ	Vessel-Nozzle (Feed Water)	Nozzle, radius blend & weld configuration	UT 26.71
B-D B3.90	RPV N4B NOZ	Vessel-Nozzle (Feed Water)	Nozzle, radius blend & weld configuration	UT 26.71
B-D B3.90	RPV N4C NOZ	Vessel-Nozzle (Feed Water)	Nozzle, radius blend & weld configuration	UT 26.71
B-D B3.90	RPV N4D NOZ	Vessel-Nozzle (Feed Water)	Nozzle, radius blend & weld configuration	UT 26.71
B-D B3.90	RPV N5A NOZ	Vessel-Nozzle (Core Spray)	Nozzle, radius blend & weld configuration	UT 24.35
B-D B3.90	RPV N6A NOZ	Head-Nozzle (Head Spray)	Nozzle, radius blend & weld configuration	UT 43.07
B-D B3.90	RPV N7 NOZ	Head-Nozzle (Head Vent)	Nozzle, radius blend & weld configuration	UT 38.96
B-D B3.90	RPV N8A NOZ	Vessel-Nozzle (Jet Pump Instr)	Nozzle, radius blend & weld configuration and adjacent RPV lower head weld	UT 41.53
B-D B3.100	RPV N1A IRS	Vessel-Nozzle (Recirculation)	Vessel, weld, radius blend & nozzle configuration	UT 0.00
B-D B3.100	RPV N2A IRS	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 65.53
B-D B3.100	RPV N2B IRS	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 65.53
B-D B3.100	RPV N2C IRS	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 77.63

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TABLE CR-32.1 (Cont'd)

UNIT 1 COMPONENTS WITH LESS THAN "ESSENTIALLY 100%" COVERAGE

Section XI Category & Item No.	Component System & Number	Component Description	Condition Limiting Coverage	Exam & Coverage Percent
B-D B3.100	RPV N2D IRS	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 77.63
B-D B3.100	RPV N2E IRS	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 77.63
B-D B3.100	RPV N3A IRS	Vessel-Nozzle (Main Steam)	Vessel, weld, radius blend, & nozzle configuration	UT 0.00
B-D B3.100	RPV N3B IRS	Vessel-Nozzle (Main Steam)	Nozzle, radius blend & weld configuration	UT 70.65
B-D B3.100	RPV N5A IRS	Vessel-Nozzle (Core Spray)	Nozzle, radius blend & weld configuration	UT 63.91
B-D B3.100	RPV N6A IRS	Head-Nozzle (Head Spray)	Nozzle, radius blend & weld configuration	UT 82.69
B-D B3.100	RPV N7 IRS	Head-Nozzle (Head Vent)	Nozzle, radius blend & weld configuration	UT 72.81
B-D B3.100	RPV N8A IRS	Vessel-Nozzle (Jet Pump Instr)	Nozzle, radius blend & weld configuration and adjacent RPV lower head weld	UT 69.78
B-F B5.130	CSB 14B-F6AR	CS Pipe (w/SS Butter)-SS Valve	Valve & weld configuration and unique dissimilar weld design See drawing of profile & weldment design, FIGURE CR-32.2	UT 66.05
B-J B9.11	CSB 14B-F16	Penetration-Pipe	Penetration & weld configuration	UT 70.19
B-J B9.11	JPI N8A-S3	Reducer-Reducer 4" x 8" - 8" x 12"	8" x 12" eccentric reducer configuration	UT 75.00
B-J B9.11	RR 02-F1	Valve-Pipe	Valve configuration	UT 69.53
B-J B9.11	RR 02H-F6	Pipe-Sweepolet	Sweepolet configuration	UT 66.39
B-J B9.11	RR 02BS-F6	Tee-Valve	Tee, weld & valve configuration See drawing of profile, FIGURE CR-32.3	UT 70.72
B-J B9.11	RHRA 10AD-F1	Pipe-Tee	Tee configuration	UT 66.48
B-J B9.11	RHRB 10BD-F1	Pipe-Tee	Tee configuration	UT 70.32
B-J B9.11	RWCU 12S-F24R	Penetration-Pipe	Penetration configuration	UT 83.24
C-C C3.20	CRD 0318A-W-201A	Guide w/8 Lugs welded to pipe	Welded support bracket & branch connection	MT 87.98
C-C C3.20	RHRB 1009B-W-211A	Guide w/8 Lugs welded to pipe	Welded support bracket & structural embed See drawing of inaccessible lugs, FIGURE CR-32.4	MT 46.14
C-F-2 C5.51	FWB 3204B-5	Pipe-Valve	Valve configuration & adjacent saddle weld	UT 86.84
C-F-2 C5.81	RHRB 1016D-8	Pipe-Branch	Adjacent flanges	MT 86.70

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TABLE CR-32.2

UNIT 2 COMPONENTS WITH LESS THAN "ESSENTIALLY 100%" COVERAGE

Section XI Category & Item No.	Component System & Number	Component Description	Condition Limiting Coverage	Exam & Coverage Percent
B-D B3.90	RPV N1A NOZ	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 20.44
B-D B3.90	RPV N2A NOZ	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 25.95
B-D B3.90	RPV N2B NOZ	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 26.36
B-D B3.90	RPV N2C NOZ	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 25.95
B-D B3.90	RPV N2D NOZ	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 25.95
B-D B3.90	RPV N2E NOZ	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 26.36
B-D B3.90	RPV N3A NOZ	Vessel-Nozzle (Main Steam)	Nozzle, radius blend & weld configuration and adjacent RPV flange weld	UT 21.55
B-D B3.90	RPV N4A NOZ	Vessel-Nozzle (Feed Water)	Nozzle, radius blend & weld configuration	UT 45.30
B-D B3.90	RPV N4B NOZ	Vessel-Nozzle (Feed Water)	Nozzle, radius blend & weld configuration	UT 45.30
B-D B3.90	RPV N4C NOZ	Vessel-Nozzle (Feed Water)	Nozzle, radius blend & weld configuration	UT 45.30
B-D B3.90	RPV N4D NOZ	Vessel-Nozzle (Feed Water)	Nozzle, radius blend & weld configuration	UT 45.30
B-D B3.90	RPV N5A NOZ	Vessel-Nozzle (Core Spray)	Nozzle, radius blend & weld configuration and insulation & insulation ring	UT 23.74
B-D B3.90	RPV N6A NOZ	Head-Nozzle (Head Spray)	Nozzle, radius blend & weld configuration	UT 28.61
B-D B3.90	RPV N7 NOZ	Head-Nozzle (Head Vent)	Nozzle, radius blend & weld configuration	UT 38.95
B-D B3.90	RPV N8A NOZ	Vessel-Nozzle (Jet Pump Instr)	Nozzle, radius blend & weld configuration and adjacent RPV lower head weld See drawing of nozzle & weld configuration, FIGURE CR-32.5	UT 57.67
B-D B3.100	RPV N1A IRS	Vessel-Nozzle (Recirculation)	Vessel, weld, radius blend, & nozzle configuration	UT 0.00
B-D B3.100	RPV N2A IRS	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 61.23
B-D B3.100	RPV N2B IRS	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 71.69
B-D B3.100	RPV N2C IRS	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 61.23
B-D B3.100	RPV N2D IRS	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 61.23
B-D B3.100	RPV N2E IRS	Vessel-Nozzle (Recirculation)	Nozzle, radius blend & weld configuration	UT 71.69
B-D B3.100	RPV N3A IRS	Vessel-Nozzle (Main Steam)	Vessel, weld, radius blend & nozzle configuration and adjacent RPV flange weld	UT 0.00

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TABLE CR-32.2 (Cont'd)

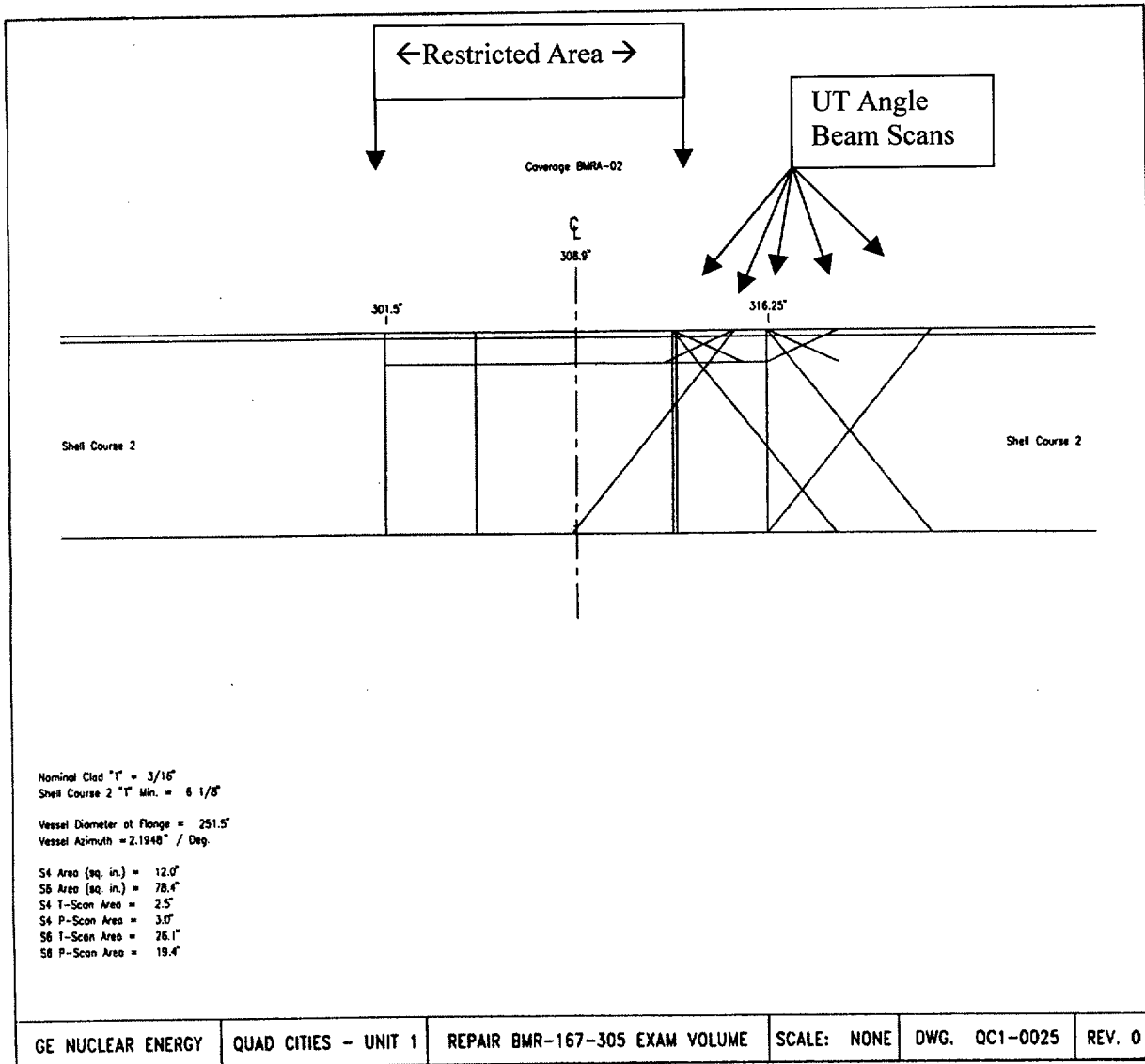
UNIT 2 COMPONENTS WITH LESS THAN "ESSENTIALLY 100%" COVERAGE

Section XI Category & Item No.	Component System & Number	Component Description	Condition Limiting Coverage	Exam & Coverage Percent
B-D B3.100	RPV N5A IRS	Vessel-Nozzle (Core Spray)	Nozzle, radius blend & weld configuration	UT 63.90
B-D B3.100	RPV N6A IRS	Head-Nozzle (Head Spray)	Nozzle, radius blend & weld configuration	UT 87.80
B-D B3.100	RPV N7 IRS	Head-Nozzle (Head Vent)	Nozzle, radius blend & weld configuration	UT 75.26
B-D B3.100	RPV N8A IRS	Vessel-Nozzle (Jet Pump Instr)	Nozzle, radius blend & weld configuration and adjacent RPV lower head weld	UT 68.66
B-F B5.130	CSA 14A-S8R	SS Valve-CS Pipe	Valve configuration and unique dissimilar weld design	UT 68.08
B-J B9.11	RR 02-F1	Valve-Pipe	Valve configuration	UT 83.00
B-J B9.11	RHRA 10AD-F3	Elbow-Valve	Valve configuration & welded attachment	UT 87.40
B-J B9.11	RHRB 10BD-F1	Tee-Pipe	Tee configuration	UT 78.10
B-J B9.11	RWCU 12S-F12AR	Valve-Pipe	Valve configuration	UT 87.48
B-J B9.11	RWCU 12S-S29R	Pipe-Valve	Valve & weld configuration	UT 35.21
C-C C3.20	CRD 0318A-W-201A	Guide w/8 Lugs welded to Pipe	Welded support bracket & branch connection	MT 89.18

FIGURE CR-32.1

UNIT 1, COMPONENT BMR-167-305, RPV WELD BELTLINE REPAIR AREA

Ultrasonic Examination limited to one side of required volume due to RPV internal Jet Pump Riser Braces and Guide Rod interferences



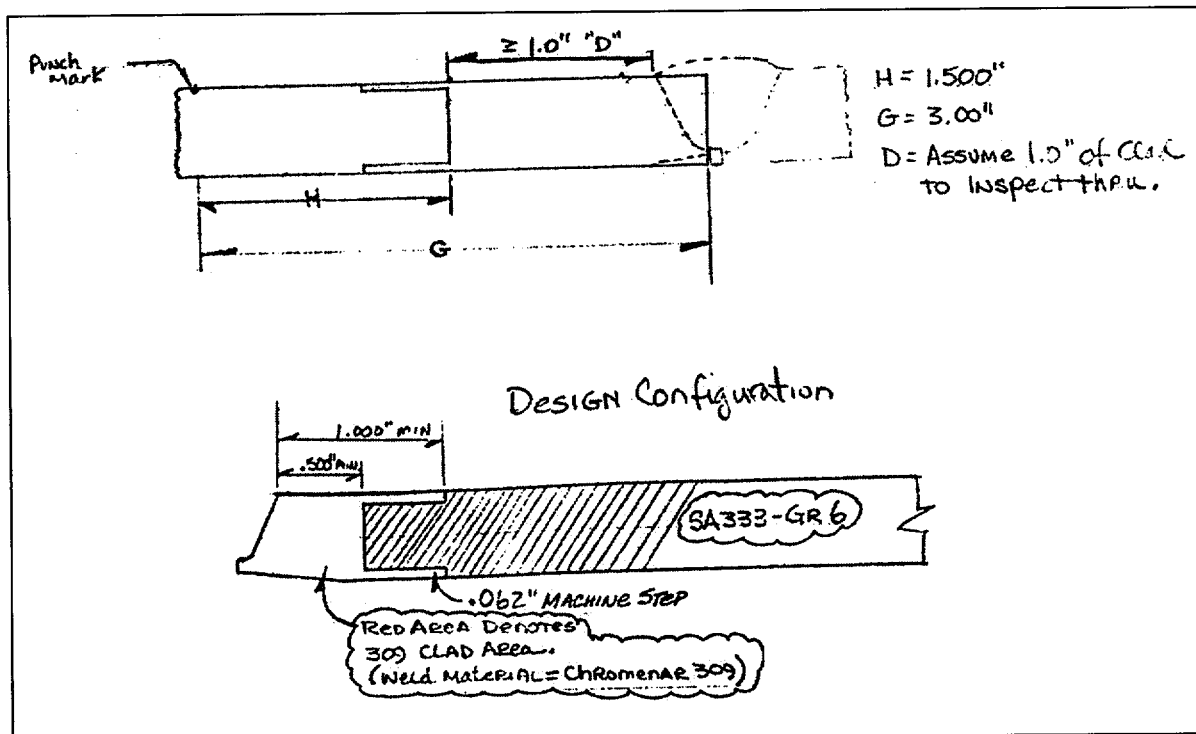
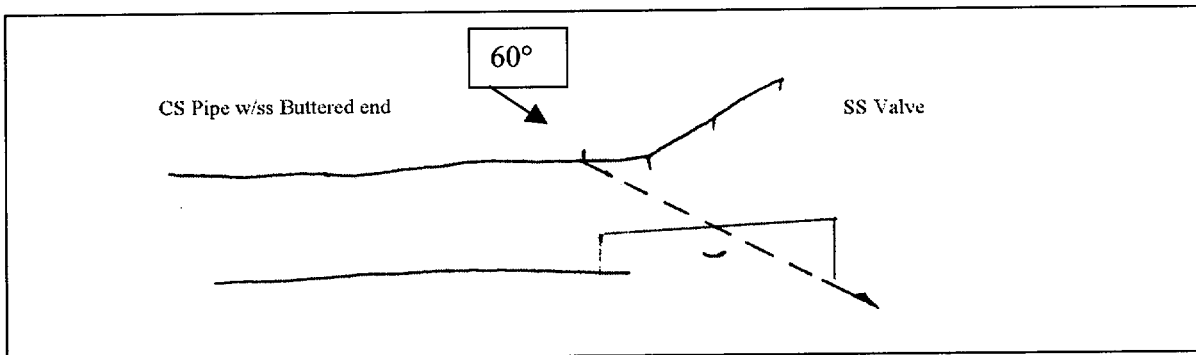
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FIGURE CR-32.2

UNIT 1, COMPONENT 14B-F6AR, CS PIPE (w/SS BUTTER)-SS VALVE

Ultrasonic 45 - Shear Examination is impractical due to dissimilar weld metal design,
60 - Refracted Longitudinal Examination limited due to configuration of weld & valve

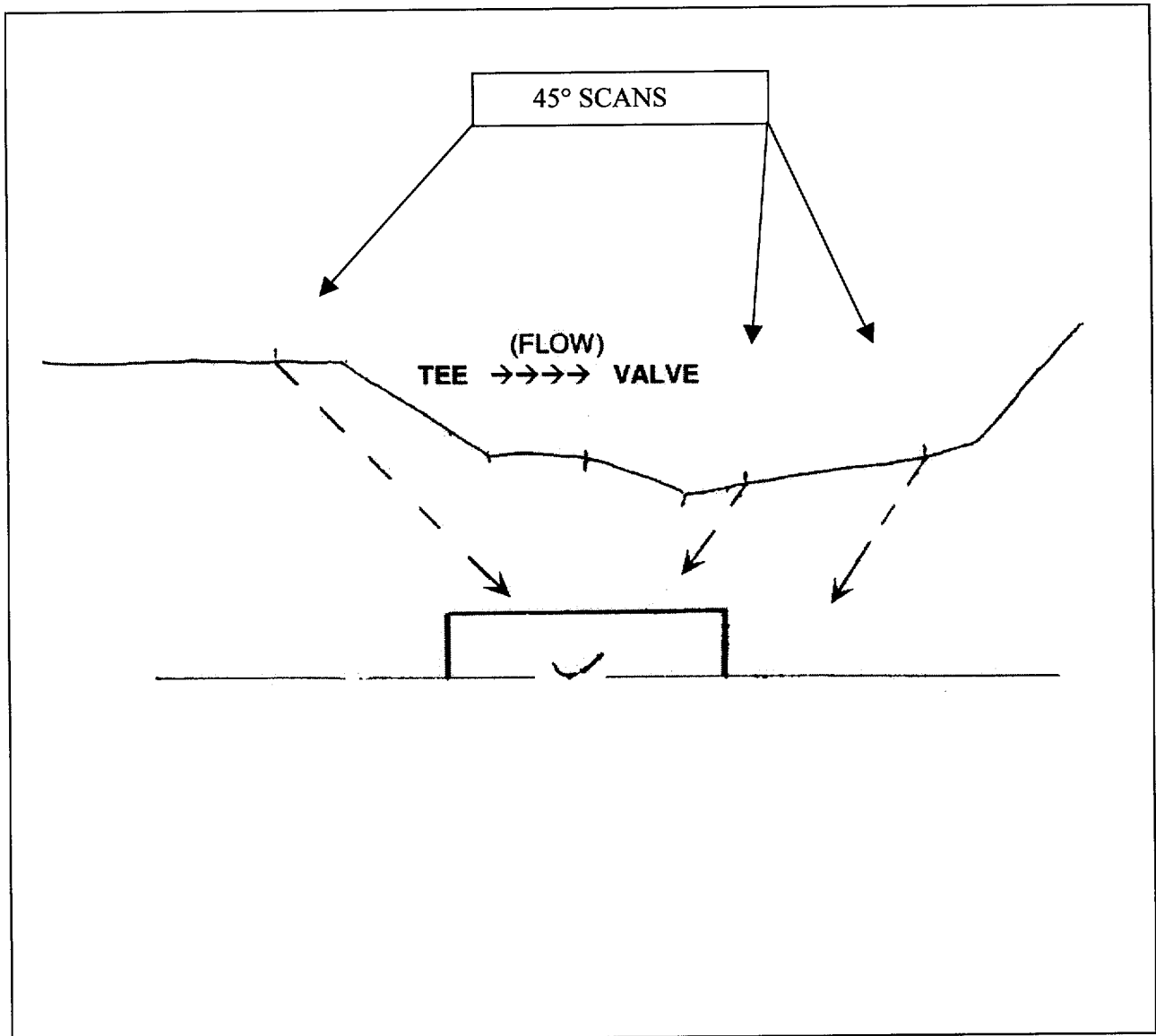


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FIGURE CR-32.3

UNIT 1, COMPONENT 02BS-F6, TEE-VALVE

Ultrasonic Examination limited due to tee & valve outside surface machining and weld profile

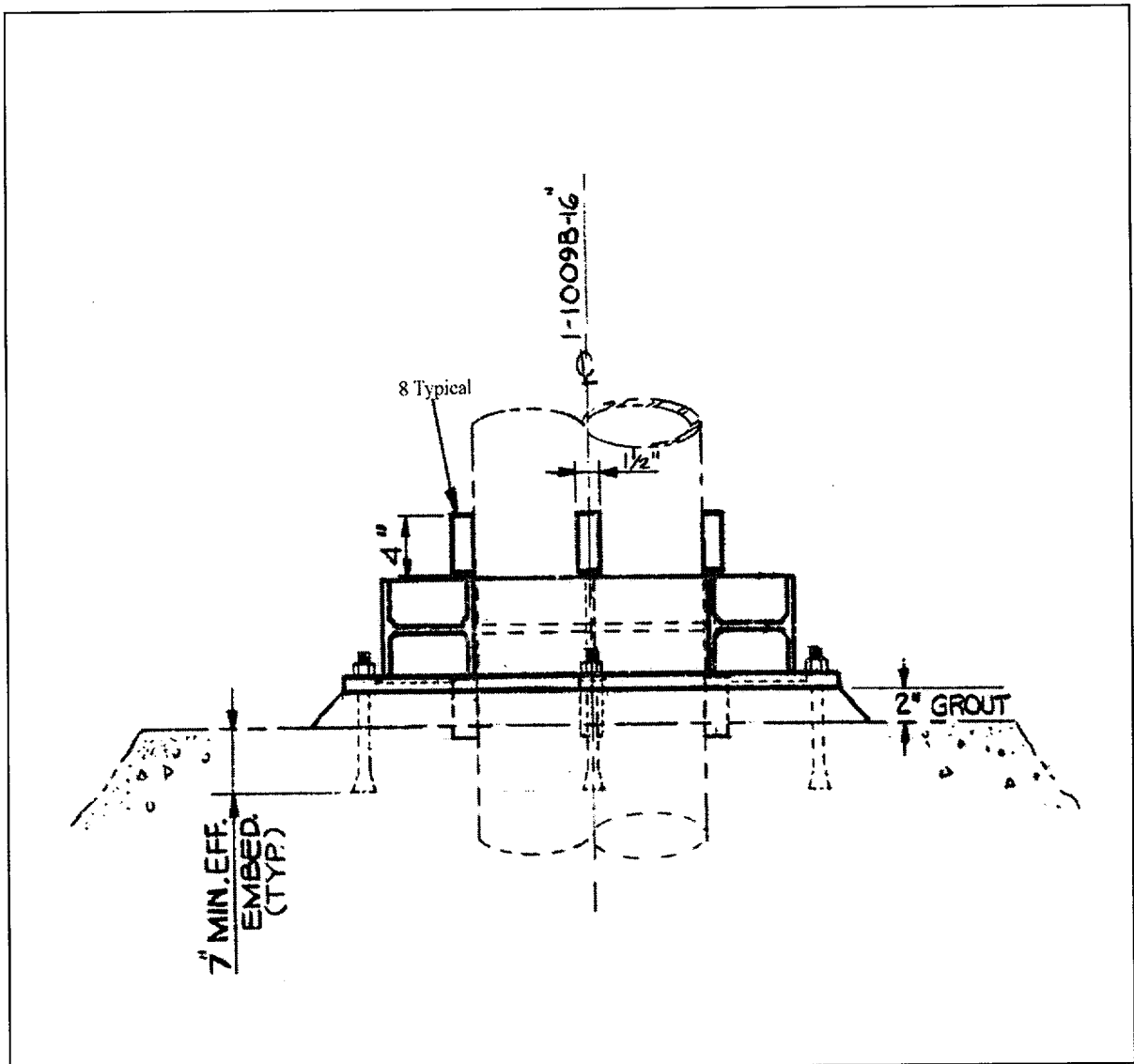


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FIGURE CR-32.4

UNIT 1, COMPONENT 1009B-W-211A, GUIDE w/8 LUGS

Magnetic Particle Examination limited to 4 upper lugs partially accessible due to welded support bracket and 4 lower lugs inaccessible due to welded support bracket, grout & concrete embed



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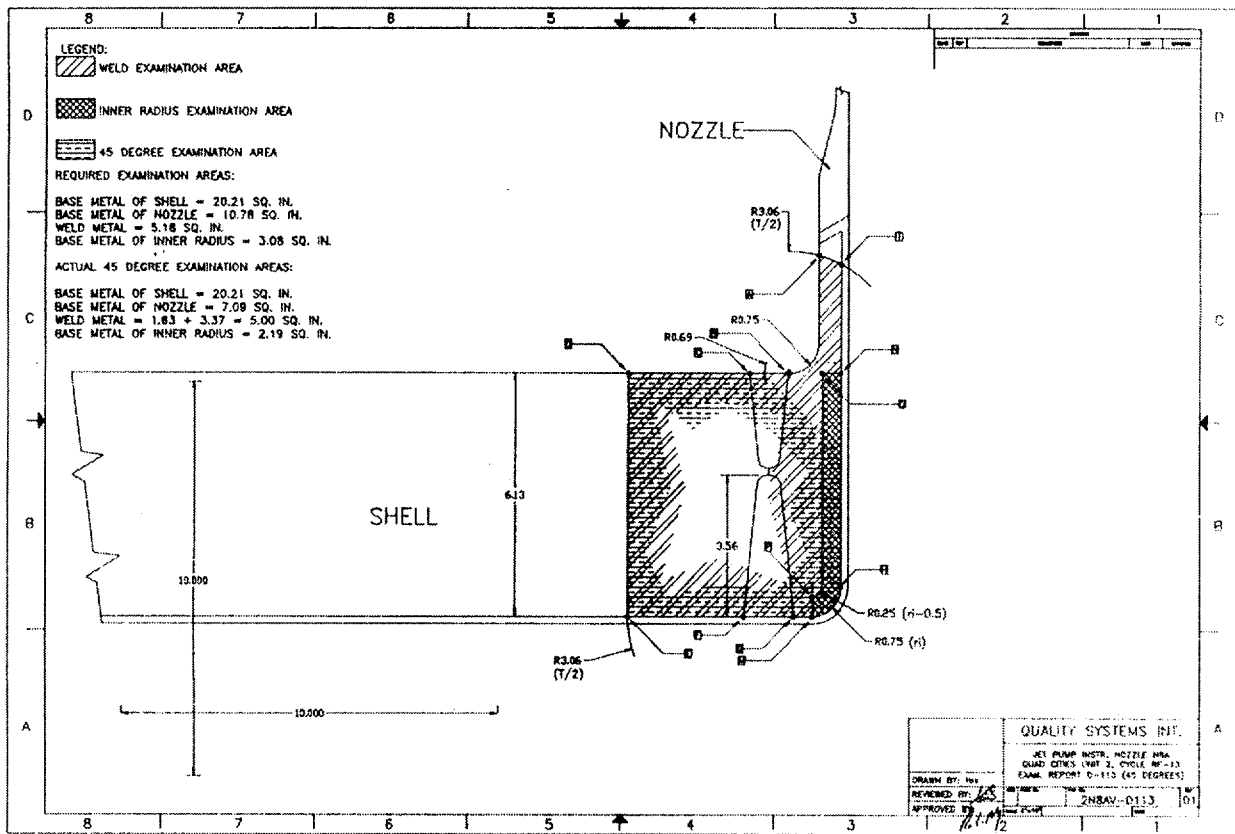
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FIGURE CR-32.5

UNIT 2, COMPONENT N8A NOZ, VESSEL-NOZZLE

Ultrasonic Examination limited in required volume due to weld, radius blend & nozzle configuration along with adjacent RPV lower head weld interference on bottom side of nozzle



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