



**Northeast
Nuclear Energy**

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The Northeast Utilities System

SEP 23 1998

Docket No. 50-423

B17468

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Millstone Nuclear Power Station, Unit No. 3
Inservice Inspection Program
Request For Relief From ASME Section XI

Northeast Nuclear Energy Company (NNECO) hereby requests relief from the requirements of 10CFR50.55a(g) for performing the required examinations for certain Class 1 components in accordance with the American Society of Mechanical Engineers (ASME) Section XI for Millstone Unit 3.

Technical Specification 4.0.5 states that the Inservice Inspection and Testing of the ASME Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable addenda as required by 10CFR50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10CFR50.55a(g)(6)(i). Accordingly, pursuant to 10CFR50.55a(g)(5)(iii), NNECO hereby requests relief from performing the inservice volumetric examinations of inaccessible portions of the Reactor Pressure Vessel Flange - to - Shell Weld.

IR-27: Reactor Pressure Vessel, Weld Nos. 101 - 121, Flange - to - Shell Weld

ASME Section XI 1983 Edition through the Summer 1983 Addenda, Article IWB-2500, requires a volumetric examination of essentially 100 percent (%) of the weld length for the Reactor Pressure Vessel Flange - to - Shell weld (Code Category B-A, Code Item No. B1.30). Geometric configuration and inside surface taper limit accessibility to perform the volumetric examination of portions of these welds. Relief is therefore requested from performing the inservice examination of the inaccessible portions of the subject Reactor Pressure Vessel Flange - to - Shell Weld. A detailed relief description is provided in Attachments 1 through 3.

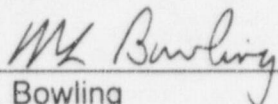
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Should you have any questions regarding this matter, please contact Mr. D. A. Smith at (860) 437-5840.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY



Martin L. Bowling
Millstone Unit No.2 Recovery Officer

Attachments: (3)

1. Relief From In-Service Inspection Requirements (IR-27) Reactor Pressure Vessel Flange - to - Shell Weld
2. IR-27 Figure A-1, Vessel drawing
3. IR-27 Appendix F, "Examination Area Coverage Report For Millstone Nuclear Power Station, Unit 3, Reactor Pressure Vessel Welds."

cc: H. J. Miller, Region I Administrator
J. W. Andersen, NRC Project Manager, Millstone Unit No. 3
A. C. Cerne, Senior Resident Inspector, Millstone Unit No. 3
W. D. Travers, PhD, Director, Special Projects Office

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Attachment 1

Millstone Nuclear Power Station, Unit No. 3
Relief From In-Service Inspection Requirements
IR-27
Reactor Pressure Vessel Flange - to - Shell Weld

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Attachment 1
Relief From In-Service Inspection Requirements

Relief Request: IR-27 - Reactor Pressure Vessel Flange - to - Shell Weld

Reactor Pressure Vessel Flange - to - Shell Weld

Component Identification:

Code Class: 1 Examination Category: B-A, Weld No. 101 - 121

Code Requirement:

ASME Section XI 1983 Edition through the Summer 1983 Addenda, Article IWB-2500, requires a volumetric examination of essentially 100% of the weld length for the following items.

Item	Description
B1.30	Flange - to - Shell Weld

Code Relief Request:

Pursuant to 10CFR50.55a(g)(5)(iii), relief is requested from performing the inservice volumetric examination of the inaccessible portion of the subject Weld.

Basis for Requesting Relief:

In performing the 1st 10 year Interval Reactor Pressure Vessel Exam, the best available technology was utilized in performing a volumetric exam of the vessel from the I.D. Geometric configuration limits the volumetric examination of Weld No. 101 - 121, Flange - to - Shell, as shown in Attachment 2. Specifically, volumetric examination requires that the inside (ID) and outside (OD) surfaces of the examination area must be relatively parallel in order to provide meaningful test results. The geometric configuration of the Shell - to - Flange weld (101-121) includes tapers on both the ID and OD of the flange side surface. This taper results in a non-parallel surface configuration, thereby limiting meaningful examination to the Shell side of the weld.

Appendix F "EXAMINATION AREA COVERAGE REPORT FOR MILLSTONE NUCLEAR POWER STATION, UNIT 3, REACTOR PRESSURE VESSEL WELDS" (Attachment 3) provides details of the examination coverage and limited weld required volume for the weld examination data in question.

The limitations caused by the surface taper when performing the exams on weld 101-121 from the I.D. would also be similarly realized when performing a ultrasonic exam

from the O.D.. Therefore, no additional benefit would be realized from performing a volumetric exam from the O.D. of the vessel on this weld.

The subject weld received both volumetric examination by radiography and surface examinations, in accordance with ASME Section III requirements during the fabrication process. This provides adequate assurance of the structural integrity of the weld.

Proposed Alternative Examinations:

- 1) The subject weld received a volumetric exam (utilizing best available technology) on the accessible portions (approximately 70 percent) in accordance with Section XI (IWB-2500-1).
- 2) Inservice system leakage test will be performed per Code Case N-498-1 as granted by the NRC (Correspondence dated January 18, 1995 TAC NOS. M90685, M90841, M91103, M90580).

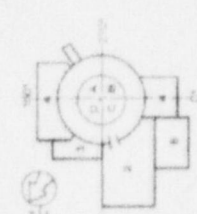
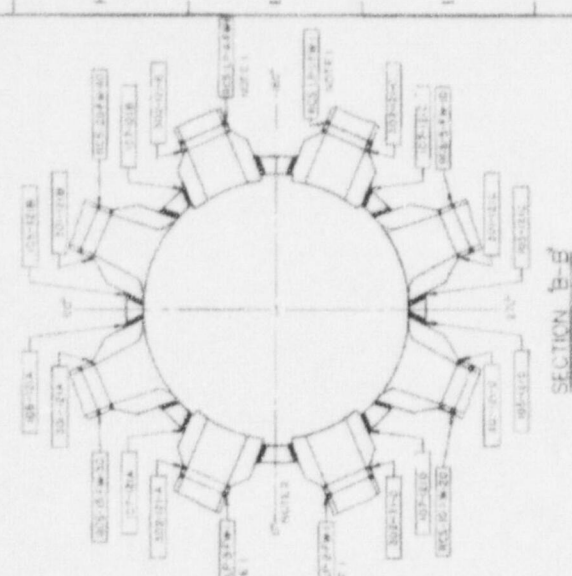
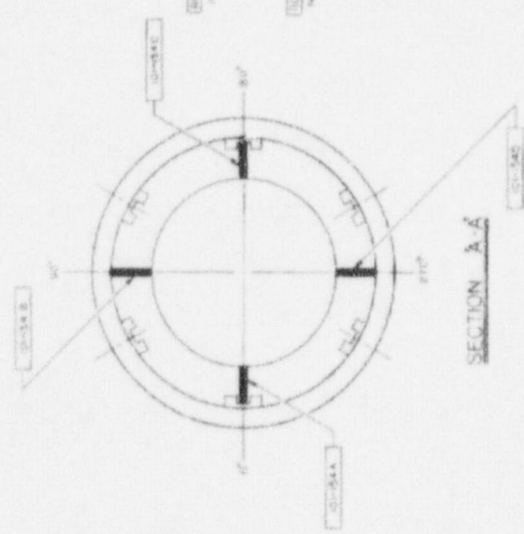
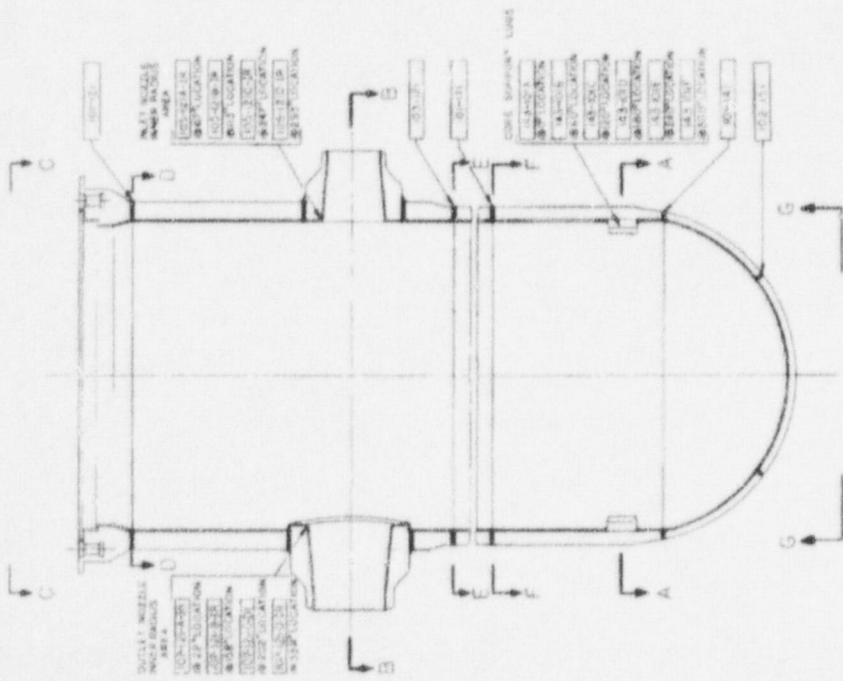
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Attachment 2

Millstone Nuclear Power Station, Unit No. 3
IR-27
Figure A-1

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1 2 3 4 5 6 7 8 9 10 11



REFERENCE DRAWINGS:

NO. 1 2 3 4

1. 10-1000-10-001 REV. 01

2. 10-1000-10-002 REV. 02

3. 10-1000-10-003 REV. 03

4. 10-1000-10-004 REV. 04

QA

NORTH EAST UTILITIES SERVICE CO.	
MILLSTONE NUC. PWR. STA. UNIT 3	
REACTOR VESSEL ZONE 001	
WELD DESIGNATIONS	
DATE	DESCRIPTION
10/10/00	ISSUED FOR CONSTRUCTION
11/10/00	REVISED FOR WELDING
12/10/00	REVISED FOR INSULATION
01/11/01	REVISED FOR PAINTING
02/11/01	REVISED FOR OPERATIONAL EQUIPMENT
03/11/01	REVISED FOR MAINTENANCE EQUIPMENT
04/11/01	REVISED FOR REPAIR EQUIPMENT

NOTES:

- DESIGN AND FABRICATION
- CONSTRUCTION
- WELDING
- INSULATION
- PAINTING
- OPERATION
- MAINTENANCE
- REPAIRS

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Attachment 3

Millstone Nuclear Power Station, Unit No. 3

IR-27
Appendix F

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Attachment 3

Appendix F
Examination Area Coverage Report For
Millstone Nuclear Power Station, Unit 3,
Reactor Pressure Vessel Welds

This appendix describes the (UT) examination coverage obtained and examination limitations encountered during the 1995 Inservice examination of the Millstone Nuclear Power Station, Unit 3, Reactor Pressure Vessel (RPV) welds and select components. The examinations were performed by Southwest Research Institute (SwRI) using automated scanning equipment and AUT data recording and analysis systems in accordance with the Scan Plan and procedures approved by Northeast Nuclear Energy Company (NNECO). These procedures comply with the requirements of the 1983 Edition with Addenda through Summer 1983 of the American Society of Mechanical Engineers (ASME) Section XI and the United States Nuclear Regulatory Commission Regulatory Guide 1.150, Rev 1 Appendix A.

The limitations encountered were compared to those listed in the NNECO's Request for Relief No. IR-1, Rev 2 (as based on the preservice examinations). The coverage's obtained during the examination were either consistent with or improved over those anticipated in the request for relief.

The examination coverage for the RPV welds was determined in accordance with the requirements of Section V, T-441.3.2. These requirements are as follows:

- (1) Reflectors oriented parallel to the welds
 - (a) The inner 25%t including the weld metal and adjacent base metal for 1/2t either side of the weld fusion line (volume A in the figures) must be completely scanned with the 50/70 search unit aimed at right angles to the weld axis. Scanning shall be performed in two directions 180 degrees to each other.
 - (b) The weld metal in the outer 75%t (volume B in the figures) must be completely scanned by two angle beams (45- and 60 degree), with the units aimed at right angles to the weld axis. Scanning shall be performed in two directions 180 degrees to each other.
 - (c) The adjacent base metal in the outer 75%t for 1/2t either side of the weld fusion line (volumes C and D in the figures) must be completely scanned by two angle beams (45- and 60 degree), but need not be completely scanned by both angle beams from both directions (any combination of the two angle beams will satisfy the requirements).
- (2) Reflectors oriented transverse to the weld
 - (a) The inner 25%t including the weld metal and adjacent base metal for 1/2t either side of the weld fusion line (volume A in the figures) must be completely scanned with the 50/70 search unit aimed at right angles to the weld axis. Scanning shall be performed in two directions 180 degrees to each other to the extent possible. Areas block by geometric conditions shall be examined from at least one direction.
 - (b) The adjacent base metal in the outer 75%t for 1/2t either side of the weld fusion line (volumes B, C, and D in the figures) must be scanned with the 45- and 60 degree search unit beams directed parallel to the weld axis. Scanning shall be performed in two directions 180 degrees to each other to the extent possible. Areas blocked by geometric conditions shall be examined from at least one direction.

- (3) The base material through which the angle beams pass must be scanned with a straight-beam search unit to detect laminar reflectors which might affect interpretations of the angle-beam results. The required volume to be examined is limited to only those volumes that receive coverage with angle beams. This could be all, or any part of the ABCDEF volumes shown in the figures.
- (4) Straight beam scanning of planar reflectors must be performed on the entire weld and adjacent base material (volumes A, B, C, and D in the figures).

The ASME Code-specified techniques for AUT RPV examinations were augmented by special SwRI-qualified techniques to obtain complete and highly sensitive coverage of the underclad and near-surface material volumes. AUT examination coverage tables in this appendix quantify the volume of material examined with each UT technique for each examination area.

Explanation Of The Examination Coverage Tables

The following contains an explanation of each item listed in the Examination Coverage Tables.

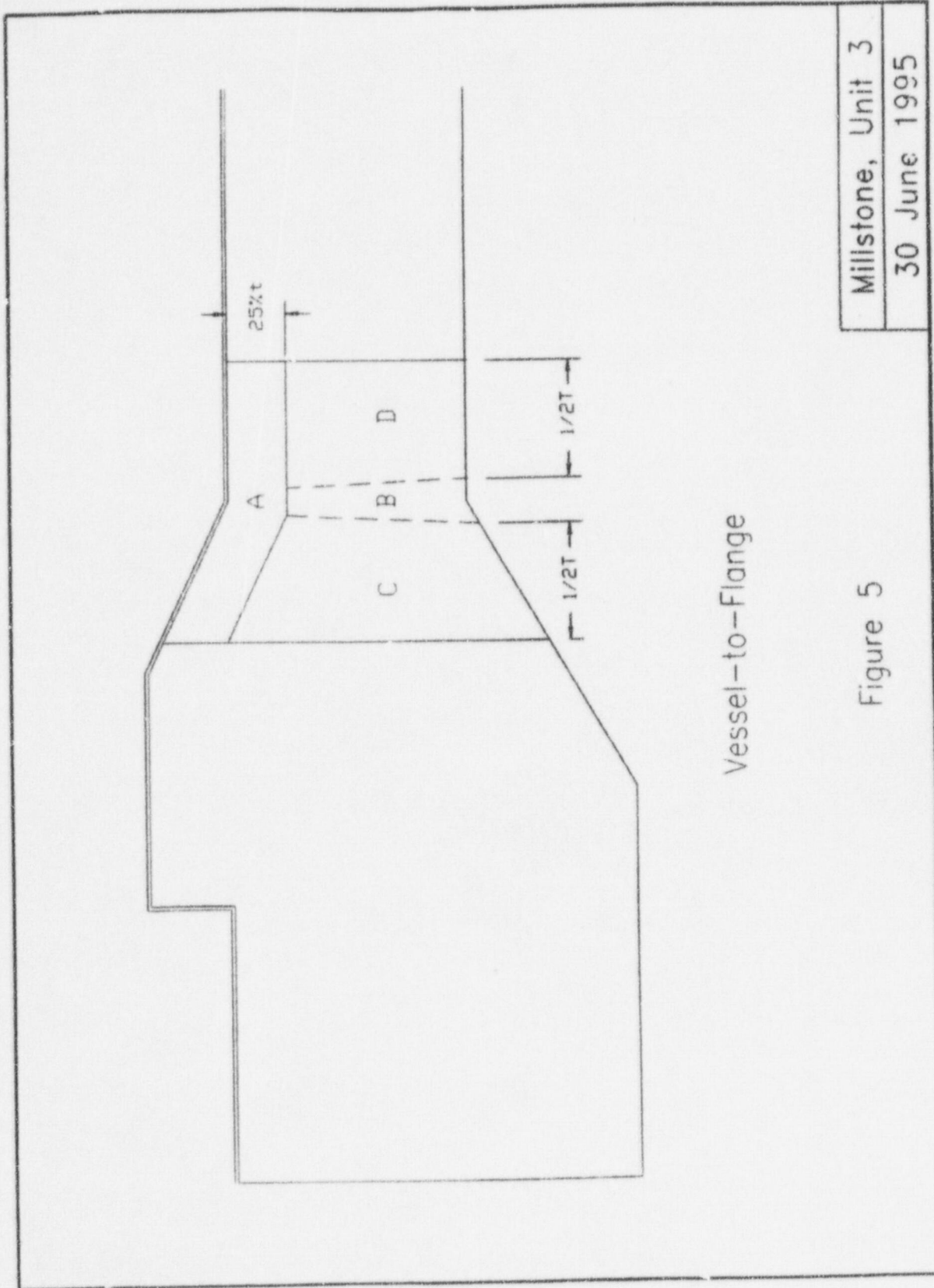
Summary Number	The examination Summary Sheet number that is assigned to each particular weld.
Weld Number	The specific weld identification number as supplied by NNECO.
Exam Area Identification	Description of the weld type or component identification.
Exam Volume And Figure	The specific volume as identified in ASME Section XI, Regulatory Guide 1.150, and Figures 2 through 9.
Beam Angle(S)	The refracted longitudinal or shear wave angles used for the examination.
Exam Type	As defined in Article 4 of ASME Section V, the type of flaw that each examination is intended to detect, e.g., flaws transverse or parallel to the weld, straight beam for planar or laminar flaws, etc.
Beam Direction(S)	for each volume, the number of directions that the beam was directed to detect the type of flaw (parallel to transverse to the weld)
Code Coverage	The percent of coverage for each volume, as a function of the beam angle(s), exam type, and beam direction(s) combined.
Remarks	This section is used to explain the source or cause of any limitations encountered.

Notes:

1. The average shown as a percent is a simple average of the coverage for all required examinations performed.
2. All straight beam (0 degree) examination directions are listed as "N/A" because a straight beam can only be introduced into a volume in a single direction.
3. The examination limitations report and coverage tables are restricted to examinations performed by SwRI, and do not reflect limitations from examinations performed by others during previous inservice inspections, or examinations that have been deferred.
4. The required volume for straight beam lamination examinations is defined as only the area through which the angle beam(s) pass.

**Millstone Nuclear Power Station, Unit 3
 1995 Reactor Vessel Inservice Inspection
 Examination Coverage tables (Cont'd)**

Summary Number	Weld Number	Exam Area Identification	Exam		Beam Angles	Exam Type	Beam Directions(s)	Code Coverage	Remarks
			Volume	Figure					
002800	101-121	Flange to Upper Shell	ABCD A BCD ABCDEF ABCD	5	2, 6, & 12 50/70 45 & 60 0 0	Parallel Transverse Transverse Lamination Planar (weld)	n/a 2 Directions 2 Directions N/A N/A Average	100% 50% 50% 100% 50% 70%	Transverse examinations limited due to inside surface taper



Vessel-to-Flange

Millstone, Unit 3
30 June 1995

Figure 5