

Northeast  
Utilities System

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July 26, 1994

Docket No. 50-336  
B14906

Re: 10CFR50.55a(g)

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

Millstone Nuclear Power Station, Unit No. 2  
Revision 1 to Request for Relief from Section XI of  
ASME Code Examination Requirements

**Purpose**

The purpose of this letter is to revise a previous request for relief from an ASME Code Section XI Examination Requirement at Millstone Unit No. 2. It will also transmit a corrected page to the previously submitted Millstone Unit No. 2 1993 Inservice Inspection Report.

**Background**

In a letter dated June 27, 1985,<sup>(1)</sup> Northeast Nuclear Energy Company (NNECO) submitted the second 10-year interval Inservice Inspection (ISI) program for Millstone Unit No. 2. This letter also contained requests for relief from examination requirements determined to be impractical to perform. In response to a Staff request for additional information, NNECO submitted a complete revision to the ISI program and supplemental information in a letter December 23, 1986.<sup>(2)</sup>

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- (1) J. F. Opeka letter to E. J. Butcher, "Inservice Inspection and Testing Program," dated June 27, 1985.
  - (2) E. J. Mroczka letter to A. C. Thadani, "Inservice Inspection and Testing Program Request for Additional Information," dated December 23, 1986.

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In a letter dated April 17, 1989,<sup>(3)</sup> the Staff forwarded the Safety Evaluation Report and Technical Evaluation Report approving the proposed alternative examinations and tests, finding the reliefs to be acceptable for the 10-year interval December 26, 1985 through December 26, 1995.

In a letter dated June 14, 1991,<sup>(4)</sup> NNECO requested relief from two code requirements. One of those, Relief-Request-10 (RR-10), involved surface examinations which were not required during the first 10-year interval due to applicability of the 1974 Edition, Summer 1975 Addenda of the ASME Code. Specific information was provided which identified the applicable code requirement, justification for the relief request, and the inspection method to be used as an alternative. The proposed alternative examinations were in full compliance with the requirements of 10CFR50.55a(g).

In a letter dated April 2, 1992,<sup>(5)</sup> the NRC Staff transmitted the Safety Evaluation Report, concluding that with regard to RR-10, the proposed alternative full volumetric examination of the weld and heat affected zone instead of the required inner 1/3 should provide reasonable assurance of the continued structural integrity of certain Category B-J welds of the reactor coolant system. Therefore, in accordance with 10CFR50.55a(g)(6)(i), the NRC Staff found that the relief request would be granted.

### Discussion

While reviewing the scheduled 10-year reactor vessel examination requirements, NNECO determined that four additional reactor coolant system loop piping welds and their associated long seam welds, located completely within the primary shield wall, should have been included in RR-10, transmitted in the letter dated June 14, 1991. Attachment 1 to this letter provides Revision 1

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- (3) J. F. Stolz letter to E. J. Mroczka, "Second Ten Year Inservice Inspection Program and the Granting of Relief From Examinations Requirements Determined to Be Impractical For Millstone, Unit No. 2 (TAC No. 59265)," dated April 17, 1989.
  - (4) E. J. Mroczka letter to the U.S. Nuclear Regulatory Commission, "Millstone Nuclear Power Station, Unit No. 2 Request for Relief From Section XI of ASME Code Examination Requirements," dated June 14, 1991.
  - (5) J. F. Stolz letter to J. F. Opeka, "Request for Relief from ASME Code Section XI Requirements for Millstone 2 (TAC No. M80650)," dated April 2, 1992.

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to RR-10 which proposes the addition of these welds. In lieu of performing the surface examination, a full-volume ultrasonic examination will be performed from the internal surface in accordance with ASME Section XI and Regulatory Guide 1.150. The ultrasonic examination will include 100 percent of the volume "A-B-E-F" as shown on the attached marked up copy of figure IWB-2500-8(SK1). These welds will also be subjected to a system leakage test in accordance with ASME Code Case N-498.

In addition to the proposed alternative examinations, NNECO will also assure that the inspection system is demonstrated to be capable of detecting outside diameter connected cracks, not notches, as required by the NRC Staff's Safety Evaluation for the originally approved RR-10 contained in the letter dated April 2, 1992.

In a letter dated April 29, 1993,<sup>(6)</sup> NNECO transmitted the Millstone Unit No. 2 1993 Inservice Inspection Report, in accordance with the ASME Boiler and Pressure Vessel Code, Section XI, 1980 Edition, and Addenda through Winter 1981. The inspections covered by that report were performed between January 4, 1991, and January 24, 1993. Attachment 2 to this letter transmits a revised copy of the page relating to the Category C-F pressure retaining welds. The previous page contained a typographical error within the Category. The page provided herein should replace completely the previously transmitted page.

### Conclusion

NNECO believes that the addition of the four reactor coolant system loop piping welds to RR-10 is appropriate and that the proposed alternative examinations are in full compliance with the requirements of 10CFR50.55a(g). Since one of these welds has been selected for examination as part of the upcoming 10-year in-vessel examination, NRC Staff approval of this revision is requested prior to the start of the refuel outage, currently scheduled for September 16, 1994.

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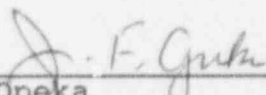
(6) J. F. Opeka letter to the U.S. Nuclear Regulatory Commission, "Millstone Nuclear Power Station, Unit No. 2 1993 In-Service Inspection Report," dated April 29, 1993.

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Should you have any questions or require additional information,  
please contact Mr. R. H. Young, Jr., (203) 665-3717.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

  
\_\_\_\_\_  
J. F. Opeka  
Executive Vice President

cc: T. T. Martin, Region I Administrator  
G. S. Vissing, NRC Project Manager, Millstone Unit No. 2  
P. D. Swetland, Senior Resident Inspector, Millstone Unit  
Nos. 1, 2, and 3

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Attachment 1

Millstone Nuclear Power Station, Unit No. 2

Revision 1 to Request for Relief from Section XI of  
ASME Code Examination Requirements

Relief Request 10

July 1994

Millstone Nuclear Power Station, Unit No. 2  
Revision 1 to Request for Relief from Section XI of  
ASME Code Examination Requirements

Relief Request

RR-10 REVISION 1, Reactor Coolant System Pipe to Reactor Vessel  
Nozzle and Pipe to Elbow Welds.

Component Identification

ASME Code Class 1  
Examination Category B-J  
Item Nos. B9.11 and B9.12

Table IWB-2500-1, in the 1980 Edition of the ASME Code, including the 1981 Winter Addenda requires that the reactor vessel nozzle to pipe welds be examined in accordance with figure IWB-2500-8. The volumetric examination is to include the bottom one-third of the weld. The surface examination is to include one-half inch on either side of the O.D. surface of the weld.

Code Relief Requested

Relief is requested from performing the code-required surface examination on the outside diameter surface of 12 reactor coolant pipe welds and their associated long seam welds.

<u>Pipe Weld No.</u>	<u>Zone Drawing No.</u>	<u>Code Item No.</u>
P-1-C-1-A	1-1	B9.11
P-5-C-1-A	1-1	B9.11
P-3-C-1-A	1-1	B9.11
P-10-C-1-A	1-1	B9.11
P-14-C-1-A	1-1	B9.11
P-18-C-1-A	1-1	B9.11
P-1-C-1	1-5	B9.11
P-10-C-1	1-6	B9.11
P-5-C-1	1-8	B9.11
P-9-C-1	1-10	B9.11
P-14-C-1	1-12	B9.11
P-18-C-1	1-14	B9.11

Basis for Relief

Plant design did not provide sufficient access to these welds to allow performance of surface examinations. Surface examination was not required at the time of design construction. The



circumferential welds and intersecting longitudinal welds are located in the annulus between the reactor vessel and the primary shield wall or within the primary shield wall. Access to these welds is completely blocked for more than 50 percent of the weld area by nonremovable insulation. Access to the remainder of the weld is physically hazardous and requires access to a highly contaminated, high radiation area. The area configuration is such that temporary scaffolding cannot be readily installed to permit physically safe access to the area. Design access to these welds was based on performing automated ultrasonic examinations of the full weld volume from the outside diameter of the pipe using externally mounted scanners.

Preservice examination experience and subsequent evaluation of this equipment have identified that this technically outdated examination equipment is inadequate to perform the required surface or volumetric examinations. The tracks originally installed to support this equipment further block access for external surface examinations. The attached drawing (No. 25203-20146, sheet 97-1) shows details of the access and interference configuration. Experience with a similar configuration at the Haddam Neck Plant indicated that surface examination of accessible areas required approximately 1 person rem per weld.

#### Proposed Alternative Examinations

In lieu of performing the surface examination, a full-volume ultrasonic examination will be performed from the internal surface in accordance with ASME Section XI and Regulatory Guide 1.150. The ultrasonic examination will include 100 percent of the volume "A-B-E-F" as shown on the attached marked-up copy of figure IWB-2500-8 (SK1). The calibration for the ultrasonic examination will demonstrate that the examination from the inside diameter surface can detect an outside diameter flaw (notch). These welds will also be subjected to a system leakage test in accordance with ASME Code Case N-498.

#### Additional Code Relief Requested Per Revision 1

Relief is requested from performing the code-required surface examination on the outside diameter surface of an additional 4 reactor coolant pipe welds and their associated long seam welds. These welds are located completely within the primary shield wall, as shown on the attached revised drawing No. 25203-20146, sheet 97-1 (SK2).

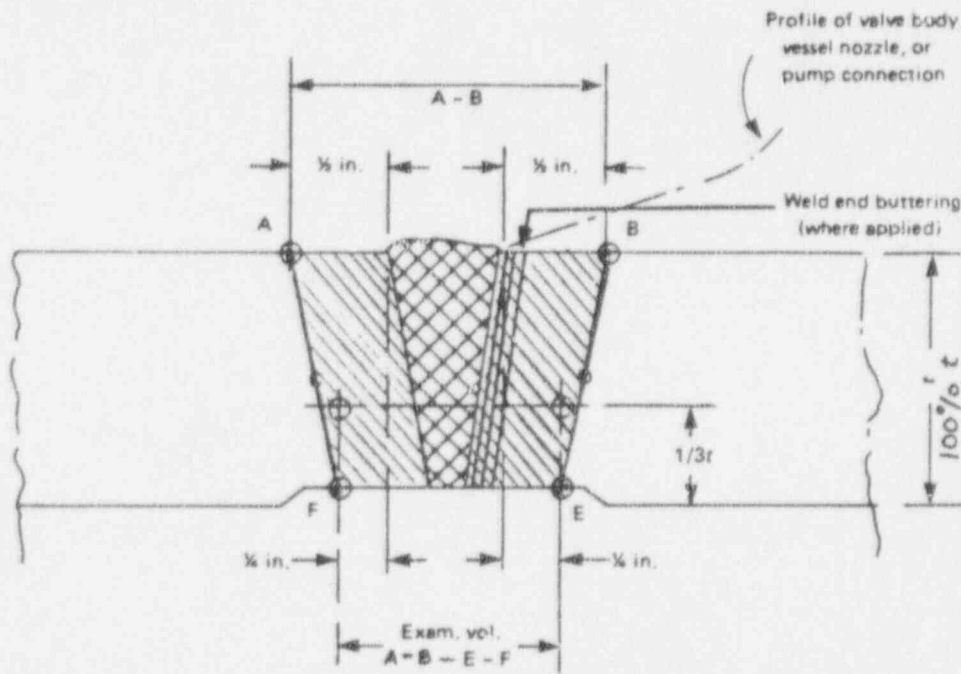
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<u>Pipe Weld No.</u>	<u>Zone Drawing No.</u>	<u>Code Item No.</u>
P-5-C-2	1-8	B9.11
P-9-C-2	1-10	B9.11
P-14-C-2	1-12	B9.11
P-18-C-2	1-14	B9.11

Additional Proposed Alternative Examinations Per Revision 1

In addition to the above proposed alternative examinations, we will also assure "That the inspection system is demonstrated to be capable of detecting OD connected cracks (not notches)" as required by the Safety Evaluation for the originally approved RR-10.



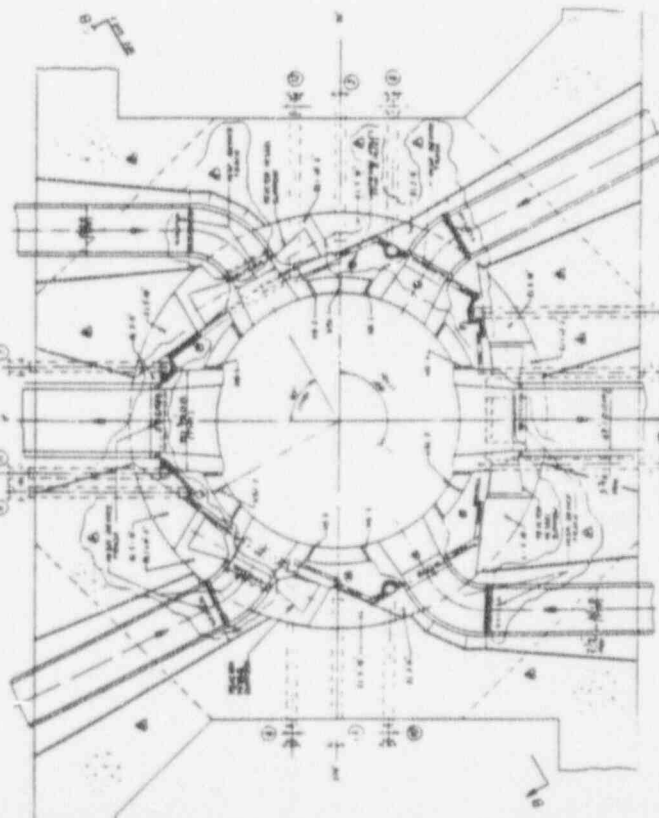
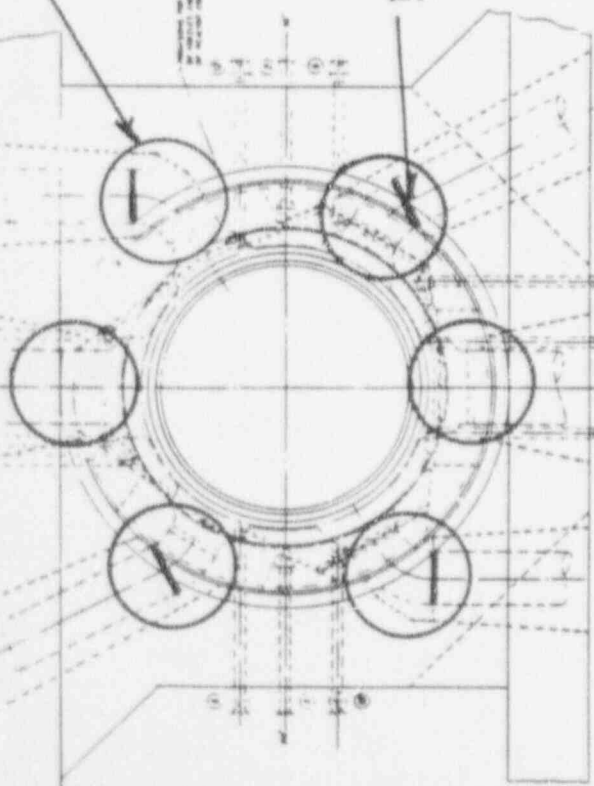
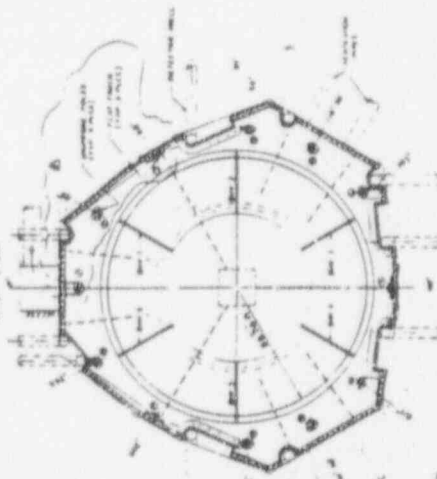
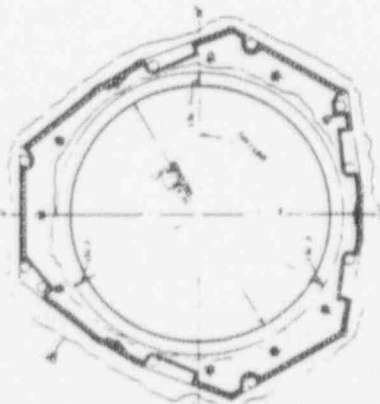
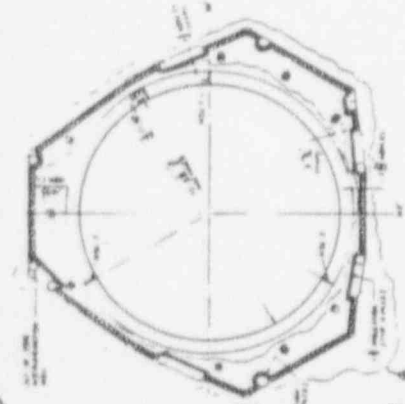


(c) NPS > 4 in.

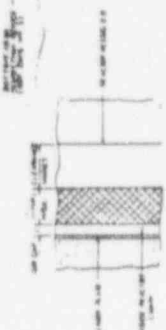
W80

FIG. IWB-2500-8 SIMILAR AND DISSIMILAR METAL WELDS IN COMPONENTS AND PIPING (CONT'D)

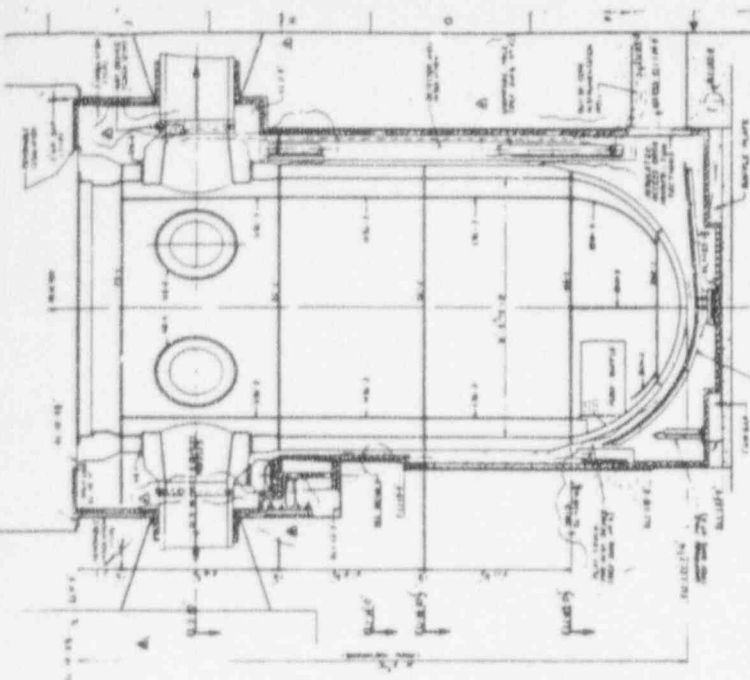
MILLSTONE UNIT #2, RR #10, SKETCH #1

REV. I  
WELD

SKETCH #2  
MP-2, RR-10, REV 1



SECTION A-A



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[illegible]

TABLE 1	
Summary of the 1997-1998 season	
1. Total number of cases	1,000
2. Total number of deaths	100
3. Total number of cases by age group	
0-4 years	100
5-14 years	200
15-24 years	300
25-34 years	200
35-44 years	100
45-54 years	50
55-64 years	20
65-74 years	10
75+ years	10
4. Total number of cases by sex	
Male	500
Female	500
5. Total number of cases by region	
North	300
South	200
East	100
West	100
Central	300
6. Total number of cases by season	
Spring	200
Summer	300
Autumn	200
Winter	300

[illegible]

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Attachment 2

Millstone Nuclear Power Station, Unit No. 2

1993 Inservice Inspection Report

Corrected Page to Category C-F Pressure Retaining Welds

July 1994

## CLASS 2 EXAMINATION RESULTS

### Category C-F

Examination Area: Pressure Retaining Welds in Piping  
 Examination Method: Thickness 1/2" or Less, Surface (PT) or (MT); Thickness Over 1/2",  
 Volumetric (UT) Surface (PT) or (MT)

Item Number	Results	Remarks/Notes
CP-050 *	Acceptable	MT / 21
CP-055 *	Acceptable	MT / 21
CP-125	Acceptable	MT / 21, 1
W -008 *	Acceptable	MT / 21
W -010 *	Acceptable	MT / 21
W -024	Acceptable	MT / 21, 1
W -036 *	Acceptable	MT / 21
W -044 *	Acceptable	MT / 21
W -050 *	Acceptable	MT / 21
W -125	Acceptable	MT / 21, 1
W -CHP-01 *	Acceptable	MT / 21
W -CHP-07	Acceptable	MT / 21, 1
W -CHP-08 *	Acceptable	MT / 21

\*These welds were examined to satisfy first interval requirements.