

# NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY  
WESTERN MASSACHUSETTS ELECTRIC COMPANY  
NORTHEAST WATER POWER COMPANY  
NORTHEAST UTILITIES SERVICE COMPANY  
NORTHEAST NUCLEAR ENERGY COMPANY

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May 31, 1991

Docket No. 50-423

B13836

Re: ASME Section XI

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

Gentlemen:

Millstone Nuclear Power Station, Unit No. 3  
Modification to Pipe 3SWP-030-334-3  
Relief Request From ASME Code Section XI Requirements

The purpose of this letter is to request, in response to NRC Generic Letter 90-05, relief from ASME Boiler and Pressure Vessel Code Section XI requirements pursuant to 10CFR50.55a(g)(6)(i). Attachment 1 provides a description of actions taken by Northeast Nuclear Energy Company (NNECO) to make interim repairs to the leak in this piping as an alternative to an IWA-7000 replacement.


Consistent with the provisions of the generic letter, NNECO is submitting this relief request for temporary noncode repairs. Replacement of the degraded piping is planned no later than the next refueling outage. The resident inspector at Millstone Unit No. 3 has been informed of this repair and, as has been our practice, we will keep the resident inspector fully informed and current on all future repairs.

Please contact us if you have any questions.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

FOR: E. J. Mroczka  
Senior Vice President

BY:   
W. D. Romborg  
Vice President

cc: T. T. Martin, Region I Administrator  
D. H. Jaffe, NRC Project Manager, Millstone Unit Nos. 1 and 3  
W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2, and 3

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Attachment 1

Millstone Nuclear Power Station, Unit No. 3

Modification to Pipe 3SWP-030-334-3  
Request for Relief From ASME Code Section XI

May 1991

ATTACHMENT 1

DETAILS PERTAINING TO RELIEF FROM ASME SECTION XI REQUIREMENTS

Relief Request Control Number NCR 391-243

A. DESIGN DETAILS

Piping System: Service Water Return Piping ("B" Train) from the Reactor

Plant Component Cooling Water Heat Exchangers

Piping Size and Schedule: 30"

Pipe Nominal Wall Thickness: 0.500" Carbon Steel with 0.100" Copper

Nickel Cladding

Pipe Safety Code Class: Class 3

Pipe Material: Base Material SA-516, Gr. 70, Cladding Material SB-402,

No. 706

Design Pressure: 100 psig

Design/Operating Temperature: 95°F/95°F

Code Minimum Wall Thickness: .107" with E=.80 Joint Efficiency

B. FLAW CHARACTERIZATION

Flaw Description/Size (i.e. Location, hole size, adjacent wall thickness, single/multiple flaw, total area examined, etc.):

See the attached drawing. The leak was discovered on May 2, 1991. An 8 by 5 inch area was examined by UT. The grid size was 1 inch square.

The hole is located on the extrados of a 90° elbow downstream of a restricting orifice used to maintain backpressure on the system. The hole is 1" below a longitudinal fabrication weld and is approximately 1/4"

ATTACHMENT 1 (CONTINUED)

DETAILS PERTAINING TO RELIEF FROM ASME SECTION XI REQUIREMENTS

Relief Request Control Number NCR 391-243

in diameter. The area where piping has degraded below nominal wall is  
approximately 6 inches by 3 inches. The minimum wall thickness outside  
the hole is 0.079 inches.

Examination Method: Ultrasonic

Flaw Type: Thru-wall

C. ROOT CAUSE INVESTIGATION

Root Cause Description: Erosion/corrosion due to turbulence created  
by the restricting orifice upstream of the elbow.

D. DESCRIPTION OF PROPOSED REPAIR

The hole has been covered by a soft patch held in place by metal bands.  
The temporary repair is completely reversible.

E. EVALUATION SUMMARY

Method used (i.e., LEFM, Area Reinforcement, Wall Thinning):

Area Reinforcement

Estimated Wall Erosion Rate: To be determined through follow-up NDE

Projected Flaw Size: Flooding analysis qualifies piping for 2" diameter  
flaw (hole)

Period of Time to Permanent Repair/Replacement: No later than RPO4 as  
permitted by maximum flaw size above

Design Loading Conditions Met? Yes, all normal/upset & faulted conditions  
System Interaction Evaluation  
(i.e., Flooding, Jet Sprays, loss of flow, etc.)

There is no equipment in the area which would be directly or indirectly  
damaged by spray from the hole. Current flooding evaluation permits

ATTACHMENT 1 (CONTINUED)

DETAILS PERTAINING TO RELIEF FROM ASME SECTION XI REQUIREMENTS

Relief Request Control Number NCR 391-243

for a 2" diameter flaw (hole). The existing evaluations are being reviewed to consider a larger flaw size. A 2" diameter flaw will have a negligible affect on overall system flow distribution during normal plant operation per initial scoping calculations.

Impact to Safe Shutdown Capability? None as the Service Water in this section of piping has already provided cooling to the Reactor Plant Component Cooling Water Heat Exchanger and the piping is isolated by an upstream anchor.

**F. FLAW MONITORING**

Walkdowns: This area is subject to routine operator walkdown every shift. There are typically people in this area much more often than this.

Follow-up NDE: Monthly (minimum) UT monitoring to track future erosion.

Additional Examinations Required (Based on root cause): The piping downstream of the four restriction orifices in the two 30" service water return headers will be examined. All other accessible service water piping restricting orifice plates where there is normally full flow will be examined within the next 60 days.

**G. AUGMENTED INSPECTION OF AFFECTED SYSTEM**

Assessment of over all degradation: N/A

If additional examinations are required, specify number of inspection locations: N/A

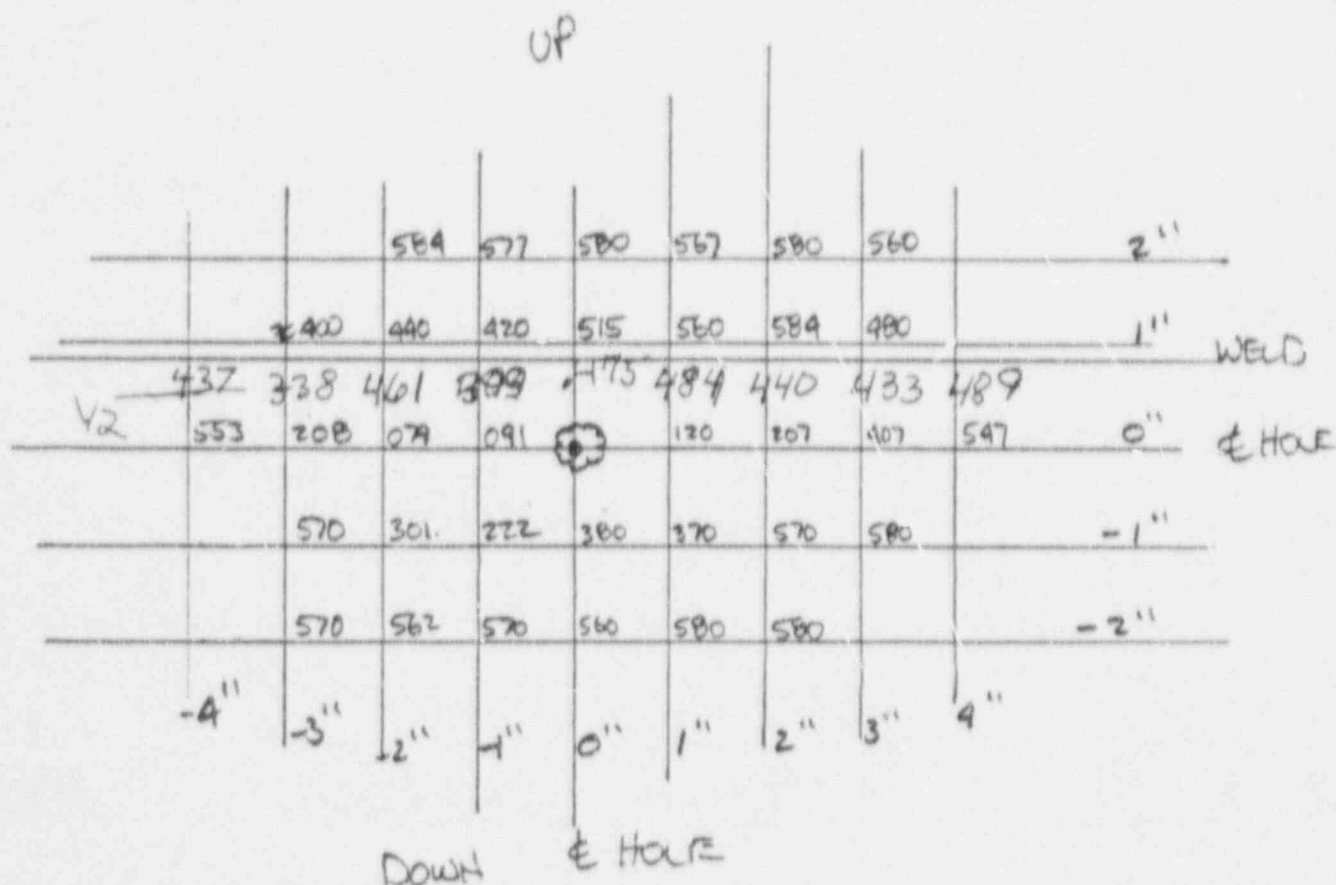
Description of Areas selected for Augmented inspection: N/A

II. ADDITIONAL COMMENTS

The use of a hard patch (welded) as an interim temporary repair is being considered. In accordance with Generic Letter 90-05, it is understood that NRC acceptance of this repair is required prior to implementation.

UT MAP - HOLE ON  
3 SWP 030 334 03

NCR 391-293



- ① READINGS AT WELD BOUNCED AROUND. WELD TO LEFT SIDE OF HOLE APPEARS TO HAVE SOME MATERIAL LOSS BUT AVERAGED AROUND 0.400"
- ② ALL OTHER READINGS WERE REPEATABLE
- ③ HOLE  $\approx \frac{1}{4}$ " DIA.