

NORTHEAST UTILITIES



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

General Offices • Seiden Street, Berlin, Connecticut

P.O. BOX 270
HARTFORD, CONNECTICUT 06141-0270
(203) 665-5000

August 1, 1991

Docket No. 50-423

B13880

Re: ASME Section XI
GL 90-05
10CFR50.55a(g)(6)(i)

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

Gentlemen:

Millstone Nuclear Power Station, Unit No. 3
Modification to Pipe 3SWP-030-345-3
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 for the current 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. Romberg
W. D. Romberg
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

9108060319 910801
PDR ADOCK 05000423
P PDR

Adol
11

Docket No. 50-423
B13880

Attachment 1

Millstone Nuclear Power Station, Unit No. 3

Modification to Pipe 3SWP-030-345-3
Request for Relief From ASME Code Section XI

August 1991

DETAILS PERTAINING TO RELIEF FROM ASME SECTION XI REQUIREMENTS

IMPRACTICALITY

Relief to the ASME code is requested based on the leak location in the train A service water discharge header. A Code repair at this location would necessitate isolation of A train service water and entrance into a 72 hour Technical Specifications LCO. This would result in a plant shutdown due to inadequate cooling water supply to component cooling water (CCP) from a single service water pump in the operable train.

PURPOSE

This relief request provides an operability assessment for the service water system in a degraded condition (e.g. thru-wall leak) for the period July 4, 1991 (leak discovery date) to the date where the limiting parameters specified here-in are reached. This evaluation is performed within 30 days of the leak date in support of relief request submittal in response to Generic Letter 90-05.

A. DESIGN DETAILS

Piping System: Service water return piping ("A" Train) from the reactor plant component cooling water heat exchanger.

Piping Size and Schedule: 30" XS

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: 0.11" assuming joint efficiency E=0.80

B. FLAW CHARACTERIZATION

Flaw Description/Size (i.e. Location, hole size, adjacent wall thickness, single/multiple flaw, total area examined, etc.): The leak was discovered on July 4, 1991 and a 4 by 5 inch area was examined by UT. The zone which is below code minimum wall (including the hole) is an area approximately $\frac{1}{4}$ " by 1". The minimum wall thickness outside this area is 0.201 inches.

Flaw location: Approximately 2' downstream of a restricting orifice used to maintain backpressure on the system. The hole is just above the longitudinal fabrication weld at the horizontal centerline.

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 degraded area.

D. DESCRIPTION OF PROPOSED REPAIR

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

E. EVALUATION SUMMARY

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

Area Reinforcement

Estimated Wall Erosion Rate: To be determined through follow-up NDE on a bi-monthly basis (minimum)

Projected Flaw Size: A maximum hole size of 6" diameter (REF 1) has been qualified for structural integrity. However consistent with generic letter 90-05 and ASME draft code case on temporary repairs, allowable hole size will be limited to 3" prior to permanent repair.

Period of Time to Permanent Repair/Replacement: No later than RFO4, and potentially during current July '91 forced outage.

Design Loading Conditions Met?: Yes, using the draft code case. Normal/upset and faulted conditions have been met considering intensifications based on ASME code for unreinforced tee. (Ref. 1)

SAFETY SIGNIFICANCE

System Interaction Evaluation (i.e., Flooding, Jet Sprays, loss of flow, etc.): The piping operating pressure downstream of this orifice is 22 PSIG. There is an occasional splash of water which does not interact with any safety related equipment. The patch provides leak mitigating

capability. The current flooding analysis qualifies a hole size of 3". (Ref. 2) A safety related level switch 3DAS*LSG 3A/B will alert control room operators. A flood from a hole larger than 3" would result in greater flood depths than currently qualified, resulting in potential loss of 2 bypass valves on CVCS and 4 electrical junction boxes serving the engineered safeguards actuation system. The flooding consequences of a hole larger than 3" are being evaluated.

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.

F. FLAW MONITORING

Walkdowns: This area is subject to routine operator walkdown once per shift.

Follow-up NDE: Bi-Monthly (minimum) UT monitoring to track future erosion, NDE data required over entire circumference for a distance of 6" axially to each side of the existing hole.

Additional Examinations Required (Based on root cause):

Piping downstream of the four restricting orifices in the two 30" service water return headers. Also all accessible service water orifice plates which have full flow during normal plant operation. See Docket 50-423 Letter B13867 for details.

G. AUGMENTED INSPECTION OF AFFECTED SYSTEM

Assessment of overall degradation: Degradation is localized and limited to area downstream of flow orifice.

If additional examinations are required, specify number of inspection locations: See flaw monitoring section F above.

Description of Areas selected for Augmented inspection: See Flaw monitoring section F above.

H. ADDITIONAL COMMENTS

Based on the original NDE data taken 7/4/91 and follow-up NDE data obtained on 7/18/91 & 7/23/91, and the erosion rate experienced on similar 30" clad service water piping, the affected spool piece will be disassembled for internal inspection. This will occur when repairs to "B" train service water are completed, and the "A" train can be taken out-of-service during the present forced outage at MP3 (Approximately 8/12/91). The eroded area will then be re-evaluated to the operability parameters specified here-in. If necessary, the eroded area will then be repaired/coated per an approved ASME XI repair/ replacement plan.

I. References

1. Stress calculation NUSCO MP3-LOE-032EM Rev. 0
2. Flooding calculation NUSCO 91-BOP-786ES Rev. 0

NOR 391-256
PAGE 3 OF 5

10	489	419	406	437	421	424	460	480	1/2
9	493	399	407	405	460	420	480	505	1/2
8	491	463	432	409	440	460	476	490	1/2
7	491	420	432	442	438	486	482	494	1/2
6	474	421	487	432	448	460	480	458	1/2
5	480	472	480	452	472	450	430	460	1/2
4	487	476	468	462	457	440	418	431	1/2
3	488	471	454	445	420	419	491	412	1/2
2	481	471	420	423	484	398	470	420	1/2
	431	471	480	498	428	420	424	427	1/2

PICKUP

Grid is approximately 1/2 mile by 1/2 mile
Readings taken 2/19/01 by E. Stevens

↓ HOLE

with
to indicate
before the hole

JMP
LINE
35 SUP-D30
345-3
HOLE
APPROX
2 DOWN
FROM
440121A

ULTRASONIC THICKNESS MEASUREMENT REPORT

2 main ladder-water collection system

PLANT Mellott UNIT III D4 SYSTEM Sevicell/Clyde PAGE 1 of 1
 DRAWING NO. 2.5212 LINE NO. 3-sup 030-385-3 ITEM NO. R 01214 SCOPE Stentel T-scope
 21021 Jh24

GRID SIZE 6" LOW READING 418 TRANS. SN 2742

CLOCKWISE →

	CLOCKWISE →																				
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	510	502	499	511	525	519	522	520	539	514	527	518	522	518	570	573					
2	513	501	617	516	533	531	522	538	513	524	525	522	518	573	573	516					
3	515	478	514	520	438	473	467	493	465	530	526	521	517	515	526	516					
4	481	447	440	476	443	438	416	480	474	475	535	538	563	471	469	486					
5	475	456	483	410	448	473	498	477	445	496	525	490	496	458	490	485					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

FLOW →

COMPONENT LOCATION REFERENCES:

EXAMINER: Ally Durand LEVEL: II DATE: 7/8/91


ULTRASONIC THICKNESS MEASUREMENT REPORT

6653753 # 2

20344442774

07-23-91 04:21PM

SENT BY: MILLSTONE STATION

GRID SIZE	PLANT <i>Mill</i>	UNIT <i>3</i>	SYSTEM <i>SWP</i>	PAGE <i>1 OF 1</i>
	DRAWING NO.	LINE NO. <i>3-SWP-030345-3</i>	ITEM NO. <i>AROUND PATCH</i>	SCOPE <i>T-SCOPE</i>
	<p style="text-align: center;"> <i>Flow</i>  CLOCKWISE </p>			LOW READING <i>—</i>

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	431																				
2	437																				
3	460	465	455		496	481	431 495	495													
4	461	456	470		451	487	473 451	451													
5	461	435	469		470	470	459	469													
6	459	458	459		459	462	489	460													
7	456	460	470		433	431	466	494													
8	462	472	411		415	477	464	476													
9	462	433	415		475	452	464	478													
10	426	484	470		491	461	456	490													
11																					
12																					

COMPONENT LOCATION REFERENCES:

5%
1/2" x 1/2" patch
7/26/91

FLOW ↓

EXAMINER: *DR Mac*

LEVEL: *III*

DATE: *7-23-91*