

NORTHEAST UTILITIES



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

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June 19, 1980

Docket Nos. 50-213
50-245
50-336
A00936

Mr. Boyce H. Grier, Director
Region I
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

Reference: (1) B. H. Grier letter to W. G. Council dated April 7, 1980.

Gentlemen:

Haddam Neck Plant
Millstone Nuclear Power Station, Unit Nos. 1 and 2
Response to I&E Bulletin No. 80-08
Examination of Containment Liner Penetration Welds

In Reference (1), Connecticut Yankee Atomic Power Company (CYAPCO) and Northeast Nuclear Energy Company (NNECO) were requested to investigate the potential applicability of Staff concerns relating to penetration connections of the flued head design. It has been determined that each of the three facilities utilizes penetrations of the flued head design and accordingly, Requirements 2 and 3 of Reference (1) were investigated and the following information is hereby provided.

Attachments 1, 2, and 3, for the Haddam Neck Plant, Millstone Unit No. 1, and Millstone Unit No. 2, respectively, provide a complete listing of the subject penetrations and the results of the inspections performed. In each case, the attached information includes the following:

- (1) Penetration number
- (2) Penetration size
- (3) Sleeve material
- (4) Closure material
- (5) Results/remarks

The Haddam Neck Plant utilizes penetrations of the flued head forging type with the forged head welded to the process pipe. The containment liner and penetrations were furnished and installed by the Chicago Bridge and Iron

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Company. The penetrations were designed by Stone and Webster Engineering Corporation. The process pipe, flued head forging, and sleeve were shop welded and shipped as a unit with one field weld required, that being the sleeve to containment liner. All shop and field welds were randomly radiographed in accordance with Paragraph UW-52 of the ASME Boiler and Pressure Vessel Code, Section VIII.

All process piping was designed to ASA B31.1, 1955 edition. The butt welds connecting the forging ring to the liner sleeve were covered by a welded test channel. The butt welds were tested by using an air-freon gas mixture injected into the test channel. Any leakage detected in excess of 0.5 cubic inches per day detected on the high range of a Halogen detector required weld repair by chipping and rewelding. Records of the actual testing are not available. Backing bars were used on all butt welds. Sleeve, closure material, and size are as shown on the attached table.

Millstone Unit No. 1 utilizes penetrations of the flued head design with the containment boundary butt weld between the penetration sleeve and process piping. The Reference (1) concerns are dispositioned as follows:

- a) The material's design, fabrication, inspection, and testing were in accordance with the ASME Boiler and Pressure Vessel Code, Section III, Subsection B, 1965 edition.
- b) All butt welds were radiographed. These radiographs are available for inspection at the Millstone site.
- c) Permanent backing rings were installed in accordance with the ASME Code, Section III, Paragraph N.462. All weld joints are butt welds. Sleeve, closure material, size, and results of radiographic examinations are provided in the attached table.

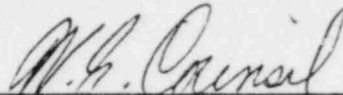
Millstone Unit No. 2 utilizes penetrations of the flued head and modified pipe cap types. The Reference (1) concerns are dispositioned as follows:

- a) All penetrations were fabricated, installed, inspected, and tested in accordance with the ASME Boiler and Pressure Vessel Code, Section III, 1971 and the ANSI Nuclear Piping Code B31.7.
- b) All closure welds were radiographed. These radiographs are available for inspection at the Millstone site.
- c) All butt welds used backing bars. Sleeve, closure material, size, and results of the radiographic examinations are provided in the attached table.

In summary, all installations were completed in accordance with the applicable codes in effect at the time of the installation for each of the three facilities. The welds in question were fully radiographed at both Millstone units and randomly radiographed and pressure drop tested at the Haddam Neck Plant. Because no abnormal conditions were noted and in light of satisfactory performance of the penetrations to date, the Reference (1) concerns are satisfactorily dispositioned. No further action is planned.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY



W. G. Council
Senior Vice President

Attachment

ATTACHMENT 1

HADDAM NECK PLANT

EXAMINATION OF CONTAINMENT LINER PENETRATION WELDS

JUNE, 1980

CONNECTICUT YANKEE
PENETRATION WELDS - INSPECTION RESULTS

<u>Penetration</u>	<u>Size</u>	<u>Material</u>		<u>Remarks</u>
		<u>Sleeve</u>	<u>Closure (Forged Head)</u>	
1	18	A-442 Gr 60	A-350-LF2	Random RT and leak testing - all penetrations
2	18	A-442 Gr 60	A-350-LF2	Random RT and leak testing - all penetrations
4	4	A-333 Gr 0	A-350-LF2	Random RT and leak testing - all penetrations
10	8	A-330 Gr 0	A-350-LF2	Random RT and leak testing - all penetrations
11	8	A-330 Gr 0	A-350-LF2	Random RT and leak testing - all penetrations
12	8	A-330 Gr 0	A-350-LF2	Random RT and leak testing - all penetrations
15	8	A-330 Gr 0	A-350-LF2	Random RT and leak testing - all penetrations
16	8	A-330 Gr 0	A-350-LF2	Random RT and leak testing - all penetrations
17	8	A-330 Gr 0	A-350-LF2	Random RT and leak testing - all penetrations
18	8	A-330 Gr 0	A-350-LF2	Random RT and leak testing - all penetrations
20	4	A-330 Gr 0	A-350-LF2	Random RT and leak testing - all penetrations
23	8	A-330 Gr 0	A-350-LF2	Random RT and leak testing - all penetrations
24	8	A-312-304	A-350-LF2	Random RT and leak testing - all penetrations
30	16	A-330 Gr 0	A-350-LF2	Random RT and leak testing - all penetrations
42	36	A-442 Gr 60	A-350-LF2	Random RT and leak testing - all penetrations
43	36	A-442 Gr 60	A-350-LF2	Random RT and leak testing - all penetrations
44	36	A-442 Gr 60	A-350-LF2	Random RT and leak testing - all penetrations
45	36	A-442 Gr 60	A-350-LF2	Random RT and leak testing - all penetrations

<u>Penetration</u>	<u>Size</u>	<u>Material</u>		<u>Remarks</u>
		<u>Sleeve</u>	<u>Closure (Forged Head)</u>	
46	24	A-442 Gr 60	A-350-LF2	Random RT and leak testing - all penetrations
47	24	A-442 Gr 60	A-350-L '2	Random RT and leak testing - all penetrations
48	24	A-442 Gr 60	A-350-LF2	Random RT and leak testing - all penetrations
49	24	A-442 Gr 60	A-350-LF2	Random RT and leak testing - all penetrations
72	8	A-333 Gr 0	A-350-LF2	Random RT and leak testing - all penetrations

ATTACHMENT 2

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 1

EXAMINATION OF CONTAINMENT LINER PENETRATION WELDS

JUNE, 1980

MILLSTONE UNIT NO. I
FLUED HEAD WELD - RT RESULTS

<u>Penetration</u>	<u>Size</u>	<u>Material</u>		<u>Results</u>
		<u>Sleeve</u>	<u>Closure</u>	
7A	36	A-516 Gr 70		Accepted - some slag - porosity
7B	36	A-516 Gr 70		Accepted - some slag - porosity
7C	36	A-516 Gr 70		Accepted - some slag - porosity
7D	36	A-516 Gr 70		Accepted - some porosity - slag - oxides on backing ring
8	16	A-516 Gr 70	A-420-WPL6	
9A	34	A-516 Gr 70		Accepted - some porosity
9B	34	A-516 Gr 70		Radiograph file not located
10A	30	A-516 Gr 70	A-182 Gr F-304	Accepted
11B	26	A-516 Gr 70	A-182 Gr F-304	Accepted
12	34	A-516 Gr 70	A-105 Gr II	Accepted
14	24	A-516 Gr 70	A-182 Gr F-304	Accepted - weld contour shadow noted at edge of root
15	22	A-516 Gr 70	A-182 Gr F-304	Accepted - oxides under backing ring
16A	26	A-516 Gr 70	A-182 Gr F-304	Accepted - scheduled for replacement September, 1980
16B	26	A-516 Gr 70	A-182 Gr F-304	Accepted - scheduled for replacement September, 1980
17	18	A-516 Gr 70	A-420-WPL6	Accepted
18	6.625	A-333 Gr 1	A-105 Gr II	Accepted
19	6.625	A-333 Gr 1	A-105 Gr II	Accepted - some slag
20	6.625	A-333 Gr 1	A-105 Gr II	Accepted - weld contour shadow
21	3.5	A-333 Gr 1	A-105 Gr II	Accepted - dark area - geometry
22	3.5	A-333 Gr 1	A-105 Gr II	Accepted - geometry - some porosity
23	12.75	A-333 Gr 1	A-105 Gr II	No radiographs available
24	12.75	A-333 Gr 1	A-105 Gr II	No radiographs available
36	6.625	A-333 Gr 1	A-105 Gr II	Spare
41	6.625	A-333 Gr 1		No radiograph available
42	4.5	A-333 Gr 1	A-182 Gr F-304	Accepted - geometry
43	36	A-516 Gr 70	A-182 Gr F-304	Accepted - some porosity
45	36	A-516 Gr 70	A-182 Gr F-304	Accepted - some slag - porosity

ATTACHMENT 3

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2

EXAMINATION OF CONTAINMENT LINER PENETRATION WELDS

JUNE, 1980

MILLSTONE UNIT NO. II
PENETRATION WELDS - RT RESULTS

<u>Penetration</u>	<u>Size</u>	<u>Material</u>				<u>Results</u>
		<u>Sleeve</u>	<u>C</u>	<u>sure</u>		
1	4	SA-333 Gr 6	A-234-WPB	Cap	Accepted	
2	10	SA-333 Gr 6	A-403-WP316	Cap	Accepted	
3	4	SA-333 Gr 6	A-234-WPB	Cap	Incomplete fusion - repaired - accepted	
4	12	SA-333 Gr 6	A-234-WPB	Cap	Accepted	
5	12	SA-333 Gr 6	A-234-WPB	Cap	Accepted	
6	10	SA-333 Gr 6	A-182 Gr F-316	Flued Head	Accepted	
7	10	SA-333 Gr 6	A-182 Gr F-316	Flued Head	Incomplete fusion - cutout - repaired - accepted	
8	10	SA-333 Gr 6	A-182 Gr F-316	Flued Head	Incomplete fusion - cutout - repaired - accepted	
9	10	SA-333 Gr 6	A-182 Gr F-316	Flued Head	Incomplete fusion - cutout - repaired - accepted	
10	24	SA-333 Gr 6	A-182 Gr F-316	Flued Head	Accepted	
11	4	SA-333 Gr 6	A-234-WPB	Cap	Accepted	
14	18	SA-333 Gr 6	A-234-WPB	Cap	No radiograph available	
15	28	SA-333 Gr 6	A-181 Gr II	Flued Head	Accepted	
16	28	SA-333 Gr 6	A-181 Gr II	Flued Head	Accepted	
19	50	SA-333 Gr 6	A-181 Gr II	Flued Head	Accepted	
20	50	SA-333 Gr 6	A-181 Gr II	Flued Head	Accepted - film artifacts	
21	12	SA-333 Gr 6	A-403-WP316	Cap	Accepted - film artifacts	
22	20	SA-333 Gr 6	A-234-WPB	Cap	Incomplete fusion - concavity - porosity - cutout - repaired - accepted	
23	20	SA-333 Gr 6	A-234-WPB	Cap	Accepted - film artifacts and scratches	
24	12	SA-333 Gr 6	A-234-WPB	Cap	Accepted - film scratches	
25	14	SA-333 Gr 6	A-234-WPB	Cap	Incomplete fusion - porosity - slag - repaired - accepted	
26	14	SA-333 Gr 6	A-234-WPB	Cap	Accepted - minor porosity	
27	14	SA-333 Gr 6	A-234-WPB	Cap	Accepted - minor slag and porosity	
28	14	SA-333 Gr 6	A-234-WPB	Cap	Accepted - minor slag and porosity	

<u>Penetration</u>	<u>Size</u>	<u>Material</u>				<u>Results</u>
		<u>Sleeve</u>	<u>Closure</u>			
29	12	SA-333 Gr 6	A-234-WPB	Cap		Accepted - minor porosity
30	14	SA-333 Gr 6	A-234-WPB	Cap		Accepted - minor porosity
31	14	SA-333 Gr 6	A-234-WPB	Cap		Accepted - minor porosity - slag
32	14	SA-333 Gr 6	A-234-WPB	Cap		Porosity - slag - repaired - accepted
33	14	SA-333 Gr 6	A-234-WPB	Cap		Accepted - minor porosity - slag
34	10	SA-333 Gr 6	A-234-WPB	Cap		Accepted - minor porosity - slag
35	8	SA-333 Gr 6	A-234-WPB	Cap		Accepted - minor porosity
37	4	SA-333 Gr 6	A-234-WPB	Cap		Accepted - some slag
38	4	SA-333 Gr 6	A-234-WPB	Cap		Accepted - minor slag - porosity
43	3	SA-333 Gr 6	A-234-WPB	Cap		Accepted - minor slag - porosity
47	2	SA-333 Gr 6	A-234-WPB	Cap		Accepted - porosity
51	12	SA-333 Gr 6	A-234-WPB	Cap		Repaired slag and porosity in backing ring - accepted
53	10	SA-333 Gr 6	A-234-WPB	Cap		Accepted - film artifacts
54	10	SA-333 Gr 6	A-234-WPB	Cap		Accepted - some porosity - undercut - artifacts
55	12	SA-333 Gr 6	A-234-WPB	Cap		Accepted
65	12	SA-333 Gr 6	A-234-WPB	Cap		Accepted - some porosity - slag
66	4	SA-333 Gr 6	A-234-WPB	Cap		Accepted - some porosity
67	8	SA-333 Gr 6	A-234-WPB	Cap		Accepted - some porosity - slag
68	8	SA-333 Gr 6	A-234-WPB	Cap		Accepted - some porosity - slag
69	2	SA-333 Gr 6	A-234-WPB	Cap		Accepted - some slag
70	2	SA-333 Gr 6	A-234-WPB	Cap		Accepted - some slag - porosity
71	2	SA-333 Gr 6	A-234-WPB	Cap		Accepted - some porosity
72	12	SA-333 Gr 6	A-234-WPB	Cap		Accepted - film artifacts - porosity
82	14	SA-333 Gr 6	A-234-WPB	Cap		Accepted - some porosity - slag
83	8	SA-333 Gr 6	A-234-WPB	Cap		Incomplete fusion - repaired - accepted
85	8	SA-333 Gr 6	A-234-WPB	Cap		Accepted - some porosity