

July 10, 1980

In reply, please  
refer to LAC-7022

DOCKET NO. 50-409

Mr. Dennis M. Crutchfield, Chief  
Operating Reactors Branch #5  
Division of Operating Reactors  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

SUBJECT: DAIRYLAND POWER COOPERATIVE  
LA CROSSE BOILING WATER REACTOR (LACBWR)  
PROVISIONAL OPERATING LICENSE NO. DPR-45  
REVIEW OF RCS PRESSURE BOUNDARY STAINLESS  
STEEL PIPING AND FITTING MATERIAL

- REFERENCES: (1) NRC Letter, Reid to Madgett,  
dated September 29, 1977  
(2) Technical Report on Material Selection and  
Processing Guidelines for BWR Coolant  
Pressure Boundary Piping (NUREG 0313),  
dated July 1977.  
(3) DPC Letter, Madgett to Reid, LAC-5180,  
dated February 20, 1978.

Dear Mr. Crutchfield:

Reference (1), which transmitted Reference (2), requested the La Crosse Boiling Water Reactor (LACBWR) to perform certain actions with regard to reactor coolant pressure boundary piping. Reference (3) contained responses to various positions of NUREG 0313. Attachment C.1(a) of Reference (3) referred to NUREG 0313, Section III.2.A. and that LACBWR had completed requirements for accelerated examinations of non-service sensitive steel lines and that subsequent inspections of these lines would be in accordance with ASME Section XI schedule as modified by Technical Specifications.

Attachment C.1(b)1. of Reference (3) referred to NUREG 0313 Section III.2.B(2) and that LACBWR would perform augmented examinations of those service sensitive positions of bypass lines of discharge valves in the main circulation loops and reactor core spray system piping. Table I lists the system, weld number, type of examination, and year performed for all the welds in this category of service sensitive lines.

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Examinations have been conducted at various times during the 10-year inspection interval and every weld within this service-sensitive category has been examined at least once, most more than once. The examinations conducted in 1978 and 1979 cover every weld in this category. October 31, 1979, ended the 10-year inspection interval without an unacceptable indication being found on any weld.

Attachment C.1(b)2. of Reference (3) referred to NUREG 0313 Section III.2.B.(3), other service sensitive piping, and that LACBWR would perform augmented examinations on all the welds in those systems because they are not considered to have branch runs to which random sampling would be applicable.

Table II lists the systems in this service sensitive category as well as weld numbers, type of examination and year performed. Examinations have been conducted at various times during the 10-year inspection interval and every weld in this service-sensitive category has been examined at least once. Every weld in this category was examined in 1979 and none exhibited an unacceptable indication.

LACBWR has completed 10 years of operation without having any of the welds in the RCS piping developing a leak or even finding an unacceptable indication during in-service examination. All welds in the service sensitive piping have been subjected to 10 years of operation, and all were examined either in 1979 or 1978, all without evidence of stress corrosion cracking. This 10-year inspection period covers a longer period of time than the weld inspection requirements of NUREG 0313, which requires an augmented inspection frequency of once each outage for 3 successive outages in a period of 3 years.

The LACBWR RCS leak detection program is far more restrictive with regard to allowable leakage limit and sensitivity than the Model Technical Specifications of Reference (1). If a leak did occur, it would be promptly detected. Corrective action would be taken to isolate the leak and place the reactor in a shutdown mode to perform the necessary inspections and action to repair the defective component. Other considerations, reasons, and programs that have contributed to the excellent performance of stainless steel piping in service sensitive lines at LACBWR are as follows:

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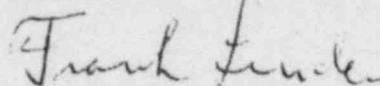
- (1) Furnace sensitized safe-ends on the reactor vessel and primary piping system pressure boundary piping members and components were replaced as a result of previous programs.
- (2) There have been no leaks detected in RCS pressure boundary piping and fittings since the replacement of the furnace sensitized 4" feedwater nozzles in 1969.
- (3) There have been no unacceptable indications found in stainless steel welds during VT, PT, and UT examinations made since the furnace sensitized piping components were replaced.
- (4) The construction piping contractor's and LACBWR's welding procedures for both shop and field welds provided for control of current and voltage (heat input) and limited the interpass temperature to 200°F for both butt and socket welds. The degree of sensitization would therefore be minimized by these limitations.
- (5) Catastrophic failure of austenitic stainless steel without prior leakage is considered to be extremely unlikely. In the event of cracking in the RCS pressure boundary piping, the resulting (initially small) leaks would be detected by the LACBWR leak detection system and plant shutdown would be instituted as provided by the Technical Specifications.

In combination with LACBWR Technical Specifications on RCS leakage limits and the above stated reasons, LACBWR will implement an augmented inservice examination schedule for service sensitive lines. The frequency of examinations will be conducted within an 80-month interval. The LACBWR second 10-year program began in November 1979 and is being administered in accordance with 10 CFR 50.55a(g) (1).

If you have any questions regarding this subject, please advise.

Very truly yours,

DAIRYLAND POWER COOPERATIVE



Frank Linder, General Manager

FL:HAT:abs

ATTACHMENTS

CC: J. Keppler, Reg. Dir., NRC-DRO III

TABLE I

1½" HIGH PRESSURE CORE SPRAY - INSIDE BIOLOGICAL SHIELD

Weld No.	1978
(1½" Socket Welds)	
H"	VT/PT
I"	VT/PT
J"	VT/PT
K"	VT/PT
L"	VT/PT
M"	VT/PT
N"	VT/PT
O"	VT/PT
(Butt Weld)	
P"	VT/PT

1½" AND 2½" HIGH PRESSURE CORE SPRAY - DISCHARGE CHECK VALVES TO  
2½" HIGH PRESSURE CORE SPRAY PIPING

Weld No.	1972	1975	1979
(1½" Socket Welds)			
T - Outside Pressure Boundary			-
U			VT/PT
V			VT/PT
W			VT/PT
X			VT/PT
Y			VT/PT
X"			VT/PT
X'			VT/PT
Y'			VT/PT
G - Outside Pressure Boundary			-
H			VT/PT
I			VT/PT
J			VT/PT
K			VT/PT
L			VT/PT
(1½" Butt)			
SS - Outside Pressure Boundary			-
Z			VT/PT
M			VT/PT
(2" Socket)			
A"			PT
1			PT



TABLE I - (Cont'd)

1½" AND 2½" HIGH PRESSURE CORE SPRAY - DISCHARGE CHECK VALVES TO  
2½" HIGH PRESSURE CORE SPRAY PIPING - (Cont'd)

Weld No.	1972	1975	1979
(2½" Butt)			
T"			UT
S"			UT
C"			UT
U"			UT
D"			UT
B"			UT
2			UT
3			UT
4			UT
5			UT
6			UT
7			UT
(2" Butt)			
B"a			UT
la			UT
(1½" Socket)			
E"			VT/PT
Q"			VT/PT
R"			VT/PT
F"			VT/PT
G"			VT/PT

6" ALTERNATE CORE SPRAY PIPING

Weld No.	1971	1972	1975 (X1)	1979
75		VT/PT, UT		
76		VT/PT, UT		
77		VT/PT, UT		
78		VT/PT, UT		PT/UT
79		VT/PT, UT		UT
80		VT/PT, UT		UT
81		VT/PT, UT		UT
82		VT/PT, UT		UT
83		VT/PT, UT		UT
105		VT/PT, UT		UT
84		VT/PT, UT		UT
85		VT/PT, UT		UT
86		VT/PT, UT	VT/UT	UT
87		VT/PT, UT	VT/UT	UT
88		VT/PT, UT	VT/UT	UT
89		VT/PT, UT	VT/UT	UT
90		VT/PT, UT		UT
91		VT/PT, UT		UT
92 - Inaccessible - In Pipe Sleeve				

TABLE I - (Cont'd)  
6" ALTERNATE CORE SPRAY PIPING - (Cont'd)

Weld No.	1971	1972	1975 (X1)	1979
93	VT/UT			UT
94	VT/UT			UT
95	VT/UT			UT
96	VT/UT			UT
97	VT/UT			UT
98	VT/UT			UT
99	VT/UT			UT
100	VT/UT			UT
101	VT/UT			UT
102	VT/UT			UT
103	VT/UT			UT

4" ALTERNATE CORE SPRAY

Weld No.	1970	1971	1979
104		VT/UT	UT
106	VT/UT	VT/UT	UT
107	VT/UT	VT/UT	UT
108	VT/UT		UT/PT
Nozzle to Head	VT/UT		
20" Manway			

FORCED CIRCULATION SYSTEM - 1A DISCHARGE BYPASS

Weld No.	1975 (X2)	1979
(2" Socket Welds)		
91A	VT/PT	VT/PT
91B	VT/PT	VT/PT
91D	VT/PT	VT/PT
101	VT/PT	VT/PT
100	VT/PT	VT/PT
95		VT/PT
94		VT/PT
99		VT/PT
98		VT/PT
90D		VT/PT
90B		VT/PT
90A		VT/PT

TABLE I - (Cont'd)

FORCED CIRCULATION - 1B DISCHARGE VALVE BYPASS

<u>Weld No.</u>	<u>1975 (X2)</u>	<u>1979</u>
(2" Socket Welds)		
93A	VT/PT	VT/PT
93B	VT/PT	VT/PT
93D	VT/PT	VT/PT
105	VT/PT	VT/PT
104	VT/PT	VT/PT
97	VT/PT	VT/PT
96	VT/PT	VT/PT
103	VT/PT	VT/PT
102	VT/PT	VT/PT
92D	VT/PT	VT/PT
92B	VT/PT	VT/PT
92A	VT/PT	VT/PT

TABLE II

SHUTDOWN CONDENSER SYSTEM - 4" CONDENSATE RETURN LINE

Weld No.	1972	1979
12'	VT/UT	UT
13'	VT/UT	UT
14'}	These 4 Welds Are Upstream of Check Valves.	UT
15'}		UT
21'}		UT
22'}		UT
23	VT/UT	UT
24	VT/UT	UT
25	VT/UT	UT
26	VT/UT	UT
27	VT/UT	UT
28	VT/UT	UT
29	VT/UT	UT
30	VT/UT	UT
31	VT/UT	UT
32	VT/UT	UT

2 AND 2½" BORON INJECT PIPING

Weld No.	1972	1975 (X1)	1976	1979
8	VT/UT			UT
A'	VT/UT			UT
B'	VT/UT			UT
C"	VT/UT			UT
D"				PT
E'				PT
F'				UT
9	VT/UT			UT
10				UT
S'				PT
T'				PT
11				UT
12			VT/UT	UT
13			VT/UT	UT
14		VT/UT	VT/UT	UT
15		VT/UT	VT/UT	UT
G'			VT/UT	UT
16			VT/UT	UT
17			VT/UT	UT
18			VT/UT	UT
19			VT/UT	UT
20				UT
22				UT
23				UT
24	Inside Lower Cavity			UT/PT
21				UT
21A				UT



TABLE II - (Cont'd)

DECAY HEAT SYSTEM - 6" DISCHARGE PIPING

Weld No.	1970	1972	1976	1977	1979
1		PT			PT/UT
2		PT			UT
3		PT			UT
4		PT			UT
5					UT
46 BC					UT
6					UT
7					UT
8					UT
9					UT
10	UT			VT/UT	UT
11	UT			VT/UT	UT
DC1-2	UT			VT/UT, PT	PT/UT
DC0-2	UT			VT/UT, PT	PT/UT
12	UT			VT/UT	UT
13	UT			VT/UT	UT
64BC				VT/PT	PT
14				VT/UT	UT
15				VT/UT	UT
16				VT/UT	UT
17				VT/UT	UT
18				VT/UT	UT
19			VT/UT		UT
20			VT/UT		UT
65BC					PT
21					UT
Weld No.			1975 (X1)	1976	1979
22					UT
23					UT
24					UT
25					UT
26					UT
27					UT
28					UT
29					UT
30			VT/UT	VT/UT	UT
41					UT
31			VT/UT	VT/UT	UT
32			VT/UT	VT/UT	UT
33					UT
34					UT
35					UT
36					UT
51					UT
37					UT
38					UT
38A					UT
50	UT				

TABLE II - (Cont'd)

DECAY HEAT SYSTEM - 2" DECAY HEAT PUMP BYPASS PIPING

Weld No.

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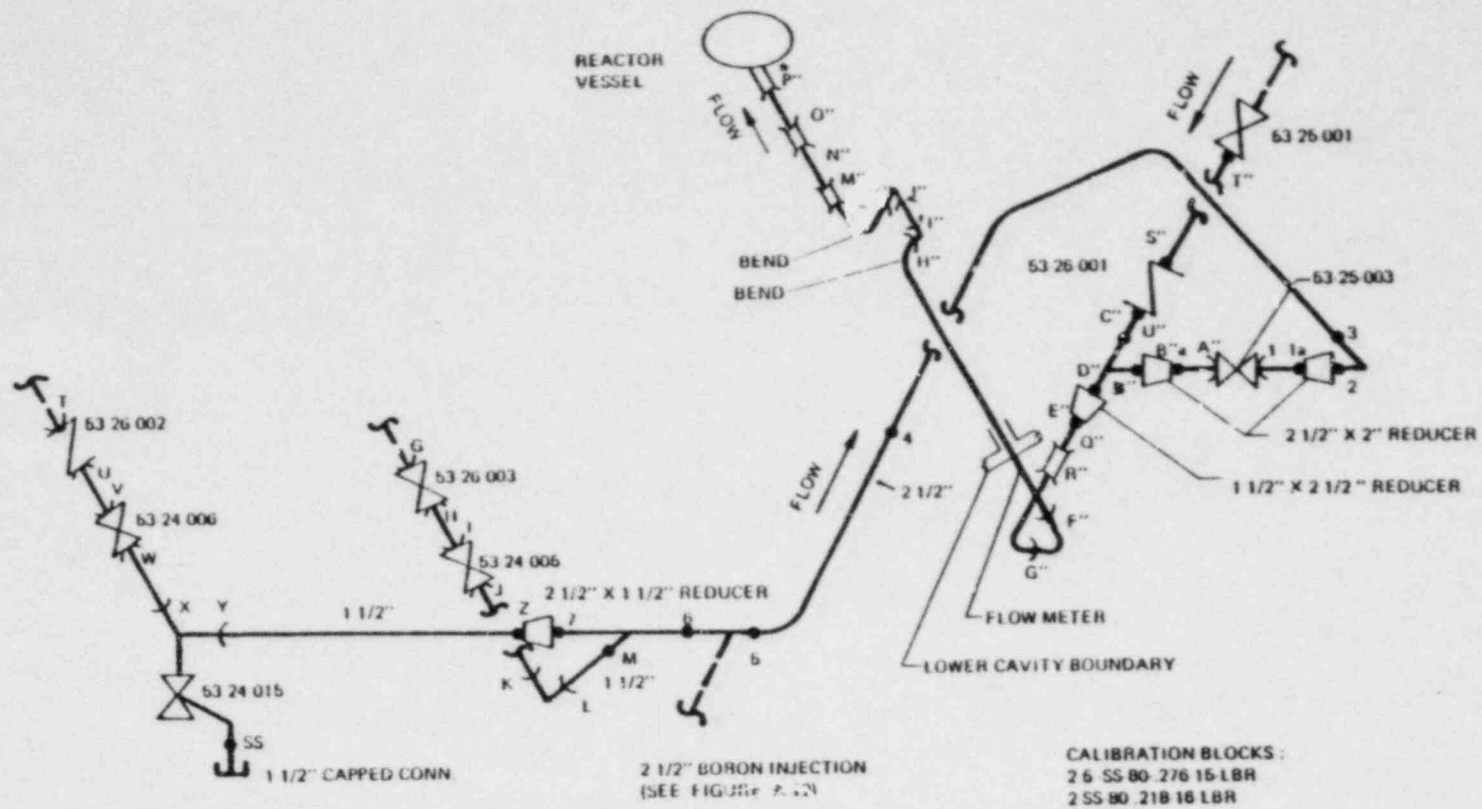
56  
57  
58  
59  
60  
61  
62  
63

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DECAY HEAT SYSTEM - 8" DECAY HEAT SUCTION PIPING

<u>Weld No.</u>	<u>1972</u>	<u>1979</u>
13		UT
14		UT
15		UT
16		UT
17		UT
18	PT	PT/UT

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NOTES:  
 PIPING IS 304 S.S., A 376, SCH 80  
 • BUTT WELD  
 • DISSIMILAR METAL WELD  
 ) SOCKET WELD

CALIBRATION BLOCKS:  
 2 6 SS 80 276 15 LBR  
 2 SS 80 218 16 LBR

FIGURE A-18

1-1/2", 2" AND 2-1/2" HIGH PRESSURE CORE SPRAY SYSTEM PIPING

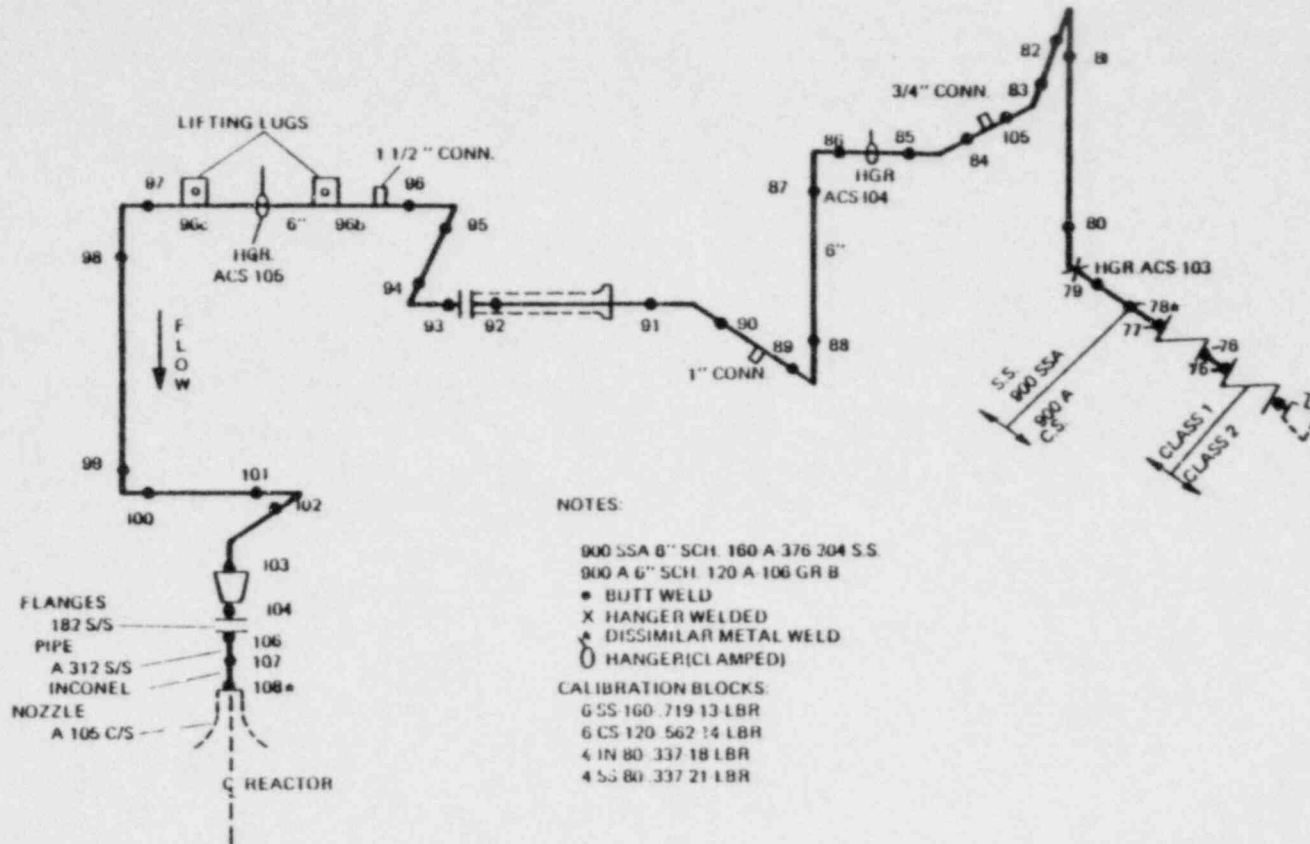


FIGURE A-15

4" AND 6" ALTERNATE CORE SPRAY SYSTEM PIPING



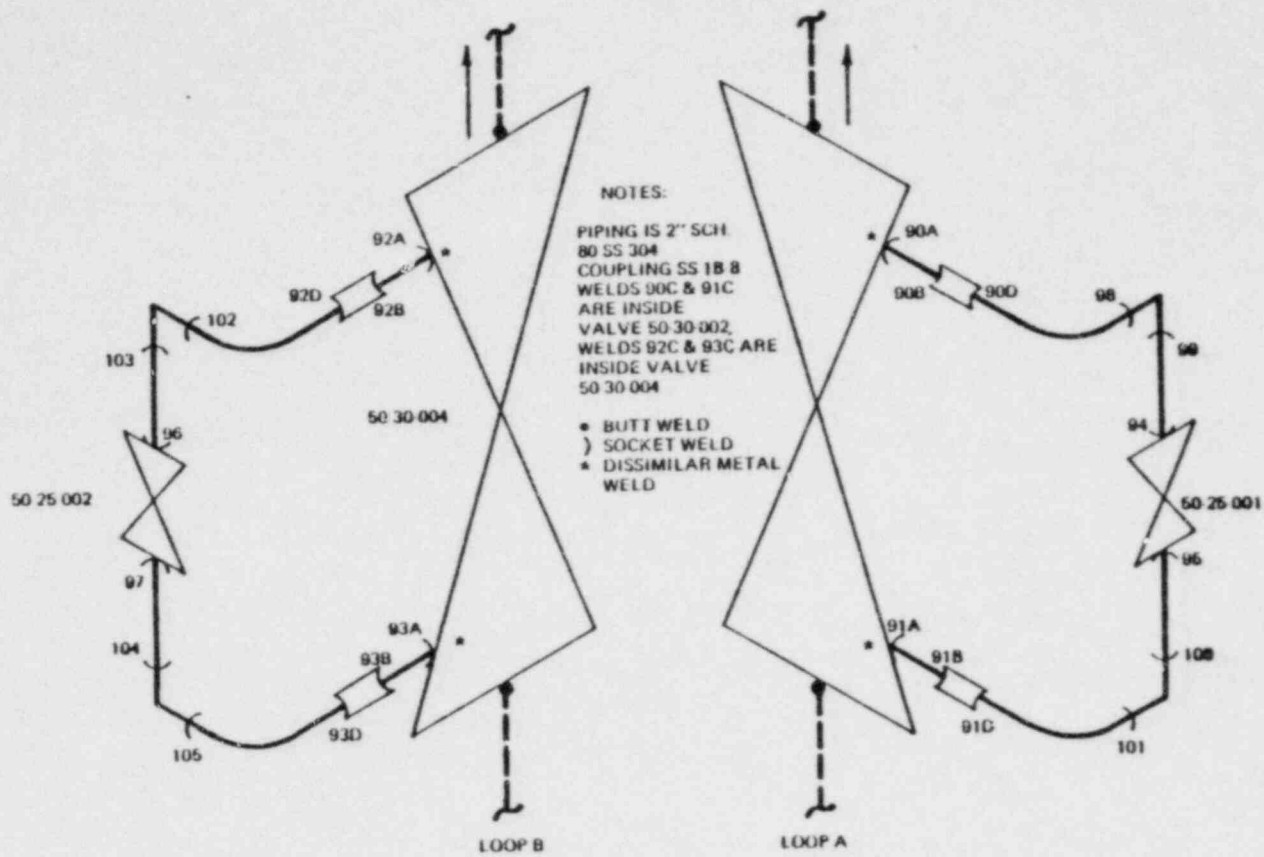
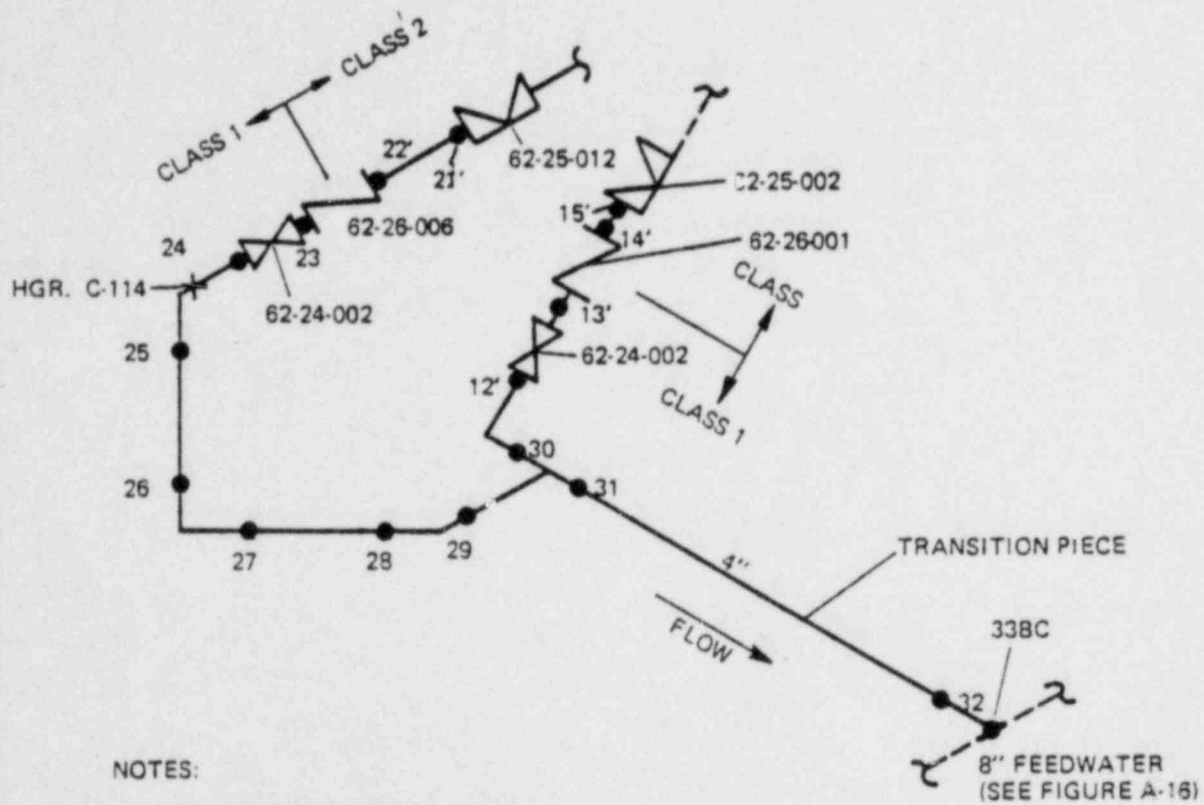


FIGURE A-7

2" BY-PASS LINES OF 20" FORCED CIRCULATION  
DISCHARGE AT VALVES 50-30-002 AND 50-30-004



NOTES:

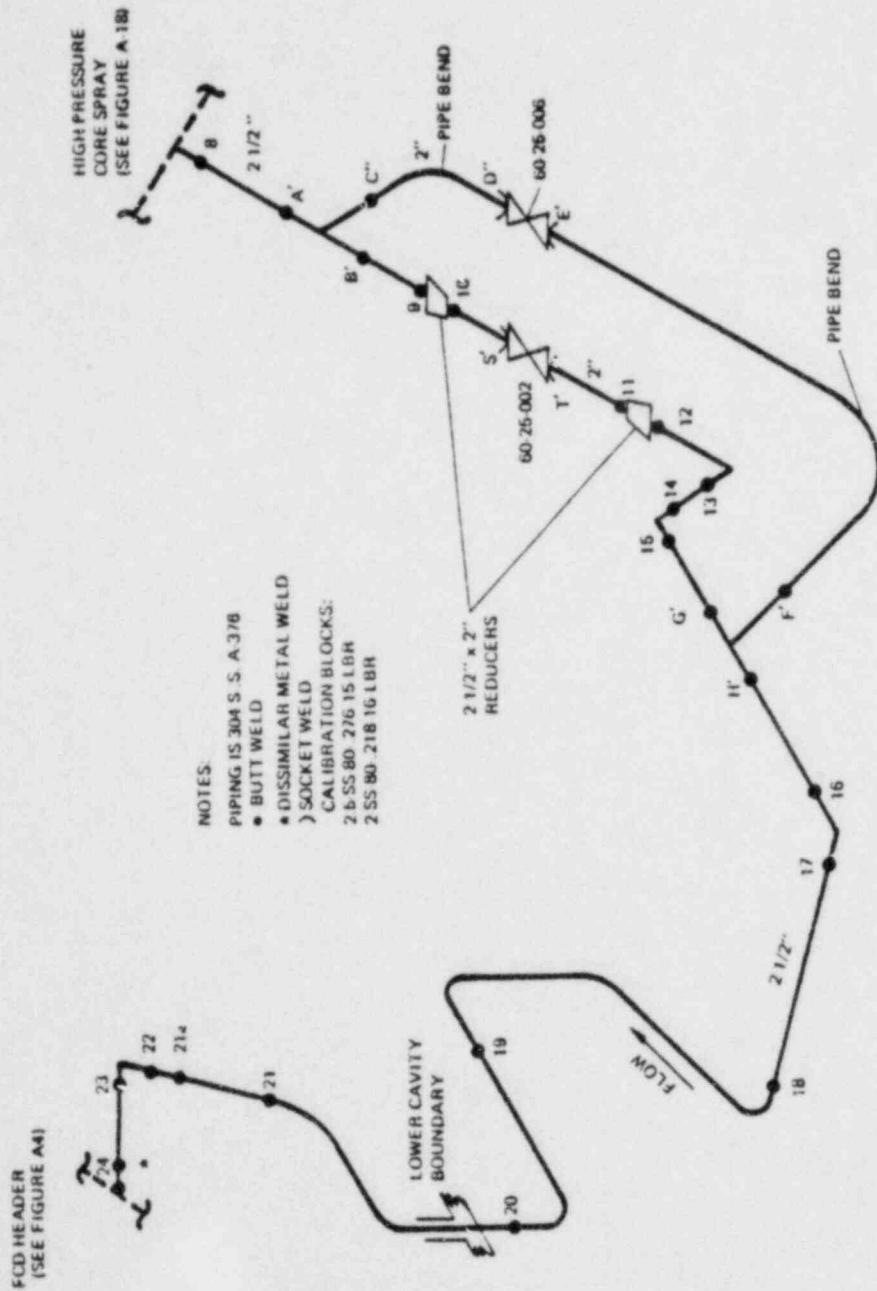
ALL PIPING IS TYPE 304 S.S. A-378  
SCH.80

● BUTT WELD  
X HANGER(WELDED)

CALIBRATION BLOCK:  
4-SS-80-337-21-LBR

FIGURE A-17

4" CONDENSER CONDENSATE PIPING



NOTES:

ALL DECAY HEAT SUCTION PIPING IS:  
 GROUP VI A CLASS 900 SS-A 8" SCH.  
 100-A376, TYPE 304 S.S.

- BUTT WELD
- X HANGER (WELDED)
- \* DISSIMILAR METAL WELD
- HANGER (CLAMPED)

CALIBRATION BLOCKS:  
 8-SS-100-594-9-LBR  
 6-CS-120-562-14-LBR

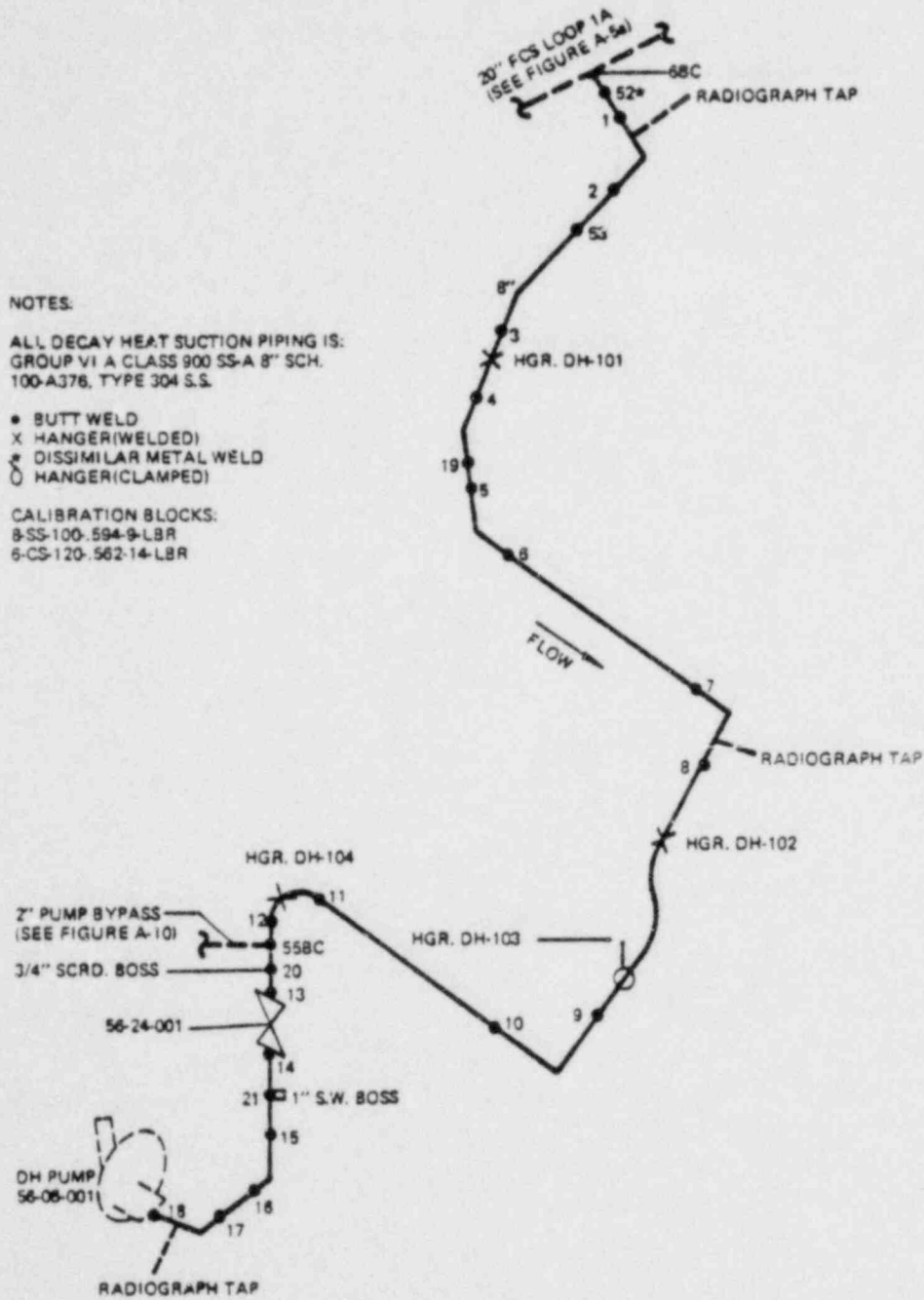
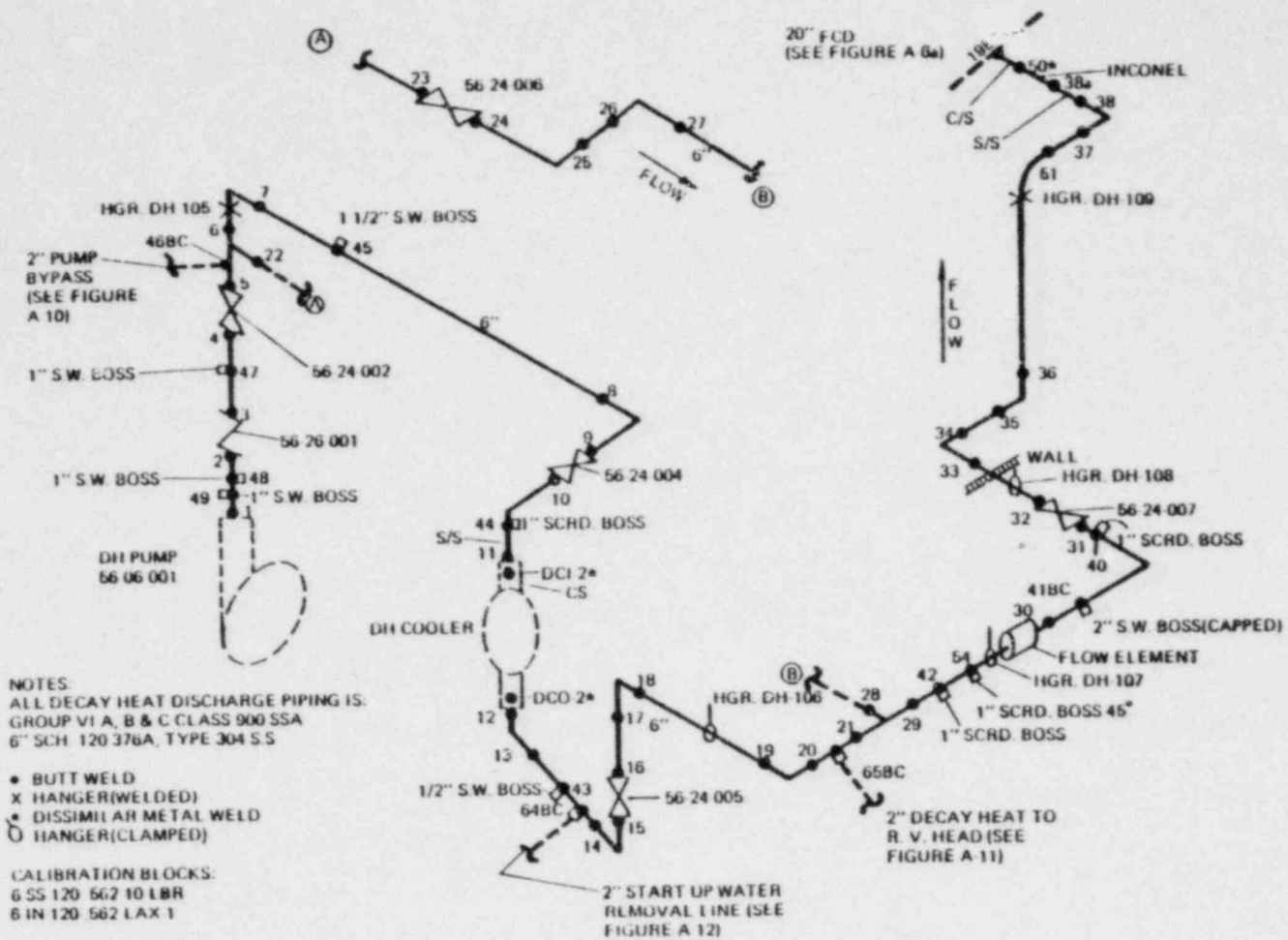


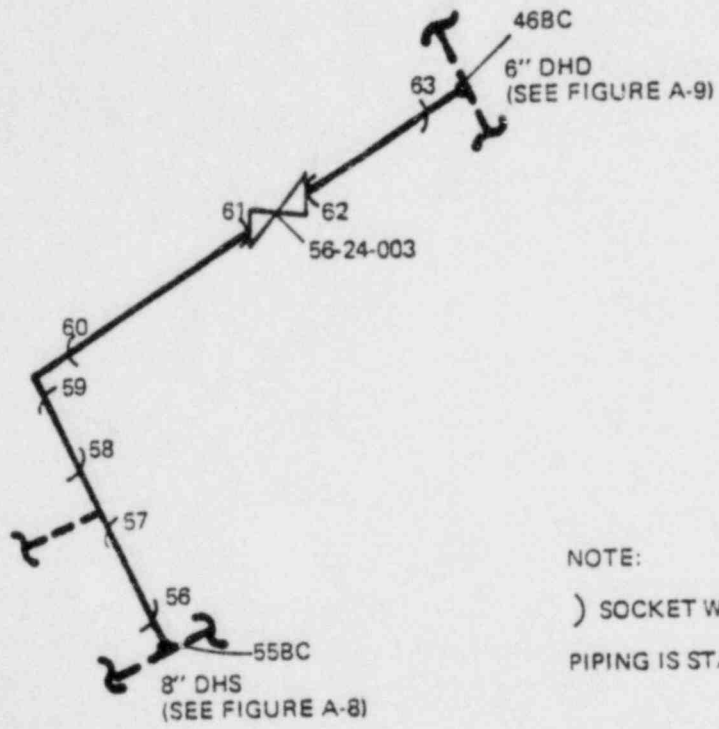
FIGURE A-8

8" DECAY HEAT SUCTION PIPING





1 1/2" FROM CONTROL  
ROD DRIVE EFFLUENT  
PUMPS



NOTE:  
) SOCKET WELD  
PIPING IS STAINLESS STEEL

FIGURE A-10  
2" PUMP BY-PASS PIPING