BOSTON EDISON COMPANY
GENERAL OFFICES 800 BOYLSTON STREET
BOSTON, MASSACHUSETTS 02199

G. CARL ANDOGNINI
SUPERINTENDENT
NUCLEAR OPERATIONS DEPARTMENT

July 24, 1979

BECo. Ltr. #79-153

Mr. Thomas A. Ippolito, Chief
Operating Reactors Branch #3
Division of Operating Reactors
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

License No. DPR-35
Docket No. 50-293

Pilgrim Nuclear Power Station Unit #1
Weld Inspection Program

Reference (a) April 28, 1976 Letter D. L. Ziemann
to J. E. Larson

(b) March 15, 1979 Letter J. E. Howard
to T. A. Ippolito

Dear Sir:

Pursuant to 10CFR50.55(a) and in accordance with the changes to the Federal Regulations for Inservice Inspection as delineated in References (a) and (b) above, Boston Edison Company hereby submits its proposed weld inspection program.

The weld inspection program is intended for implementation at the start of our next refueling outage presently scheduled for January 5, 1980.

If during your review of this material you should have any questions or concerns please do not hesitate to contact us.

Very truly yours,

G. Carl Andognini

I. Introduction

The Inservice Inspection Program for Pilgrim Station Unit #1 is developed in accordance with the requirements of 10 CFR 50.55(a) and Section XI of the A.S.M.E. Boiler and Pressure Vessel Code, 1974 Edition including the Addenda through Summer 1975. Where these rules are determined to be impractical, specific relief is requested in writing. The Inservice Inspection Programs for Class 1, 2 and 3 components are applicable for the forty month period beginning August 9, 1979.

Pilgrim Station Unit #1, due to its construction age, has essentially no ASME Code Class 1, 2 or 3 designed systems. The system classification used as a basis for the Inservice Inspection Program is based on the requirements set forth in 10 CFR 50.55(a) and Regulatory Guide 1.26 and were developed for the sole purpose of assigning the appropriate inservice inspection requirements. Components within the primary coolant boundary, as defined in 10 CFR 50.2(V) are designated as ISI-Class 1 while other safety-related components are designated as ISI-Class 2 and 3 in accordance with the guidelines of Regualtory Guide 1.26. Pursuant to 10 CFR 50.55(a)(g)(1) inservice inspection requirements of Section XI of the A.S.M.E. Boiler and Pressure Vessel Code are then assigned to these components, within the constraints of existing plant design.

II. Program Description

The Inservice Inspection Program for ISI Class 1, 2 and 3 components meets the requirements of Section XI of the A.S.M.E. Boiler and Pressure Vessel Code, 1974 Edition through the Summer 1975 Addenda. Where these requirements are determined to be impractical, specific requests for relief have been written and are included in this submittal.

The ISI Program is presented in a tabular format. The components and associated requirements are listed by system and according to ascending code category and item numbers. The following information is included in the tables.

A. Code Category - Lists the Section XI examination categories as defined in Table IWB-2500 for Class 1 components and Table IWC-2520 for Class 2 components. Since there are no such categories for hydrostatic test requirements or for Class 3 component examination, they have been omitted from the tables. Only those categories applicable to Boiling Water Reactors are included.

B. Item Number and Description - Lists the item number and its description as listed in Table IWB-2600 and IWC-2600. All applicable item numbers are listed for each code category.

C. Exam Method - Lists the examination method or methods that will be performed for each component. In cases where no method is listed, specific relief requests are provided (Table F).

D. P&IDs and Coordinates references the applicable color-coded P&ID and Coordinates for the line or component.

E. No. of Items indicates the total number of components (i.e. welds, supports, valves, etc.) that apply to the particular item number. Where this number appears in parentheses, it refers to the number of components exempted by the referenced relief.

Since this number indicates the total number of components for a particular item number, the number to be inspected each interval is some percentage of this total, based on the requirements stated in Section XI for each category.

F. Relief Request references either a specific relief request or references one of the code allowed exemptions. If the latter is referenced, the particular line or component has been exempted from Volumetric or Surface examination by the applicable code paragraph.

G. Pursuant to paragraph IWB-1220(1) the maximum size line break that can be made up by the Reactor Coolant Makeup System has been calculated to be less than 2.25 inches inside diameter for liquid carrying lines and less than 3.0 inches for steam carrying lines. In applying this exemption to the program liquid carrying lines less than or equal to 2 inches nominal pipe size and steam carrying lines less than or equal to 3.0 inches were exempted.

H. Pilgrim Nuclear Power Station Unit #1 will be implementing Class 2 and 3 inspection requirements for the first time with the acceptance of this program. For the remainder of the current ten year interval the percentage of the required examinations completed will be only that which would have been scheduled had Class 2 and 3 requirements been implemented at the beginning of the interval and the required examinations divided evenly among each of the three periods.

System: REACTOR PRESSURE VESSEL

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Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Pressure retaining welds in reactor vessel belt-line region		1	B-A	B1.1	longitudinal and circumferential welds in core region	7	volumetric		
Pressure retaining welds in vessel		1	B-B	B1.2	longitudinal and circumferential welds in shell and meridional and circumferential seam welds in bottom head and closure head	22	volumetric		
Pressure retaining welds to flange and head to flange		1	B-C	B1.3	vessel to flange and head to flange	2	volumetric		
Full penetration welds of nozzles in vessel		1	B-D	B1.4	primary nozzle to vessel welds and nozzle inside radiused section	34	volumetric		
Pressure retaining partial penetration welds in vessel		1	B-E	B1.5	vessel penetrations including control rod drive and instrumentation penetrations	187	visual (TWA 5000)		Note: Inspection conducted in accordance with IWA 5000
Pressure retaining welds-									
1) Recirculation	252	1	B-F	B1.6	nozzle to safe end welds	12	volumetric and surface		
2) Core Spray	242	1	B-F	B1.6	nozzle to safe end welds	2			

System: REACTOR PRESSURE VESSEL

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Pressure retaining welds Cont'd.									
3) Main Steam (Note 1)	252	1	B-F	B1.6	nozzle to safe end welds	4	volu-metric and surface		*Note 1: These are not dissimilar metal welds, but for identification and inspection requirements will be classified as safe end welds
4) Feedwater (Note 1)	252	1	B-F	B1.6	nozzle to safe end welds		"		
5) C.R.D. Return	252	1	B-F	B1.6	nozzle to safe end welds	1	"		
6) Jet Pump Inst.	252	1	B-F	B1.6	nozzle to safe end welds	1	"		
Pressure retaining bolting 2" and larger in		1	BG-1	B1.7	reactor pressure vessel	56	volu-metric		
		1	BG-1	B1.7	closure studs and nuts when removed	*	volu-metric		* Represents number removed
		1	BG-1	B1.7	ligaments between threaded stud holes		volu-metric		
		1	BG-1	B1.7	closure washers	56	visual		
		1	BG-1	B1.7	closure bushings	12	visual		Visual examinations for bushings of removed studs only

System: REACTOR PRESSURE VESSEL									Page 3 of 4	Rev.
Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks	
Pressure retaining bolting, smaller than 2" in diameter (head spray)		1	BG-2	B1.11	pressure retaining	12	visual			
Vessel supports		1	B-H	B1.12	integrally welded vessel supports	1	volumetric			
Interior clad surfaces of reactor vessel head		1	BI-1	B1.13	closure head cladding	(6)	none	CR3		
Internal of vessel		1	BI-1	B1.14	vessel cladding	(6)	none	CR3		
Vessel interior		1	BN-1	B1.15	interior of reactor vessel		visual			
Vessel interior		1	BN-2	B1.16	integrally welded core supports and interior attachments to reactor vessel		visual			
Removable core support structures		1	BN-3	B1.17	N/A		N/A			
Pressure retaining welds in control rod drive housings		1	B-O	B1.18	control rod drive	(145)	visual	Ex-1		

System: REACTOR PRESSURE VESSEL

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Control rod drive housing - bolting		1	B-P	B1.19	C.R.D. housing Bolting	145	visual*		*Visual during hydro only
Lines less than 1"								EX2	
Lines between 1" and 2" Steam lines between 1" and 3"								EX1	
Drain line from C.R.D. return - 1"								EX2	

System: MAIN STEAM | Page 1 of 4 | Rev.

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Loop "A"	252	1	B-F	B4.1	safe end to pipe welds	1	volu-metric visual		
		1	B-J	B4.5	longitudinal and circum ferential pipe welds	19	volu-metric		
		1	B-J	B4.5	longitudinal and circum-ferential pipe welds			CR2	
		1	B-J	B4.7	branch pipe connection welds 6" in diamaeter and smaller	(2)	sur-face		
		1	B-J	B4.8	socket welds	(3)		EX2	
		1	B-K-2	B4.10	support components	7	visual		
		1	B-M-1	B6.6	N/A				
		1	B-M-2	B6.7	1) valve bodies (main steam isolation valves)	(2)	visual	CR7	
		1	B-G-2	B6.9	relief and safety valve bolting, main steam isolation valve bolting	*	visual		*number of valves with bolting.
Loop "B"	252	1	B-F	B4.1	safe end to pipe welds	1	volu-metric visual		
		1	B-J	B4.5	longitudinal and circum-ferential pipe welds	18	volu-metric		

System: MAIN STEAM

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Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Loop "B" (Cont'd.)	252	1	B-J	B4.5	longitudinal and circumferential pipe welds			CR2	
		1	B-J	B4.7	branch pipe connection welds 6" in diameter and smaller	1	surface		
		1	B-J	B4.8	socket welds	(3)		EX 2	
		1	B-K-2	B4.10	support components	8	visual		
		1	B-M-1	B6.6	Pressure retaining welds in valve bodies		N/A		
		1	B-M-2	B6.7	1)valve bodies (main steam isolation valves)	(2)	visual	CR7	
		1	B-G-2	B6.9	releif and safety valve, main isolation valve bolting	*	visual		*number of valves with bolting
Loop "C"	252	1	B-F	B4.1	safe end to pipe welds	1	volumetric visual		
		1	B-J	B4.5	longitudinal and circumferential pipe welds	17	volumetric		
		1	B-J	B4.6	longitudinal and circumferential pipe welds			CR2	

System: MAIN STEAM

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Loop "C" (Cont'd.)	252	1	B-J	B4.7	branch pipe connection welds 6" in diameter and smaller	2	sur-face		
		1	B-J	B4.8	socket welds	(3)		EX2	
		1	B-K-2	B4.10	support components	8	visual		
		1	B-M-1	B6.6	pressure retaining welds in valve bodies		N/A		
		1	B-M-2	B6.7	1)valve bodies (main steam isolation valves)	(2)	visual	CR7	
		1	B-G-2	B6.9	relief and safety and main steam isolation valve bolting	*	viaual		*number of valves with bolting
Loop "D"	252	1	B-F	B4.1	safe end to pipe welds	1	volu-metric sur.		
		1	B-J	B4.5	longitudinal and circum-ferential pipe welds	20	volu-metric		
		1	B-J	B4.5	longitudinal and circum-ferential pipe welds			CR2	
		1	B-J	B4.7	branch pipe connection welds 6" in diameter and smaller	2	sur-face		

System: MAIN STEAM

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Loop "D" (Cont'd.)	252	1	B-J	B4.8	socket welds	(3)		EX2	
		1	B-K-2	B4.10	support components	9	visual		
		1	B-M-1	B6.6	pressure retaining welds in valve bodies		N/A		
		1	B-M-2	B6.7	1) valve bodies (main steam isolation valves)	(2)	visual	CR7	
		1	B-G-2	B6.9	relief and safety, and main steam isolation valve bolting	*	visual		*number of valves with bolting
Drain line 3"	252	1	B-J	B4.5	longitudinal and circumferential pipe welds	(11)		EX1	
		1	B-J	B4.8	socket welds	(5)		EX1	
		1	B-M-2	B6.7	valve bodies - isolation valve drain lines	(2)	visual	CR7	

System: REACTOR RECIRCULATION

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Loop "A"	252	1	B-J	B4.1	safe end to pipe welds	6	volu-metric sur-face		
		1	B-J	B4.5	circumferential and long-itudinal pipe welds	37	volu-metric		
		1	B-J	B4.6	branch pipe connection welds greater than 6" diameter	7	volu-metric		
		1	B-J	B4.7	branch pipe connection welds 6" diameter and smaller	2	sur-face		
		1	B-J	B4.8	socket welds	(7)		EX1	
		1	B-J	B4.10	support components	15	visual		
		1	B-G-1	B5.3	pressure retaining volts	18	volu-metric		
		1	B-K-1	B5.4	integrally welded sup-ports (pump casing)	3	volu-metric		
		1	B-K-2	B5.5	support components	3	visual		
		1	B-L-1	B5.6	pump casing welds	(1)		CR 10	
		1	B-M-2	B6.7	valve bodies	(4)	visual	CR7	

System: REACTOR RECIRCULATION

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Loop "B"	252	1	B-J	B4.1	safe end to pipe welds	6	volu-metric sur-face		
		1	B-J	B4.5	circumferential and long-itudinal pipe welds	37	volu-metric		
		1	B-J	B4.6	branch pipe connection welds exceeding 6" diameter	6	volu-metric		
		1	B-J	B4.7	branch pipe connection welds 6" diameter and smaller	2	sur-face		
		1	B-J	B4.8	socket welds	(7)		EX1	
		1	B-K-2	B4.10	Support components	15	sur-face		
		1	B-G-1	B5.3	pressure retaining bolts	18	volu-metric		
		1	B-K-1	B5.4	integrally welded sup-ports (pump casing)	3	volu-metric		
		1	B-K-2	B5.5	support components	3	visual		
		1	B-L-1	B5.6	pump casing weld	(1)		CR10	
		1	B-L-2	B5.7	pump casing	(1)	visual	CR8	

System: REACTOR RECIRCULATION									Page 3 of 3	Rev.
Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks	
		1	B-M-2	B6.7	valve bodies	(3)	visual	CR7		

System: CONTROL ROD DRIVE

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Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
6" Scram discharge headers	250 H-2 H-3	2	C-F	C2.1	circumferential butt welds	48	volu-metric		
		2	C-F	C2.2	longitudinal pipe welds in fittings	4	volu-metric		
C.R.D. Return line	250	1	B-J	B4.5	circumferential and longitudinal pipe welds	5	volu-metric		
		1	B-J	B4.7	branch pipe connection welds 6" diameter and smaller	1	sur-face		
		1	B-M-2	B6.7	valve bodies	(2)	visual	CR7	
		1	B-J	B9.8	socket welds	(1)		EX2	

System: FEEDWATER

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Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Loop "A" 12" diameter	252	1	B-F	B4.1	safe end to pipe welds	2	volu-metric & surface		
		1	B-J	B4.5	circumferential and long-itudinal pipe welds	20	volu-metric		
		1	B-J	B4.6	branch pipe connection welds exceeding 6" diameter	1	volu-metric		
		1	B-K-2	B4.10	support components	4	visual		
Loop "A" 18" diameter	252		B-J	B4.5	circumferential and long-itudinal pipe welds	14	volu-metric		
		1	B-J	B4.5	circumferential and long-itudinal pipe welds			CR2	
		1	B-J	B4.7	branch pipe connection welds 6" in diameter and smaller	(1)		EX2	
		1	B-J	B4.8	socket welds	(1)		EX2	
		1	B-K-2	B4.10	support components	6	visual		
		1	B-M-2	B6.7	valve bodies	(3)	visual	CR7	

System: FEEDWATER

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Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Loop "B" - 12" diameter	252	1	B-F	B4.1	safe end to pipe welds	2	volumetric and surface		
		1	B-J	B4.5	circumferential and longitudinal pipe welds	20	volumetric		
		1	B-J	B4.6	branch pipe connection welds exceeding 6" diameter	1	volumetric		
		1	B-K-2	B4.10	support components	4	visual		
Loop "B" - 18" diameter		1	B-J	B4.5	circumferential and longitudinal pipe welds	16	volumetric		
		1	B-J	B4.5	circumferential and longitudinal pipe welds			CR2	
		1	B-J	B4.6	branch pipe connection welds exceeding 6" diameter	2	volumetric		
		1	B-J	B4.8	socket welds	(1)		EX2	
		1	B-K-2	B4.10	support components	6	visual		
		1	B-M-2	B6.7	valve bodies	(2)	visual	CR7	Examine when disassembled for maintenance or repairs

System: RESIDUAL HEAT REMOVAL

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Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
RHR "in" - LPCI-LOOP "A" from MO 1001-29A to 28" main recirc. disch. Loop A	241 C-6	1	B-J	B4.5	circumferential and longitudinal welds	14	volu-metric		
		1	B-J	B4.5	circumferential and longitudinal welds			CR2	
		1	B-J	B4.8	socket welds	(7)		EX2	
		1	B-K-2	B4.10	support components	5	visual		
		1	B-M-2	B6.7	valve bodies	(3)	visual	CR7	
RHR "in" - LPCI-LOOP "B" from MO-1001-29B to 28" main recirc. disch. Loop B	241 C-4	1	B-J	B4.5	circumferential and longitudinal welds	17	volu-metric		
		1	B-J	B4.5	circumferential and longitudinal			CR2	
		1	B-J	B4.8	sockets welds	(7)		EX2	
		1	B-K-2	B4.10	support components	5	visual		
RHR Heat exchangers	241 A-7 and A-3	2	C-A	C1.1	circumferential butt welds (vessel to Flange)	8	volu-metric		
		2	C-B	C1.2	nozzle to vessel welds	4	volu-metric		
		2	C-C	C1.3	integrally welded supports	8	surface		
		2	C-D	C1.4	pressure retaining bolts	(64)	None	CR9	NOTE: visual inspection of bolts will be conducted during hydro.

System: RESIDUAL HEAT REMOVAL | Page 2 of 13 | Rev.

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
"A" pump discharge to heat exchanger E-207A	241 A-7	2	C-G	C2.1	circumferential butt welds	23	volu-metric		
		2	C-G	C2.2	longitudinal weld joints in fittings	7	volu-metric		
		2	C-G	C2.3	branch pipe to pipe welds	1	volu-metric		
		2	C-E-2	C2.6	support components	3	visual		
"C" pump discharge to heat exchanger E-207A	241 A-7	2	C-G	C2.1	circumferential butt welds (A) 18" (B) 16"	 11 12	 volu-metric "		
		2	C-G	C2.2	longitudinal weld joints in fittings	5	volu-metric		
		2	C-G	C2.3	branch pipe to pipe weld	1	volu-metric		
		2	C-E-2	C2.6	support components	2	visual		

System: RESIDUAL HEAT REMOVAL | Page 3 of 13 | Rev.

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
"B" pump discharge to heat exchanger E-207B	241 A-4	2	C-G	C2.1	circumferential butt welds	25	volu-metric		
		2	C-G	C2.2	longitudinal weld joints in fittings	4	volu-metric		
		2	C-G	C2.3	branch pipe to pipe weld	1	volu-metric		
		2	C-E-2	C2.6	support components	3	visual		
"D" pump discharge to heat exchanger E-207B	241 B-4	2	C-G	C2.1	circumferential butt welds	20	volu-metric		
		2	C-G	C2.2	longitudinal weld joints in fittings	8	volu-metric		
		2	C-G	C2.3	branch pipe to pipe weld	1	volu-metric		
		2	C-E-2	C2.6	support components	2	visual		

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Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
"A" Suction	241 B-6	2	C-G	C2.1	circumferential butt welds	(18)		EX 3	
		2	C-G	C2.2	longitudinal weld joints in fittings	(6)		EX 3	
		2	C-G	C2.3	branch pipe to pipe weld	(1)		EX 3	
		2	C-E-2	C2.6	support components	(6)		EX 3	
"C" Suction	241 A-6	2	C-G	C2.1	circumferential butt welds	(14)		EX 3	
		2	C-G	C2.2	longitudinal weld joints in fittings	(4)		EX 3	
		2	C-G	C2.3	branch pipe to pipe weld	(1)		EX 3	
		2	C-E-2	C2.6	support components	(4)		EX 3	

System: RESIDUAL HEAT REMOVAL

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
"B" Suction	241 A-4	2	C-G	C2.1	circumferential butt welds	13		EX 3	
		2	C-G	C2.2	longitudinal weld joints in fittings	4		EX 3	
		2	C-G	C2.3	branch pipe to pipe weld	1		EX 3	
		2	C-E-2	C2.6	support components	4		EX 3	
"D" Suction	241 B-4	2	C-G	C2.1	circumferential butt welds	28		EX 3	
		2	C-G	C2.2	longitudinal weld joints in fittings	4		EX 3	
		2	C-G	C2.3	branch pipe to pipe weld	1		EX 3	
		2	C-E-2	C2.6	support components	6		EX 3	
20" cross connection feed line to Loop "A" suction from MO-1001-47	241 B-5 and A-6	2	C-G	C2.1	circumferential butt welds	19	volu-metric		
		2	C-G	C2.2	longitudinal weld joints in fittings	6	volu-metric		
		2	C-G	C2.3	branch pipe to pipe weld	1	volu-metric		
		2	C-E-2	C2.6	support components	7	visual		

System: RESIDUAL HEAT REMOVAL

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Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
20" cross connection to Loop "B" suction from Loop "A" branch connection	241 B-5 A-5	2	C-G	C2.1	circumferential butt welds	17	volumetric		
		2	C-G	C2.2	longitudinal weld joints in	7	volumetric		
		2	C-E-2	C2.6	support components	9	visual		
18" from 20" cross connection to "C" suct.	241 B-5	2	C-G	C2.1	circumferential butt welds	7	volumetric		
		2	C-G	C2.2	longitudinal weld joints in fittings	1	volumetric		
		2	C-G	C2.3	branch pipe to pipe weld	2	volumetric		
		2	C-E-2	C2.6	support components	1	visual		
18" from 20" cross connection to "A" pump suction	241 A-5	2	C-G	C2.1	circumferential butt welds	6	volumetric		
		2	C-G	C2.2	longitudinal weld joints	1	volumetric		
		2	C-E-2	C2.6	support components	1	visual		
18" from 20" cross connection to "B" pump suction	241 A-5	2	C-G	C2.1	circumferential butt welds	5	volumetric		
		2	C-G	C2.2	longitudinal weld joints in fittings	1	volumetric		
		2	C-G	C2.3	branch pipe to pipe weld	1	volumetric		
		2	C-E-2	C2.6	support components	1	visual		

System: RESIDUAL HEAT REMOVAL

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
18" from 20" cross connection to "D" pump suction	241 A-5	2	C-G	C2.1	circumferential butt welds	6	volu-metric		
		2	C-G	C2.2	longitudinal weld joints in fittings	3	volu-metric		
		2	C-E-2	C2.6	support components	1	visual		
4" flushing line from "C" suction to N29K	241 B-5	2	C-G	C2.1	circumferential butt welds	(2)		EX 4	
		2	C-G	C2.2	longitudinal weld joints in fittings	(1)		EX 4	
		2	C-G	C2.3	branch pipe to pipe weld	(1)		EX 4	
4" flushing line from "A" suction to N29K	241 A-5	2	C-G	C2.1	circumferential butt welds	(2)		EX 4	
		2	C-G	C2.2	longitudinal weld joints	(1)		EX 4	
		2	C-G	C2.3	branch pipe to pipe weld	(1)		EX 4	
4" flushing line from "D" suction to N29K	241 B-5	2	C-G	C2.1	circumferential butt welds	(1)		EX 4	
		2	C-G	C2.2	longitudinal weld joints	(1)		EX 4	
		2	C-G	C2.3	branch pipe to pipe weld	(1)		EX 4	

System: RESIDUAL HEAT REMOVAL | Page 8 of 13 | Rev.

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
4" flushing line from "B" suction to N29K	241 A-5	2	C-G	C2.1	circumferential butt welds	(2)		EX 4	
		2	C-G	C2.2	longitudinal weld joints	(1)		EX 4	
		2	C-G	C2.3	branch pipe to pipe weld	(1)		EX 4	
18" line "in" to recirc. from MO-1001-16A to MO-1001-29A	241 B-7 C-6 C-7 D-6	2	C-G	C2.1	circumferential butt welds	25	volu-metric		
		2	C-G	C2.2	longitudinal weld joints	10	volu-metric		
		2	C-G	C2.3	branch pipe to pipe weld	1	volu-metric		
		2	C-E-2	C2.6	support components	8	visual		
18" line "in" to recirc. from MO-1001-16B to MO-1001-29B	241 B-3 C-3 D-4 D-4	2	C-G	C2.1	circumferential butt welds	25	volu-metric		
		2	C-G	C2.2	longitudinal weld joints	8	volu-metric		
		2	C-G	C2.3	branch pipe to pipe weld	1	volu-metric		
		2	C-E-2	C2.6	support components	4	visual		

System: RESIDUAL HEAT REMOVAL

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Loop "A" 12" to 10" line to containment spray	241 D-4 C-3 C-4	2	C-C	C2.1	circumferential butt welds	25	volu-metric		
		2	C-G	C2.2	longitudinal weld joints	12	volu-metric		
		2	C-G	C2.3	branch pipe to pipe weld	1	volu-metric		
		2	C-E-2	C2.6	support components	8	visual		
Loop "B" 12" to 10" line to containment spray	241	2	C-G	C2.1	circumferential butt welds	31	volu-metric		
		2	C-G	C2.2	longitudinal weld joints	16	volu-metric		
		2	C-G	C2.3	branch pipe to pipe weld	1	volu-metric		
		2	C-E-2	C2.6	support components	12	visual		

System: RESIDUAL HEAT REMOVAL

Rev.

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
4" head spray from loop "A" to MO-1001-60	241 D-6	2	C-G	C2.1	circumferential butt welds	(36)		EX 4	
		2	C-G	C2.2	longitudinal weld joints	(17)		EX 4	
		2	C-G	C2.3	branch pipe to pipe weld	(1)		EX 4	
		2	C-F	C2.6	support components	(16)		EX 4	
		2	C-D	C2.4	pressure retaining bolting	(8)		EX 4	
4" head spray nozzle flange from MO-1001-60	241 D-6	1	B-J	B4.5	circumferential and longitudinal pipe welds	42	volumetric		
		1	B-K-2	B4.10	support components	4	visual		
		1	B-M-2	B6.7	valve bodies	(3)	visual	CR 7	
		1	B-G-2	B4.12	pressure retaining bolting	16	visual surface		
RHR "out" to MO-1001-47	241 C-5	1	B-J	B4.5	circumferential and longitudinal pipe welds	34	volumetric		
		1	B-J	B4.5	circumferential and longitudinal pipe welds			CR 2	
		1	B-K-2	B4.10	support components	4	visual		
		1	B-M-2	B6.7	valve bodies	(3)	visual	CR 7	

System: RESIDUAL HEAT REMOVAL

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
16" heat exchanger line discharge loop "A" (E 207A)	241 B-7	2	C-G	C2.1	circumferential butt welds	5	volu-metric		
		2	C-G	C2.2	longitudinal weld joints	1	volu-metric		
		2	C-G	C2.3	branch pipe to pipe weld	1	volu-metric		
16" heat exchanger line discharge loop "B" (E-207B)	241 B-3	2	C-G	C2.1	circumferential butt welds	5	volu-metric		
		2	C-G	C2.2	longitudinal pipe welds	1	volu-metric		
		2	C-G	C2.3	branch pipe to pipe weld	1	volu-metric		
Loop "A" 12" line to torus test line	241 C-6 C-7	2	C-G	C2.1	circumferential butt welds	(28)		EX 3	
		2	C-G	C2.2	longitudinal weld joints	(10)		EX 3	
		2	C-G	C2.3	branch pipe to pipe weld	(2)		EX 3	
		2	C-E-2	C2.6	support components	(9)		EX 3	
Loop "A" 6" line to torus spray	241 C-6 C-7	2	C-G	C2.1	circumferential butt welds	(17)		EX 3	
		2	C-G	C2.2	longitudinal weld joints	(8)		EX 3	
		2	C-E-2	C2.6	support components	(5)		EX 3	

System: RESIDUAL HEAT REMOVAL

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Loop "B" 12" line to torus test line	241 C-6 C-7	2	C-G	C2.1	circumferential butt welds	(25)		EX 3	
		2	C-G	C2.2	longitudinal weld joints	(9)		EX 3	
		2	C-G	C2.3	branch pipe to pipe weld	(1)		EX 3	
		2	C-E-1	C2.6	support components	(6)		EX 3	
Loop "B" 6" line to torus spray	241 C-6 C-7	2	C-G	C2.1	circumferential butt welds	(11)		EX 3	
		2	C-G	C2.2	longitudinal weld joints	(5)		EX 3	
		2	C-G	C2.3	branch pipe to pipe weld	(1)		EX 3	
		2	C-E-2	C2.6	support components	(2)		EX 3	
18" tie line Loop "A" to Loop "B"	241 B-3 to B-7	2	C-G	C2.1	circumferential butt welds	33	volu-metric		
		2	C-G	C2.2	longitudinal weld joints	7	volu-metric		
		2	C-E-2	C2.6	support components	6	visual		
6" fuel pool connection from 18" tie line to N26	241 B-4	2	C-G	C2.1	circumferential butt welds	24	volu-metric		
		2	C-G	C2.2	longitudinal weld joints in fittings	13	volu-metric		

System: RESIDUAL HEAT REMOVAL

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
6" fuel pool connection from 18" tie line to N26		2	C-G	C2.3	branch pipe to pipe weld	1	volu-metric		
(continued)		2	C-E-2	C2.6	support components	15	visual		
4" chemwaste receiver line to MO-1001-32	241 B-4	2	C-G	C2.1	circumferential butt welds	(3)		EX 4	
		2	C-G	C2.2	longitudinal weld joints	(1)		EX 4	
		2	C-G	C2.3	branch pipe to pipe weld	(1)		EX 4	
		2	C-E-2	C2.6	support components	(1)		EX 4	
6" line from RHR "out" to fuel pool N29	241 B-5	2	C-G	C2.1	circumferential butt welds	21	volu-metric		
		2	C-G	C2.2	longitudinal weld joints in fittings	10	volu-metric		
		2	C-G	C2.3	branch pipe to pipe weld	1	volu-metric		
		2	C-E-2	C2.6	support components	9	visual		
6" torus make-up from condensate to AO-8000	241 C-3	2	C-G	C2.1	circumferential butt welds	(7)		EX 3	
		2	C-G	C2.2	longitudinal weld joints in fittings	2	volu-metric		
		2	C-G	C2.3	branch pipe to pipe weld	1	volu-metric		

Boston Edison Company

INSERVICE INSPECTION PROGRAM

Pilgrim Nuclear Power Station Unit - 1

System: STAND-BY LIQUID CONTROL | Page 1 of 1 | Rev.

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
1½" line from 1106-A and 1106-B (squib valves) to reactor vessel	249 C-7 B-7	1	B-J	B4.8	socket welds	(36)		EX1	
		1	B-J	B4.1	safe end to pipe welds	(1)		EX1	
		1	B-K-2	B4.10	support components	(2)		EX1	
		1	B-M-2	B6.7	valve bodies	(2)	visual	CR7	
2½" suction to pump "A"	249	2	C-G		welds	(16)		EX4	
2½" suction to pump "B"	249	2	C-G		welds	(7)		EX4	
Discharge to Squib valves	249	2	C-G		welds	(44)		EX4	
2½" to T-206	249	2	C-G		welds	(3)		EX4	
3" to collection system	249	2	C-G		welds	(13)		EX4	

System: REACTOR WATER CLEAN-UP

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Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Reactor water clean-up water in from MO-1201-80 (4" to 6" line)	247 D-4 to D-7	1	B-J	B4.5	circumferential and longitudinal pipe welds	42	volumetric		
		1	B-J	B4.7	branch pipe connection welds 6" diameter and smaller	1	surface		
		1	B-K-2	B4.10	support components	8	visual		
		1	B-M-2	B4.7	valve bodies	(3)	visual	CR7	
Reactor water clean-up "out" to 1201-5 (6" line)	247	1	B-J	B4.5	circumferential and longitudinal pipe welds	39	volumetric		
		1	B-J	B4.5	circumferential and longitudinal pipe welds			CR2	
		1	B-J	B4.7	branch pipe connection welds 6" diameter and smaller	1	surface		
		1	B-K-2	B4.10	support components	2	visual		
		1	B-M-2	B6.7	Valve bodies	(3)	visual	CR7	

System: REACTOR CORE ISOLATION COLLANT

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Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Steam supply line main steam line "C" to 1301-17	245 C-6 C-7	1	B-J	B4.5	circumferential and longitudinal pipe welds	25	volu-metric		
		1	B-J	B4.5	circumferential and longitudinal pipe welds			CR2	
		1	B-J	B4.7	branch pipe connections 6" and smaller	1	surface		
		1	B-K-2	B4.10	support components	2	visual		
Pump discharge from 1301-49 to reactor water clean-up (4"line)	245 C-5	1	B-J	B4.5	circumferential and longitudinal pipe welds	18	volu-metric		
		1	B-J	B4.7	branch pipe connections smaller than 6"	1	volu-metric		
		1	B-K-2	B4.10	support components	2	visual		
Turbine exhaust - from 1301-64 to torus (8")	245 B-5 A-5	2	C-G	C2.1	circumferential butt welds	4	volu-metric		
		2	C-G	C2.2	longitudinal pipe welds in fittings	1	volu-metric		
		2	C-E-2	C2.6	support components	2	visual		
Pump section from torus to MO-1301-26 (6" line)	245 A-6 A-5	2	C-G	C2.1	circumferential butt welds	9	volu-metric		
		2	C-G	C2.2	longitudinal pipe welds in fittings	2	volu-metric		
		2	C-E-2	C2.6	support components	2	visual		

System: REACTOR CORE ISOLATION COOLANT | Page 2 of 2 | Rev.

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Steam supply line from main steam line "C" to 1301-17	245 C-5	1	B-M-2	B6.7	Valve bodies	(2)	visual	CR7	
Pump discharge from 1301-49 to reactor water clean-up (4")	245 C-5	1	B-M-2	B6.7	Valve bodies	(2)	visual	CR7	

System: CORE SPRAY

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Loop "A" 10" from MO-1400-25A to reactor	242 C-6 C-7	1	B-J	B4.5	circumferential and longitudinal pipe welds	25	volumetric		
		1	B-J	B4.5	circumferential and longitudinal pipe welds			CR2	
		1	B-K-2	B4.10	support components	3	visual		
		1	B-F	B4.1	safe end to pipe and dissimilar metal welds	3	volumetric surf.		
Loop "B" - 10" from MO-1400-25B to reactor	242 C-6 C-7	1	B-J	B4.5	circumferential and longitudinal pipe welds	27	volumetric		
		1	B-J	B4.5	circumferential and longitudinal pipe welds			CR2	
		1	B-K-2	B4.10	support components	3	visual		
		1	B-F	B4.1	safe end to pipe and dissimilar metal welds	3	volumetric surf.		
"A" in to MO-1400-25A from pump 215A	242	2	C-G	C2.1	circumferential butt welds	42	volumetric		
		2	C-G	C2.2	longitudinal weld joints in fittings	17	volumetric		
		2	C-D	C2.4	pressure retaining bolting			CR9	
		2	C-E-2	C2.6	support components	11	visual		

System: CORE SPRAY

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
"B" in to MO-1400-25B	242 B-4 C-4 C-5 C-6	2	C-G	C2.1	circumferential butt welds	30	volu-metric		
		2	C-G	C2.2	longitudinal weld joints in fittings	11	volu-metric		
		2	C-D	C2.4	pressure retaining bolting			CR 9	
		2	C-E-2	C2.6	support components	9	visual		
Loop "A" - MO-1400-25A, AO-9A, 1400-6A	C-6 C-7	1	B-M-2	B6.7	valve bodies	(3)		CR 7	
Loop "B" - MO-1400-25B, AO-9B, 1400-6B	C-6 C-7	1	B-M-2	B4.7	valve bodies	(3)		CR 7	
Loop "A" torus to pump 215A-18" line	242 B-5	2	C-G	C2.1	circumferential butt welds	(18)		EX3	
		2	C-G	C2.2	longitudinal weld joints in fittings	(5)		EX3	
		2	C-E-2	C2.6	support components	(5)		EX3	
Loop "B" torus to pump 215B - 18" line	242 A-5	2	C-G	C2.1	circumferential butt welds	(18)		EX3	
		2	C-G	C2.2	longitudinal weld joints in fittings	(6)		EX3	
		2	C-E-2	C2.6	support components	(5)		EX3	

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System: CORE SPRAY

Line or Component. Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
12" line to condensate storage from 18" suction to valve 29K-Loop A	242 B-5	2	C-G	C2.1	circumferential butt welds	(1)		EX3	
		2	C-G	C2.3	branch pipe to pipe weld	(1)		EX3	
12" to condensate storage to valve 29K from 18" suction Loop "B"	242 A-3	2	C-G	C2.1	circumferential butt weld	(1)		EX3	
		2	C-G	C2.3	branch pipe to pipe weld	(1)		EX3	
6" test line to RHR test line from Loop "A" discharge	242 C-5 B-5 B-6	2	C-G	C2.1	circumferential butt welds	13	volu-metric		
		2	C-G	C2.2	longitudinal weld joints in fittings	2	volu-metric		
		2	C-G	C2.3	branch pipe to pipe weld joints	2	volu-metric		
		2	C-E-2	C2.6	support components	1	visual		
6" test line to RHR test line from Loop "B" discharge	242 C-5 B-5 B-6	2	C-G	C2.1	circumferential butt welds	13	volu-metric		
		2	C-G	C2.2	longidutinal weld joints in fittings	2	volu-metric		
		2	C-G	C2.3	branch pipe to pipe weld joints	2	volu-metric		

System: HIGH PRESSURE COOLANT INJECTION

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Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
14" line to feedwater Loop "B" - water in from MO-2301-8	243 B-6	1	B-J	B4.5	circumferential and longitudinal pipe welds	23	volumetric		
		1	B-J	B4.6	branch pipe pipe weld	1	volumetric		
		1	B-K-2	B4.10	support components	6	visual		
		1	B-M-2	B6.7	valve bodies	(2)	visual	CR7	
10" steam supply line from main steam line "D" to MO-2301-5	243 C-6	1	B-J	B4.5	circumferential and longitudinal pipe welds	23	volumetric		
		1	B-J	B4.5	circumferential and longitudinal pipe welds			CR2	
		1	B-J	B4.6	branch pipe to pipe weld		volumetric		
		1	B-K-2	B4.10	support components		visual		
		1	B-M-2	B6.7	valve bodies		visual	CR7	
10" steam supply to turbine from MO-2301-5	243 C-3 C-5 C-4 B-3	2	C-F	C2.1	circumferential butt welds	27	volumetric		
		2	C-F	C2.2	longitudinal pipe welds in fittings	11	volumetric		
		2	C-F	C2.3	branch pipe to pipe weld	1	volumetric		
		2	C-E-2	C2.6	support components	8	visual		

System: HIGH PRESSURE COOLANT INJECTION

Line or Component Description	P&ID and Co-ord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
20" Turbine exhaust	243 B-4 to B-7	2	C-F	C2.1	circumferential butt welds	32	volu-metric		
		2	C-F	C2.2	longitudinal pipe welds in fittings	8	volu-metric		
		2	C-F	C2.3	branch pipe to pipe weld	2	volu-metric		
		2	C-E-2	C2.6	support components	7	visual		
Water in from pump to 2301-8	243 B-5 B-6	2	C-G	C2.1	Circumferential butt welds	37	volu-metric		
		2	C-G	C2.2	longitudinal pipe welds in fittings	15	volu-metric		
		2	C-D	C2.4	pressure retaining bolts	18	visual sur.		
		2	C-E-2	C2.6	support components	11	visual		
Suction from torus to Pump P-205	243 A-5 to A-7 B-5 C-4 C-5	2	C-F	C2.1	circumferential butt welds	(24)		EX3	
		2	C-F	C2.2	longitudinal pipe welds in fittings	(8)		EX3	
		2	C-D	C2.4	pressure retaining bolts	(16)		EX3	
		2	C-E-2	C2.6	support components	(5)		EX3	

System: HIGH PRESSURE COOLANT INJECTION | Page 3 of 3 | Rev.

Line or Component Description	P&ID and Coord.	Class	Section XI Category	Section XI Item Number	Item Description	No. of Items	Exam Method	Relief Request	Remarks
Condensate storage to suction branch connection from MO-2301-6	243 C-4	2	C-F	C2.1	circumferential butt welds	(12)		EX3	
		2	C-F	C2.2	longitudinal pipe welds in fittings	(5)		EX3	
		2	C-F	C2.3	branch pipe to pipe weld	(1)		EX3	
		2	C-E-2	C2.6	support components	(4)		EX3	
4" from water "in" to RHR test line	243 B-5 A-5	2	C-F	C2.1	circumferential butt welds	(22)		EX3	
		2	C-F	C2.2	longitudinal pipe welds in fittings	(9)		EX3	
		2	C-F	C2.3	branch pipe to pipe weld	(2)		EX3	
		2	C-E-2	C2.6	support components	(5)		EX3	
10" from 2301-10 (RCIC test line to "HPCI" water "in"	243 C-6	2	C-G	C2.1	circumferential butt welds	10	volu-metric		
		2	C-G	C2.2	longitudinal pipe welds in fittings	4	volu-metric		
		2	C-G	C2.3	branch pipe to pipe weld	1	volu-Metric		
		2	C-D	C2.4	pressure retaining bolting	16	visual sur.		
		2	C-E-2	C2.6	support components	3	visual		

CODE RELIEF #1

1. Identification of Components and Impractical Code Requirements :

The class 1 components of the reactor vessel closure bushings. The bushings are visually examined when the associate closure stud is removed.

The ASME Boiler and Pressure Vessel Code, Section XI, 1974 edition through the summer 1975 addenda requires that all bushings be visually examined each interval.

2. Basis for Relief

The requirements to visually examine all closure stud bushings each inspection internal is deemed impractical because the closure studs would have to be removed to allow for this inspection.

Performing the required examination constitutes needless radiation exposure to personnel with no compensatory increase in safety.

3. Alternate Provisions

BECo will continue to inspect the bushings of reactor vessel closure studs removed during refueling outages.

CODE RELIEF #2

1. Identification of Components and Impractical Code Requirements

Each of the lines listed below penetrates the primary containment by means of a penetration assembly similar in design to that shown in Figure 1. These Class 1 lines, due to the design of the penetration assembly, have one circumferential pressure retaining weld that is inaccessible for volumetric examination.

a. RCIC Steam Supply to Turbine - 3"

b. HPCI Steam Supply to Turbine - 10"

c. A&B Core Spray Injection - 10"

d. Reactor Water Cleanup Suction - 6"

e. RHR Head Spray - 4"

f. RHR A&B Return - 18"

g. RHR Supply - 20"

h. A&B Feedwater - 18"

i. A, B, C, & D Main Steam - 20"

The ASME Boiler and Pressure Vessel Code, Section XI, 1974 Edition through the Summer 1975 Addenda requires that these Class I welds be volumetrically examined. This requirement is impractical due to plant design.

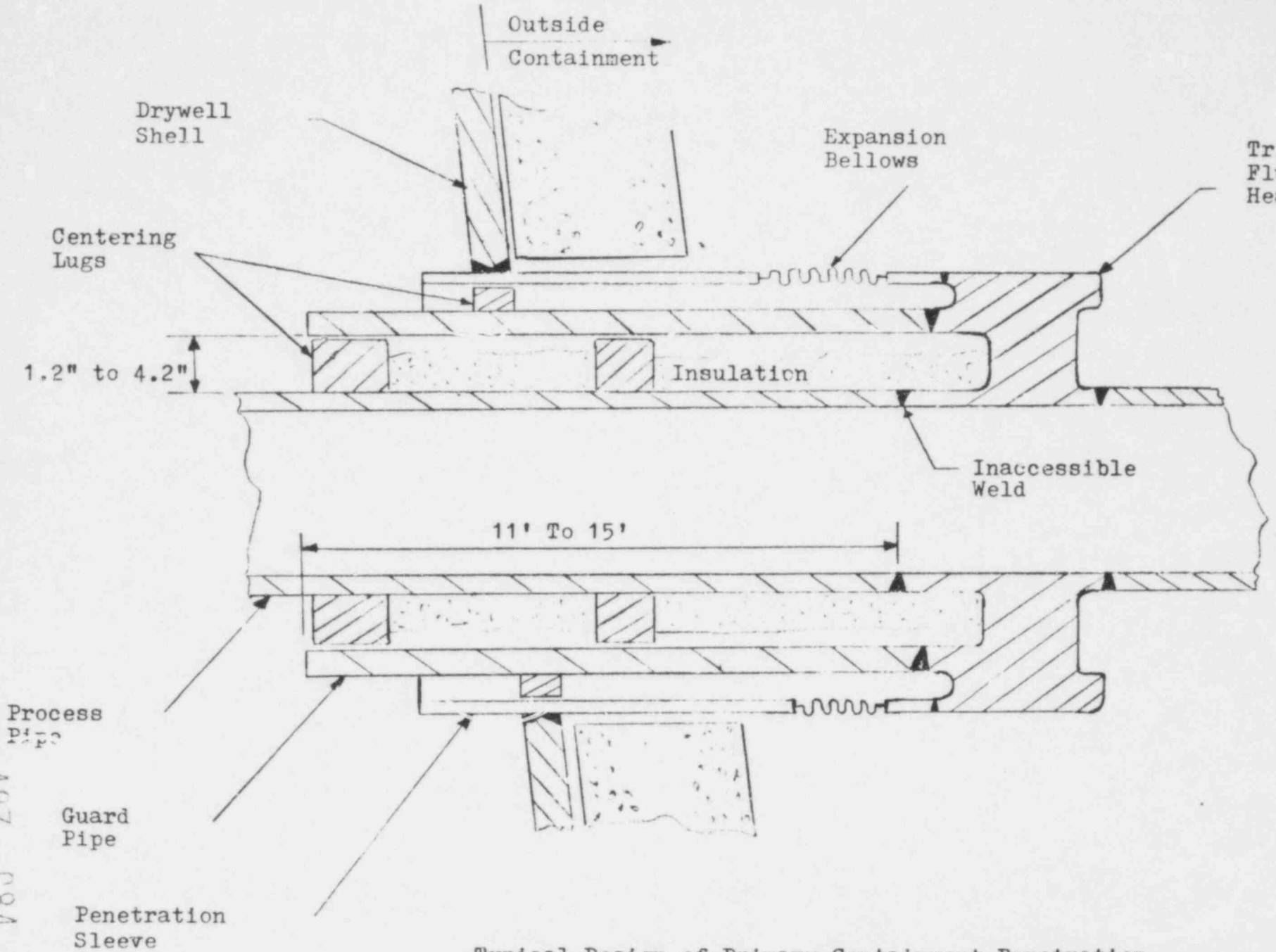
2. Basis for Relief

As stated in 10CFR50.55a (g) (1) for plants whose construction permits were issued prior to January 1, 1971, components shall meet Section XI requirements to the extent practical. Since examination requirements for these welds did not exist at the time Pilgrim Unit 1 was designed, accessibility for their inspection was not considered. Figure 1 clearly illustrates the design constraints which make it extremely impractical to the examine the subject welds by volumetric or surface techniques. Boston Edison feels that this constitutes a basis for relief from the volumetric examination requirements of Section XI.

The safety implications of this exemption are minimal due to the fact that the safety margins in the subject welds are typical of those in all welds in the applicable systems. Since the exempted welds represent only a small fraction of the total number of welds in these systems (15 out of 496), and all of the other welds are inspected as part of the ISI program, loss in statistical significance of the inspection sampling program, due to exempting these welds is expected to be negligible.

3. Alternate Provisions

At the present time no alternate examinations are feasible because of the inaccessibility. The examinations required by IWB-5000 will, however, be conducted in accordance with the Code.



Typical Design of Primary Containment Penetration

FIGURE 1

CODE RELIEF #3

1. Identification of Components and Impractical Code Requirements

The reactor vessel and associated closure head are stainless steel cladded on the interior surfaces. Six patches each having a 36 square inch area are selected for examination in accessible locations of the reactor vessel shell and closure head.

The ASME Boiler and Pressure Vessel Code, Section XI, 1974 Edition through the Summer 1975 Addenda requires that the clad patches in the reactor vessel be visually examined each interval. In addition, the closure head patches require visual plus a surface or volumetric examination each interval.

For the reasons described below, these examinations are impractical since they offer no means of checking reactor vessel integrity.

2. Basis for Relief

Analysis has shown that flaws which initiate in the reactor vessel cladding, at locations other than nozzles, do not propagate through the clad-base metal interface. Therefore, their existence poses no threat to reactor vessel integrity. The nozzle areas are covered by the requirement to inspect the inner radii volumetrically to detect the presence of flaws which may have propagated into base metal. Accordingly the ASME has completely eliminated theB-I-1 and B-I-2 examination categories from latter edition of Section XI.

Performing these examinations only constitutes a needless exposure of personnel to radiation with no compensatory increase in safety. Boston Edison, therefore, will not perform the above mentioned examinations for the remainder of the present inspection interval. The examinations will not be required for subsequent intervals since the requirements have been deleted from the Code.

3. Alternate Provisions

No alternate or augmented examinations are necessary in this case.

CODE RELIEF #4

1. Identification of Components and Impractical Code Requirements

The pressure retaining components within each system boundary are subject to system pressure tests. These test requirements are not only an important and part of Inservice Inspection but also demand clarity in their application. The hydrostatic test requirements in the 1974 Edition of Section XI are not as definitive as in the latter Edition and Addenda of the Code and for this reason, misinterpretation and/or misapplication would occur.

The ASME B&PV Code Section XI 1974 Edition through Summer 1975 Addenda requires that all pressure retaining components be visually examined while the system is under hydrostatic test pressure and temperature.

2. Basis for Relief

In keeping with the present NRC thinking, Pilgrim Unit 1 is upgrading portions of its present ISI program to the most current requirements of ASME Section XI. Specifically, Pilgrim Unit 1 will be adopting Subsection 5000 rules in the 1977 Edition through Summer 1978 Addenda. By this adoption, application of Pilgrim Unit 1 inservice inspection program invokes a greater margin of safety by applying a clear and definitive Code.

3. Alternate Provisions

No alternate or augmented examinations are necessary in this case.

CODE RELIEF #5

1. Identification of Components and Impractical Code Requirements

"Where the component material is clad, the calibration block shall be clad to nominal thickness ±1/8". The calibration standard presently used for the vessel and nozzle weld examination is unclad and has been utilized in the 1976 and 1977 inservice inspection.

2. Basis for Relief

The vessel and nozzle weld calibration block utilized inpast examination was originally a nozzle drop-out and is also unclad. During the 1976 and 1977 inservice inspections the examination results for recirculation inlet nozzle N2B were compared to each other and the results had to correlate within a very narrow tolerance. The results of future inspections will also have to correlate to past examinations, therefore BECo is not going to perform any alteration on the basic calibration standard which could cause a deviation in the test results.

3. Alternate Provisions

BECo will continue to examine the reactor vessel and nozzle welds with the unclad block, in accordance with the schedule defined by Section XI or the NRC.

1. Section XI Article I-3122

CODE RELIEF #6

1. Identification of Components and Impractical Code Requirements

Appendix I of ASME Section XI - Figure I-3131 requires that notches (2"L X 1/8" to 1/4" diameter) be machined into the basis calibration.

2. Basis for Relief

The baseline and subsequent inservice inspection of the vessel and nozzle welds were conducted with equipment that was calibrated on blocks which utilized side drilled holes only. The requirement to utilize notches does not increase the accuracy of the inspection.

3. Alternate Provisions

No alternate or augment inspections are proposed.

CODE RELIEF #7

1. Identification of Components and Impractical Code Requirements :

In the Class 1 system there are 51 valves which are greater than four inches nominal pipe size. These valves vary in size, design, and manufacturer but are all manufactured from either cast stainless or carbon steel. None of the valve body casings are welded.

Section XI of the ASME Code, 1974 Edition through the Summer 1975 Addenda requires a visual examination of the internal pressure boundary surfaces of one valve in each group of valves of the same constructional design, manufacturing method and manufacturer that perform similar functions in the system. These examinations are required to be completed each inspection interval. (Code Category B-M-2)

Since these examinations must be met irregardless of whether the valves have to be disassembled for maintenance, this requirement is considered impractical to implement.

2. Basis for Relief

The requirement to disassemble primary system valves for the sole purpose of performing a visual examination of the internal pressure boundary surfaces has only a very small potential of increasing plant safety margins and a very disproportionate impact on expenditures of plant manpower and radiation exposure.

Performing these visual examinations, in some cases, under such adverse conditions as high dose rates (10 R/hr) and poor as-cast surface condition, realistically, provides little additional information as to the value casing integrity.

For approximately 20 percent of these valves the reactor vessle core must be completely unloaded and the vessel drained to permit disassembly for inspection.

The performance of both carbon and stainless cast valve bodies has been excellent in all BWR applications. Based on this experience and both industry and regulatory acceptance of these alloys, continued excellent service performance is anticipated.

A more practical approach that would essentially provide an equivalent sampling program and significantly reduced radiation exposure to plant personnel is to inspect the internal pressure boundary of only those valves that require disassembly for maintenance purposes. This would still provide a reasonable sampling of primary system valves and give adequate assurance that the integrity of these components is being maintained.

III. Alternate Provisions

An examination of the internal pressure boundary surfaces will be performed, to the extent practical, each time a valve is disassembled for maintenance purposes.

CODE RELIEF #8

1. Identification of Components and Impractical Code Requirements :

Pilgrim Unit 1 has an ISI Class 1 recirculation pump in each of the two 28 inch diameter recirculation loops. These pumps function during normal reactor operation to provide forced recirculation through the core.

The ASME Boiler and Pressure Vessel Code, Section XI, 1974 Edition through the Summer 1975 Addenda requires that one of these recirculation pumps be examined visually during each inspection interval. Specifically, the area of examination includes all pump internal pressure boundary surfaces.

As discussed, in detail below, Boston Edison requests relief from the Section XI examination requirement to visually examine the recirculation pump internal surfaces on the basis of impracticality.

2. Basis for Relief

The basis for this relief request is predicated on the following two points:

1) to complete the subject examination, large expenditures of man-hours and man-rem are required with essentially no compensating increase in plant safety, and

2) the structural integrity afforded by pump casing material utilized will not significantly degrade over the lifetime of the pump.

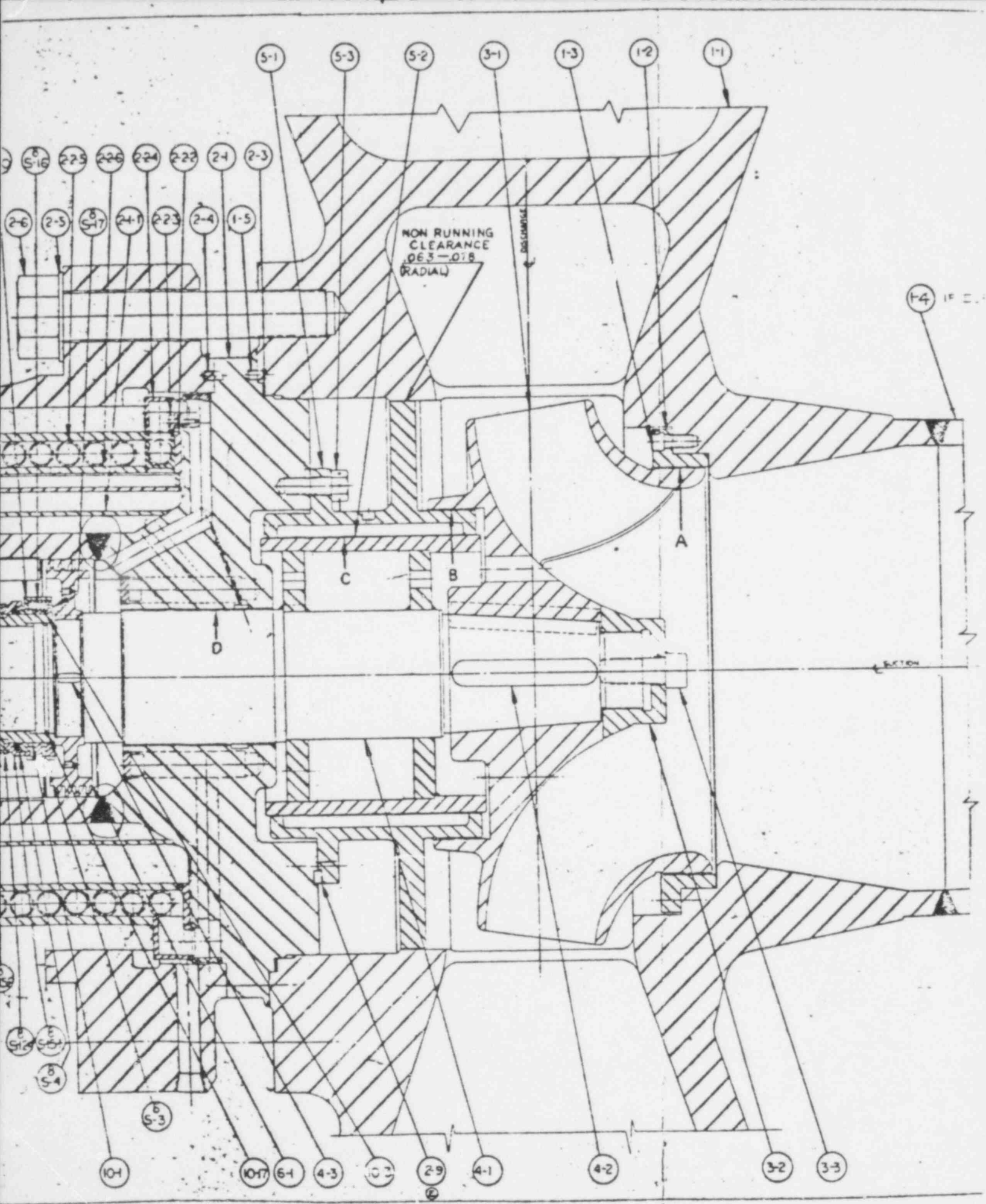
Based on data compiled from a plant similar in age and design to Pilgrim Unit 1, it is expected that approximately 1000 man-hours and 50 man-rem exposure would be required to disassemble, inspect, and reassemble one pump. Performing this visual examination under such adverse conditions as high dose rates (30-40 R/hr) and poor as-cast surface condition, realistically, provides little additional information as to the pump casing integrity.

The recirculation pump casing material, cast stainless steel (ASTM A351-CF8), is widely used in the nuclear industry and has performed extremely well. The presence of some delta ferrite (typically 5% or more) imparts substantially increased resistance to intergranular stress corrosion cracking. The delta ferrite also results in improved pitting corrosion resistance in chloride containing environments.

Boston Edison feels that adequate safety margins are inherent in the basic pump design and that the health and safety of the public will not be adversely effected by not performing the visual examination of the pump internal pressure boundary surfaces.

3. Alternative Provisions

Boston Edison, as stated above, does not feel that the visual examination required each ten year interval is warranted. However, as standard maintenance practice dictates, when a pump of this type is disassembled for maintenance purposes a visual examination of the pump internals and internal pressure boundary surfaces would be performed, to the extent practical.


NON RUNNING
CLEARANCE
.063—.078
(RADIAL)
DISCHARGE
SUCTION
A
B
C
D

SECTION A-A
DISCHARGE
PROVISION FOR CANOPY TYPE SEAL WELD COVER TO CASE
BLENDS INTO CASE
SEE DET B
DISCHARGE
Note
1. SHOCK SUPPRESSOR & HANGER BRACKET DETAIL AND 'G' LOCATION AND PER G.E. DWG NO. 886D400, REV 1.
SCALE 1/8" = 1'-0"

481 092

CODE RELIEF #9

1. Identification of Components and Impractical Code Requirements

This relief request addresses the Section XI Examination Categories B-G-1 and B-G-2 for Class 1 bolting, and C-D for Class 2 bolting. Category B-G-1 in the 1974 Edition of the ASME Code, Summer 1975 Addenda covers bolting two-inches and greater in diameter and B-G-2 covers bolting less than two-inches in diameter. Category C-d covers bolting that exceeds one-inch in diameter.

However, in later editions of the Code, Class 1 bolting exactly two-inches in diameter is shifted from Category B-G-1 to B-G-2 by revision of the category definition. Similarly, Class 2 bolting between one and two-inch diameter is eliminated from Category C-D of the later editions of the Code.

Boston Edison concurs with the Category definitions of later editions of Section XI for Examination Categories B-G-1, B-G-2, and C-D and accordingly requests permission to adopt these definitions.

2. Basis for Relief

These portions of the later Code are adopted pursuant to paragraph (g) of 10CFR50.55a as revised in the proposed rule published in the Federal Register, Volume 44 - No. 13 on January 18, 1979. This rule change approves for use of the 1977 Edition Summer 1978 Addenda of the Code. Paragraph g(4) (iv) of the rule change allows the adoption of portions of later approved editions and addenda to the Code provided that all related requirements of the respective editions and addenda are met. It is felt that the above stated adoptions are in compliance with the regulations.

3. Alternate Provisions

No alternate testing is required in this case.

CODE RELIEF #13

1. Identification of Components and Impractical Code Requirements

Each of the two main recirculation pump casings contain one pressure retaining weld. The weld is between the cast stainless steel casing and the flange to which the motor is bolted.

Section XI of the ASME Boiler and Pressure Vessel Code, 1974 Edition through the Summer 1975 Addenda requires that these ISI Class 1 welds be examined volumetrically once each inspection interval.

Boston Edison requests relief from this examination requirement due to impracticality.

2. Basis for Relief

This relief request is primarily based upon the fact that, currently, no reliable technique for the inspection of these welds is currently available. Ultrasonic techniques are not adequate because the heavy wall, cast structure of the pump casing inhibits uniform penetration of the ultrasonic beam. High background radiation levels external and internal to the pump casing prohibit use of radiographic techniques from the standpoint of both film resolution and excessive exposure that would be required to disassemble, inspect, and reassemble a pump.

Boston Edison feels that this exemption is justified considering the safety margin provided by the materials of construction. The pump casing is a high strength cast stainless steel (ASTM-A351-CF8) which is highly immune to stress corrosion cracking. The flange is manufactured from forged stainless steel. These materials do not exhibit unstable crack growth and therefore, will provide adequate leak before break margin.

3. Alternative Provisions

Boston Edison will keep abreast of any improvements in state-of-the-art NDE techniques that would permit a viable examination of these welds. It is expected that practical techniques will be prefected in the near future.

In the interim, a close visual examination of these welds will be performed during the system hydrostatic test required by IWB-5000 to provide an adequate level of assurance that the integrity of these components is maintained.

LIST OF CODE EXEMPTIONS

EX-1 -	IWB-1220 (b) (1):	Steam Carrying Lines 3-inches n.p.s :
EX-2 -	IWB-1220 (b) (3):	Lines 1-inch n.p.s. and less
EX-3 -	IWC-1220 (a):	Design pressure and temperature less than 200°F and 275 psig
EX-4 -	IWC-1220 (d):	4-inch n.p.s. and less