PILGRIM NUCLEAR POWER STATION

SECOND TEN YEAR INSPECTION PROGRAM

BOSTON Edison COMPANY

DECEMBER 1982

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1.0 INTRODUCTION

The Inservice Inspection Program for Pilgrim Nuclear Power Station, Unit 1, has been developed in compliance with the rules and regulations of 10CFR50.55a and Section XI of the ASME Boiler and Pressure Vessel Code, 1980 Edition through and including the Winter 1980 Addenda. Where these rules have been determined to be impractical, specific requests for relief have been written.

This Inservice Inspection Program for Class 1, 2, and 3 components and component supports is applicable for the 120 month interval beginning December, 1982. This is the second inspection interval for Pilgram Nuclear Power Station.

2.0 APPLICABLE CODES

The Inservice Inspection Program meets the requirements of the ASME Boiler and Pressure Vessel Code, Section XI, 1980 Edition through and including the Winter 1980 Addenda with the following modifications permitted by 10CFR50.55a(b)(2).

The extent of examination (number of welds to be examined) for Code Class 1 piping welds will be determined by the requirements of Table IWB-2500 and Table IWB-2600 Category B-J of Section XI, 1974 Edition through and including the Summer 1975 Addenda.

The extent of examination for Code Class 2 piping welds will be determined by the requirements of paragraph IWC-1220, Table IWC-2520 Category C-F and C-G and paragraph IWC-2411 in the 1974 Edition of Section XI, through and including the Summer 1975 Addenda.

3.0 INSERVICE INSPECTION BOUNDARIES

The Inservice Inspection boundaries identify those systems or portions of systems to which the examination requirements of ASME Section XI apply. These Class 1, 2 and 3 boundaries are documented on color-coded Piping and Instrumentation Diagrams (P&ID's), which form part of the Inservice Inspection Program. The system classifications are based on the requirements of 10CFR50.2 (v) for Class 1 systems and Regulatory Guide 1.26 for Class 2 and 3 systems. The ISI classifications are limited to those systems important to safety that contain water, steam or radioactive materials.

4.0 PROGRAM DESCRIPTION

4.1.1 The Inservice Inspection Program for ISI Class 1, 2, and 3 components for the second interval at Pilgrim Nuclear Power Station meets the requirements of Section XI of the ASME Boiler and Pressure Vessel Code, 1980 Edition through and including the Winter 1980 Addenda. Where these requirements have been determined to be impractical, specific requests for relief are referenced in the tables and included in Section 6.0.

4.1.2 The ISI Program Tables is presented in Section 5.0 in a tabular format. The components and associated requirements are listed according to ascending Code Category and Item Numbers. The following is included in the tables:

A. Code Category - The Section XI Examination Categories as defined in Table IWB-2500-1, IWC-2500-1, IWD-2500-1, and IWF-2500-1 for Class 1, 2, and 3 components.

B. Item Number and Item Description - The Item Number and its description as listed in Tables IWB, IWC, IWD-2500-1, and IWF-2500-2. All Item Numbers and applicable item descriptions are listed for each Code Category.

C. Section XI Exam Required lists the examination method or methods. This reflects the Section XI requirements. The abbreviations used are as follows:

SUR - Surface per IWA-2220
VOL - Volumetric per IWA-2230

VT-1 - Visual per IWA-2211
VT-2 - Visual per IWA-2212
VT-3 - Visual per IWA-2213
VT-4 - Visual per IWA-2214

D. Relief Requests references either a specific relief request contained in Section 6.0 or references one of the Code allowed exemptions listed below. If the latter is referenced, the particular line or component has been exempted from volumetric and/or surface examination by the applicable Code paragraph. Components exempted from examination by Code allowed exemptions will not appear in the component tables of this program in most cases. It should be noted that Section 6.0 contains some generic relief requests that are not specifically referenced in the tables but apply to the ISI Program in general.

EX-1 - IWB-1220(b), lines 1-inch nominal pipe size (n.p.s.) and less.
EX-2 - IWB-1220(a), liquid carrying lines 1.18-inch ID and less (see 4.1.3).
EX-3 - IWB-1220(a), steam carrying lines 2.36-inch ID and less (see 4.1.3).
EX-4 - IWB-1220(c), head connections, 2-inches n.p.s. and less, made inaccessible by CRD penetrations.
EX-5 - IWC-1220(b), components not required to operate above a temperature of 200°F or above a pressure of 275 psig in non-ECCS or RHR systems.
EX-6 - IWC-1220(c), component connections, piping and associated valves, and

vessels and their attachments that are 4 in. n.p.s. and smaller.

EX-7 - IWC-1220(a), lines not required during normal operating conditions but remain flooded under static conditions at a minimum of 80% of the pressure they would be subjected to when required to operate.

EX-8 - IWC-1230, piping support members and piping support components encased in concrete.

EX-9 - IWD-1220.1, integral attachments of supports and restraints to components that are 4 in. n.p.s. and smaller.

EX-10 - IWD-1220.2(a)(b), integral attachments of supports and restraints in systems whose function is not required in support of reactor residual heat removal and emergency core cooling and where operating pressure is 275 psig or less and operating temperature is 200°F or less.

EX-11 - IWD-5223(e), open ended vent and drain lines from components extending beyond the last shut-off valve and open ended safety or relief valve discharge lines.

E. Alternate Exam lists the examination method or methods that will be performed in lieu of the required Section XI methods when relief has been requested.

F. Remarks - lists general clarification remarks.

4.1.3 Pursuant to paragraph IWB-1220(a), the maximum size line break that can be made up by the reactor coolant makeup system has been calculated to be 1.18 inches inside diameter for liquid carrying lines and 2.36 inches for steam carrying lines.

4.1.4 Table 4.1 lists the applicable Class 1, 2 and 3 systems which are covered in the Inservice Inspection Program.

TABLE 4.1

SYSTEMS INCLUDED IN THE ISI PROGRAM

System	P&ID Number	Class
Service Water	ISI-M-212	2 & 3
Reactor Building Cooling Water	ISI-M-215	3
Residual Heat Removal	ISI-M-241	1, 2, & 3
High Pressure Coolant Injection	ISI-M-243, 244	1 & 2
Core Spray	ISI-M-242	1 & 2
Reactor Core Isolation Cooling	ISI-M-245, 246	1 & 2
Reactor Water Cleanup	ISI-M-247	1
Standby Liquid Control	ISI-M-249	1 & 2
Control Rod Drive Hydraulic	ISI-M-250	2
Nuclear Boiler	ISI-M-252, 253	1

SECTION 5.0

INSERVICE INSPECTION PROGRAM TABLES

FOR

PILGRIM NUCLEAR POWER STATION

BOSTON EDISON COMPANY

INSERVICE INSPECTION PROGRAM

ISI – CLASS 1, 2 & 3 COMPONENTS
PILGRIM NUCLEAR POWER STATION

UNIT – 1 **CLASS 1**

Revision 0 Date 11-30-82

CODE CATEGORY	ITEM NUMBER	ITEM DESCRIPTION	SECT XI EXAM REQUIRED	RELIEF REQUESTS	ALTERNATE EXAM	REMARKS
B-A		**PRESSURE RETAINING WELDS IN REACTOR VESSEL**				
	B1.10	Shell Welds				
	B1.11	Circumferential	VOL	PRR-4		ONE BELTLINE REGION WELD
	B1.12	Longitudinal	VOL	PRR-4		ONE BELTLINE REGION WELD
	B1.20	Head Welds				
	B1.21	Circumferential	VOL	PRR-5		ONE WELD
	B1.22	Meridional	VOL	PRR-5		ONE WELD
	B1.30	Shell-to-Flange Weld	VOL			
	B1.40	Head-to-Flange Weld	VOL AND SURF			
	B1.50	Repair Welds	VOL			N/A
B-B		**PRESSURE RETAINING WELDS IN VESSELS OTHER THAN REACTOR VESSELS**				N/A
B-D		**FULL PENETRATION WELDS OF NOZZLES IN VESSELS - INSPECTION PROGRAM B**				
		Reactor Vessel				
	B3.90	Nozzle-to-Vessel Welds	VOL			
	B3.100	Nozzle Inside Radius Section	VOL			
		Pressurizer				
	B3.110	Nozzle-to-Vessel Welds				N/A
	B3.120	Nozzle Inside Radius Section				N/A

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ISI – CLASS 1, 2 & 3 COMPONENTS
PILGRIM NUCLEAR POWER STATION

UNIT – 1 **CLASS 1**

CODE CATEGORY	ITEM NUMBER	ITEM DESCRIPTION	SECT XI EXAM REQUIRED	RELIEF REQUESTS	ALTERNATE EXAM	REMARKS
		Steam Generators (Primary Side)				
	B3.130	Nozzle-to-Vessel Welds				N/A
	B3.140	Nozzle Inside Radius Section				N/A
		Heat Exchangers (Primary Side)				
	B3.150	Nozzle-to-Vessel Welds				N/A
	B3.160	Nozzle Inside Radius Section				N/A
B-E		**PRESSURE RETAINING PARTIAL PENETRATION WELDS IN VESSELS**				
	B4.10	Partial Penetration Welds				EXTERNAL SURFACES
	B4.11	Vessel Nozzles	VT-2			
	B4.12	Control Rod Drive Nozzles	VT-2			
	B4.13	Instrumentation Nozzles	VT-2			
		Pressurizer				
	B4.20	Heater Penetration Welds				N/A
B-F		**PRESSURE RETAINING DISSIMILAR METAL WELDS**				
		Reactor Vessel				
	B5.10	Nominal Pipe Size $\geq$ 4 In. Nozzle-to-Safe End Butt Welds	VOL AND SURF			
	B5.11	Nominal Pipe Size < 4 In. Nozzle-to-Safe End Butt Welds	SURF			
	B5.12	Nozzle-to-Safe End Socket Welds				N/A

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ISI – CLASS 1, 2 & 3 COMPONENTS
PILGRIM NUCLEAR POWER STATION

UNIT – 1 CLASS 1

CODE CATEGORY	ITEM NUMBER	ITEM DESCRIPTION	SECT XI EXAM REQUIRED	RELIEF REQUESTS	ALTERNATE EXAM	REMARKS
		Pressurizer				
	B5.20	Nominal Pipe Size ≥ 4 in.				
		Nozzle-to-Safe End Butt Welds				N/A
	B5.21	Nominal Pipe Size < 4 in.				
		Nozzle-to-Safe End Butt Welds				N/A
	B5.22	Nozzle-to-Safe End Socket Welds				N/A
		Steam Generator				
	B5.30	Nominal Pipe Size ≥ 4 in.				
		Nozzle-to-Safe End Butt Welds				N/A
	B5.31	Nominal Pipe Size < 4 in.				
		Nozzle-to-Safe End Butt Welds				N/A
	B5.32	Nozzle-to-Safe End Socket Welds				N/A
		Heat Exchangers				
	B5.40	Nominal Pipe Size ≥ 4 in.				
		Nozzle-to-Safe End Butt Welds				N/A
	B5.41	Nominal Pipe Size < 4 in.				
		Nozzle-to-Safe End Butt Welds				N/A
	B5.42	Nozzle-to-Safe End Socket Welds				N/A
		Piping				
	B5.50	Nominal Pipe Size ≥ 4 in.				
		Dissimilar Metal Butt Welds	VOL AND SURF			
	B5.51	Nominal Pipe Size < 4 in.				
		Dissimilar Metal Butt Welds	SURF			
	B5.52	Dissimilar Metal Socket Welds				N/A

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ISI – CLASS 1, 2 & 3 COMPONENTS
PILGRIM NUCLEAR POWER STATION

UNIT – 1 CLASS 1

CODE CATEGORY	ITEM NUMBER	ITEM DESCRIPTION	SECT XI EXAM REQUIRED	RELIEF REQUESTS	ALTERNATE EXAM	REMARKS
B-G-1		**PRESSURE RETAINING BOLTING, GREATER THAN 2 In. IN DIAMETER**				
		Reactor Vessel				
	B6.10	Closure Head Nuts	SURF			
	B6.20	Closure Studs, In place	VOL			
	B6.30	Closure Studs, when removed	SURF AND VOL			
	B6.40	Threads In Flange	VOL			
	B6.50	Closure Washers, Bushings	VT-1			
		Pressurizer				
	B6.60	Bolts and Studs				N/A
	B6.70	Flange Surface, when connection disassembled				N/A
	B6.80	Nuts, Bushings, and Washers				N/A
		Steam Generators				
	B6.90	Bolts and Studs				N/A
	B6.100	Flange Surface, when connection disassembled				N/A
	B6.110	Nuts, Bushings, and Washers				N/A
		Heat Exchangers				
	B6.120	Bolts and Studs				N/A
	B6.130	Flange Surface, when connection disassembled				N/A
	B6.140	Nuts, Bushings, and Washers				N/A
		Piping				
	B6.150	Bolts and Studs				N/A
	B6.160	Flange Surface, when connection disassembled				N/A
	B6.170	Nuts, Bushings, and Washers				N/A

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ISI – CLASS 1, 2 & 3 COMPONENTS
PILGRIM NUCLEAR POWER STATION

UNIT – 1 **CLASS 1**

CODE CATEGORY	ITEM NUMBER	ITEM DESCRIPTION	SECT XI EXAM REQUIRED	RELIEF REQUESTS	ALTERNATE EXAM	REMARKS
		Pumps				
	B6.180	Bolts and Studs	VOL			
	B6.190	Flange Surface, when connection disassembled	VT-1			
	B6.200	Nuts, Bushings, and Washers	VT-1			
		Valves				
	B6.210	Bolts and Studs				N/A
	B6.220	Flange Surface, when connection disassembled				N/A
	B6.230	Nuts, Bushings, and Washers				N/A
B-G-2		**PRESSURE RETAINING BOLTING, 2 in. AND LESS IN DIAMETER**				
		Reactor Vessel				
	B7.10	Bolts, Studs, and Nuts				N/A
		Pressurizer				
	B7.20	Bolts, Studs, and Nuts				N/A
		Steam Generators				
	B7.30	Bolts, Studs, and Nuts				N/A
		Heat Exchangers				
	B7.40	Bolts, Studs, and Nuts				N/A
		Piping				
	B7.50	Bolts, Studs, and Nuts	VT-1			

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ISI – CLASS 1, 2 & 3 COMPONENTS
PILGRIM NUCLEAR POWER STATION

UNIT – 1 CLASS 1

CODE CATEGORY	ITEM NUMBER	ITEM DESCRIPTION	SECT XI EXAM REQUIRED	RELIEF REQUESTS	ALTERNATE EXAM	REMARKS
		Pumps				
	B7.60	Bolts, Studs, and Nuts	VT-1			
		Valves				
	B7.70	Bolts, Studs, and Nuts	VT-1			
		CRD Housings				
	B7.80	Bolts, Studs, and Nuts	VT-1			WHEN DISASSEMBLED
B-H		**INTEGRAL ATTACHMENTS FOR VESSELS**				
		Reactor Vessel				
	B8.10	Integrally Welded Attachments	SURF			
		Pressurizer				
	B8.20	Integrally Welded Attachments				N/A
		Steam Generator				
	B8.30	Integrally Welded Attachments				N/A
		Heat Exchangers				
	B8.40	Integrally Welded Attachments				N/A
B-J		**PRESSURE RETAINING WELDS IN PIPING**				
	B9.10	Nominal Pipe Size $\geq$ 4 in.				
	B9.11	Circumferential Welds	SURF AND VOL	PRR-1,PRR-6		
	B9.12	Longitudinal Welds	SURF AND VOL	PRR-1,PRR-6		

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ISI – CLASS 1, 2 & 3 COMPONENTS
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UNIT – 1 CLASS 1

CODE CATEGORY	ITEM NUMBER	ITEM DESCRIPTION	SECT XI EXAM REQUIRED	RELIEF REQUESTS	ALTERNATE EXAM	REMARKS
	B9.20	Nominal Pipe Size < 4 in.				
	B9.21	Circumferential Welds	SURF			
	B9.22	Longitudinal Welds	SURF			
	B9.30	Branch Pipe Connection Welds				
	B9.31	Nominal Pipe Size ≥ 4 in.	SURF AND VOL			
	B9.32	Nominal Pipe Size < 4 in.	SURF			
	B9.40	Socket Welds	SURF			
B-K-1		**INTEGRAL ATTACHMENTS FOR PIPING, PUMPS AND VALVES**				
		Piping				
	B10.10	Integrally Welded Attachments	SURF			
		Pumps				
	B10.20	Integrally Welded Attachments	SURF			
		Valves				
	B10.30	Integrally Welded Attachments	SURF			
B-L-1, B-M-1		**PRESSURE RETAINING WELDS IN PUMP CASINGS AND VALVE BODIES**				N/A
B-L-2, B-M-2		**PUMP CASINGS AND VALVE BODIES**				
	B12.20	Pump Casing	VT-3	PRR-2		WHEN DISASSEMBLED

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ISI – CLASS 1, 2 & 3 COMPONENTS
PILGRIM NUCLEAR POWER STATION

UNIT – 1 **CLASS 1**

CODE CATEGORY	ITEM NUMBER	ITEM DESCRIPTION	SECT XI EXAM REQUIRED	RELIEF REQUESTS	ALTERNATE EXAM	REMARKS
	B12.40	Valve Body, Exceeding 4 In. Nominal Pipe Size	VT-3	PRR-3		WHEN DISASSEMBLED
B-N-1		**INTERIOR OF REACTOR VESSEL**				
		Reactor Vessel				
	B13.10	Vessel Interior	VT-3			ACCESSIBLE AREAS
		Reactor Vessel (BWR)				
	B13.20	Interior Attachments	VT-1			ACCESSIBLE WELDS
	B13.21	Core Support Structure	VT-1			ACCESSIBLE SURFACES
		Reactor Vessel (PWR)				
	B13.30	Core Support Structure				N/A
B-O		**PRESSURE RETAINING WELDS IN CONTROL ROD HOUSINGS**				
		Reactor Vessel				
	B14.10	Welds In CRD Housing	SURF			
B-P		**ALL PRESSURE RETAINING COMPONENTS**				
		Reactor Vessel				
	B15.10	Pressure Retaining Boundary	VT-2			LEAKAGE TEST
	B15.11	Pressure Retaining Boundary	VT-2			HYDROSTATIC TEST

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ISI – CLASS 1, 2 & 3 COMPONENTS
PILGRIM NUCLEAR POWER STATION

UNIT – 1 **CLASS 1**

CODE CATEGORY	ITEM NUMBER	ITEM DESCRIPTION	SECT XI EXAM REQUIRED	RELIEF REQUESTS	ALTERNATE EXAM	REMARKS
		Pressurizer				
	B15.20	Pressure Retaining Boundary				N/A
	B15.21	Pressure Retaining Boundary				N/A
		Steam Generators				
	B15.30	Pressure Retaining Boundary				N/A
	B15.31	Pressure Retaining Boundary				N/A
		Heat Exchangers				
	B15.40	Pressure Retaining Boundary				N/A
	B15.41	Pressure Retaining Boundary				N/A
		Piping				
	B15.50	Pressure Retaining Boundary	VT-2			LEAKAGE TEST
	B15.51	Pressure Retaining Boundary	VT-2			HYDROSTATIC TEST
		Pumps				
	B15.60	Pressure Retaining Boundary	VT-2			LEAKAGE TEST
	B15.61	Pressure Retaining Boundary	VT-2			HYDROSTATIC TEST
		Valves				
	B15.70	Pressure Retaining Boundary	VT-2			LEAKAGE TEST
	B15.71	Pressura Retaining Boundary	VT-2			HYDROSTATIC TEST
B-Q		**STEAM GENERATOR TUBING**				N/A

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ISI – CLASS 1, 2 & 3 COMPONENTS
PILGRIM NUCLEAR POWER STATION

UNIT – 1 **CLASS** 2

CODE CATEGORY	ITEM NUMBER	ITEM DESCRIPTION	SECT XI EXAM REQUIRED	RELIEF REQUESTS	ALTERNATE EXAM	REMARKS
C-A		**PRESSURE RETAINING WELDS IN PRESSURE VESSELS**				
	C1.10	Shell Circumferential Welds	VOL			RHR HEAT EXCHANGER
	C1.20	Head Circumferential Welds	VOL			RHR HEAT EXCHANGER
	C1.30	Tubesheet-to-Shell Weld				N/A
C-B		**PRESSURE RETAINING NOZZLE WELDS IN VESSELS**				
	C2.10	Nozzles in Vessel $\leq 1/2$ in. Nominal Thickness				N/A
	C2.20	Nozzles in Vessel $> 1/2$ in. Nominal Thickness				
	C2.21	Nozzle-to-Shell Weld	VOL AND SURF			RHR HEAT EXCHANGER
	C2.22	Nozzle Inside Radius Section	VOL			RHR HEAT EXCHANGER
C-C		**INTEGRAL ATTACHMENTS FOR VESSELS, PIPING, PUMPS, AND VALVES**				
		Pressure Vessels				
	C3.10	Integrally Welded Attachments	SURF			RHR HEAT EXCHANGER
		Piping				
	C3.40	Integrally Welded Attachments	SURF			

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ISI – CLASS 1, 2 & 3 COMPONENTS
PILGRIM NUCLEAR POWER STATION

UNIT – 1 **CLASS** 2

CODE CATEGORY	ITEM NUMBER	ITEM DESCRIPTION	SECT XI EXAM REQUIRED	RELIEF REQUESTS	ALTERNATE EXAM	REMARKS
		Pumps				
	C3.70	Integrally Welded Attachments				N/A
		Valves				
	C3.100	Integrally Welded Attachments				N/A
C-D		**PRESSURE RETAINING BOLTING GREATER THAN 2 In. IN DIAMETER**				
		Pressure Vessels				
	C4.10	Bolts and Studs				N/A
		Piping				
	C4.20	Bolts and Studs				N/A
		Pumps				
	C4.30	Bolts and Studs				N/A
		Valves				
	C4.40	Bolts and Studs				N/A
C-F		**PRESSURE RETAINING WELDS IN PIPING**				
	C5.10	Piping Welds $\leq 1/2$ In. Nominal Wall Thickness				
	C5.11	Circumferential Weld	SURF	PRR-6	VOL	
	C5.12	Longitudinal Weld	SURF	PRR-6	VOL	

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ISI – CLASS 1, 2 & 3 COMPONENTS
PILGRIM NUCLEAR POWER STATION

UNIT – 1 **CLASS** 2

CODE CATEGORY	ITEM NUMBER	ITEM DESCRIPTION	SECT XI EXAM REQUIRED	RELIEF REQUESTS	ALTERNATE EXAM	REMARKS
	C5.20	Piping Welds > 1/2 in. Nominal Wall Thickness				
	C5.21	Circumferential Weld	SURF AND VOL	PRR-6		
	C5.22	Longitudinal Weld				N/A
	C5.30	Pipe Branch Connections				
	C5.31	Circumferential Weld	SURF			
	C5.32	Longitudinal Weld	SURF			N/A
C-G		**PRESSURE RETAINING WELDS IN PUMPS AND VALVES**				N/A
C-H		**ALL PRESSURE RETAINING COMPONENTS**				
		Pressure Vessels				
	C7.10	Pressure Retaining Components	VT-2			PRESSURE TEST
	C7.11	Pressure Retaining Components	VT-2			HYDROSTATIC TEST
		Piping				
	C7.20	Pressure Retaining Components	VT-2			PRESSURE TEST
	C7.21	Pressure Retaining Components	VT-2			HYDROSTATIC TEST
		Pumps				
	C7.30	Pressure Retaining Components	VT-2			PRESSURE TEST
	C7.31	Pressure Retaining Components	VT-2			HYDROSTATIC TEST
		Valves				
	C7.40	Pressure Retaining Components	VT-2			PRESSURE TEST
	C7.41	Pressure Retaining Components	VT-2			HYDROSTATIC TEST

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ISI – CLASS 1, 2 & 3 COMPONENTS
PILGRIM NUCLEAR POWER STATION

UNIT – 1 **CLASS 3**

CODE CATEGORY	ITEM NUMBER	ITEM DESCRIPTION	SECT XI EXAM REQUIRED	RELIEF REQUESTS	ALTERNATE EXAM	REMARKS
D-A		SYSTEMS IN SUPPORT OF REACTOR SHUTDOWN FUNCTION				N/A
D-B		SYSTEMS IN SUPPORT OF EMERGENCY CORE COOLING, CONTAINMENT HEAT REMOVAL, ATMOSPHERE CLEANUP, AND REACTOR RESIDUAL HEAT REMOVAL				
	B2.10	Pressure Retaining Components	VT-2			FUNCTIONAL TEST
			VT-2			HYDROSTATIC TEST
	B2.20	Integral Attachment - Component Supports and Restraints	VT-3			
	B2.30	Integral Attachment - Mechanical and Hydraulic Snubbers	VT-3			
	B2.40	Integral Attachment - Spring Type Supports	VT-3			
	B2.50	Integral Attachment - Constant Load Type Supports	VT-3			
	B2.60	Integral Attachment - Shock Absorbers	VT-3			
D-C		SYSTEMS IN SUPPORT OF RESIDUAL HEAT REMOVAL FROM SPENT FUEL STORAGE POOL				N/A

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PILGRIM NUCLEAR POWER STATION

UNIT – 1 **CLASS** 1,2,3

Revision 0 Date 11-30-82

CODE CATEGORY	ITEM NUMBER	ITEM DESCRIPTION	SECT XI EXAM REQUIRED	RELIEF REQUESTS	ALTERNATE EXAM	REMARKS
F-A	F-1,2,3	PLATE AND SHELL TYPE SUPPORTS	VT-3			
F-B	F-1,2,3	LINEAR TYPE SUPPORTS	VT-3			
F-C	F-1,2,3,4	COMPONENT STANDARD SUPPORTS	VT-3 VT-4			

SECTION 6.0

INSERVICE INSPECTION PROGRAM

RELIEF REQUESTS

RELIEF REQUEST NO. PRR-1

I. 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.

System	Line Size	Penetration
RHR (Shutdown)	20"	X-12
RHR (Return)	18"	X-51A, B
RHR (Head Spray)	4"	X-17
Core Spray	10"	X-16A, B
RCIC	3"	X-53
RWCU	6"	X-14
SBLC	1.5"	X-42
Feedwater	18"	X-9A, B
Main Steam	20"	X-7A, B, C, D
HPCI (Steam)	10"	X-52

Since this requirement is impractical due to plant design, relief is requested from the above stated examination requirements.

II. BASIS FOR RELIEF

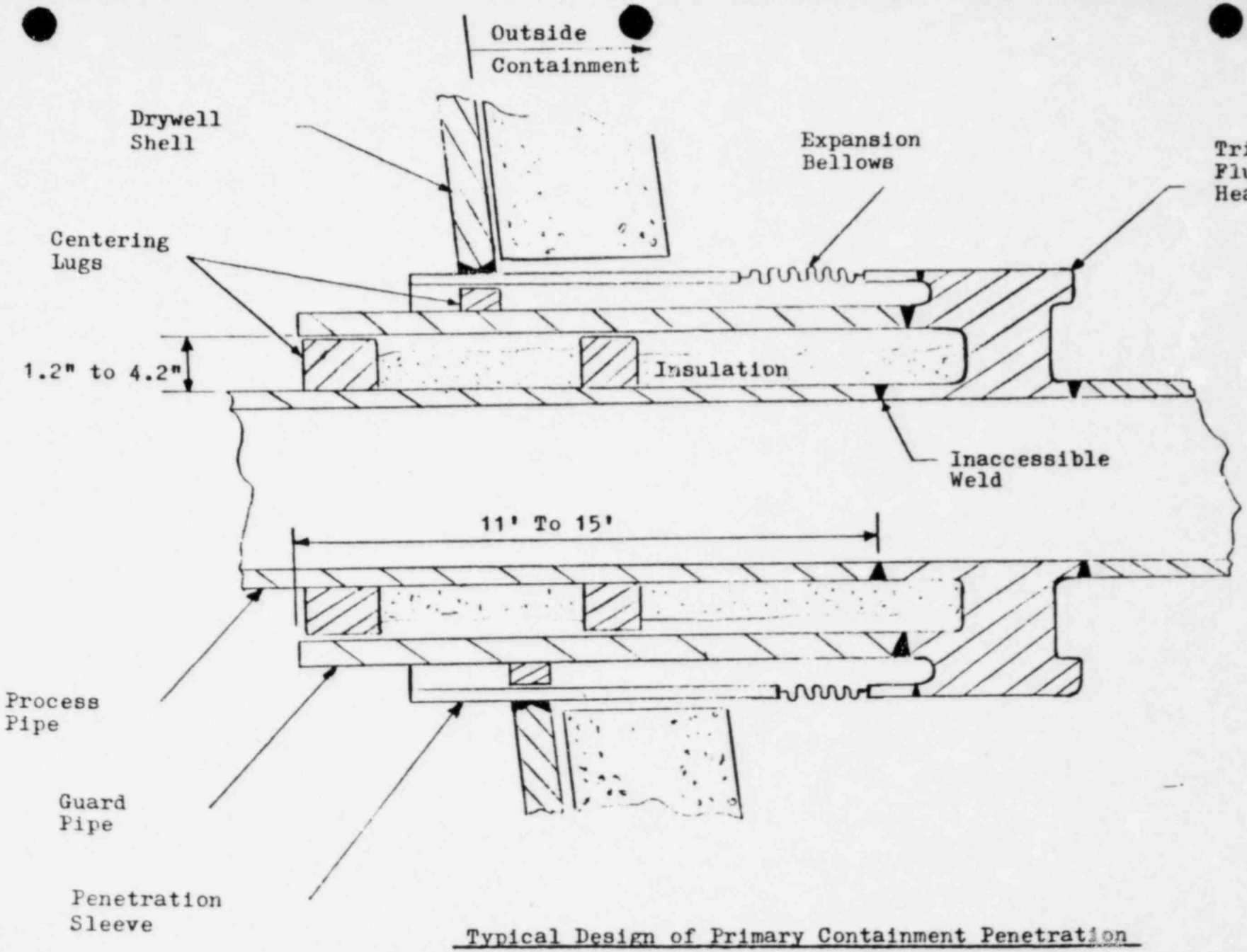
As stated in 10CFR50.55a(g)(1) for plants whose construction permits were issued prior to January 1, 1971, components shall meet Section XI requirements to the extent practical. Since examination requirements for these welds did not exist at the time Pilgrim

Nuclear Power Station was designed, accessibility for their examination was not a prime consideration. 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 (16 out of 496) in the applicable systems. Since the exempted welds represent only a small fraction of the total number of circumferential, Category B-J welds in these systems the statistical significance to the inspection sampling program due to exempting these welds is expected to be negligible.

III. ALTERNATE PROVISIONS

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



Typical Design of Primary Containment Penetration

FIGURE 1

RELIEF REQUEST NO. PRR-2

I. IDENTIFICATION OF COMPONENTS AND IMPRACTICAL CODE REQUIREMENTS

Pilgrim Station 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, 1980 Edition through the Winter 1980 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.

II. 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 manhours and man-rem are required with essentially no compensating increase in plant safety, and

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

Based on data compiled from an actual recirculation pump disassembly, 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 adverse conditions such as high dose rate (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-CF-8), 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 performing the visual examination of the pump internal pressure boundary surfaces only when the pumps are required to be disassembled for maintenance.

III. ALTERNATE PROVISIONS

As stated above, it is not felt that the visual examination required by Code each ten year interval is warranted. However, as standard maintenance practice dictates, when a pump of this type is disassembled for maintenance examination of the pump internals and internal pressure boundary surfaces will be performed, to the extent practical.

RELIEF REQUEST NO. PRR-3

I. IDENTIFICATION OF COMPONENTS AND IMPRACTICAL CODE REQUIREMENTS

In the Class-1 system, there are 56 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 steel or carbon steel. None of the valve body casings are welded.

Section XI of the ASME Code, 1980 Edition through the Winter 1980 Addenda requires that a visual examination of the internal pressure boundary surfaces of one valve in each group of valves of the same constructional design and manufacturing method 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 whether or not the valves have to be disassembled for maintenance, this requirement is considered impractical.

II. 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, 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 valve casing integrity.

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

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.

Additionally, in accordance with BECo letter 82-296 (dated November 15, 1982) to the NRC, three check valves will be disassembled for visual examination once each inspection interval.

RELIEF REQUEST NO. PRR-4

I. IDENTIFICATION OF COMPONENTS AND IMPRACTICAL CODE REQUIREMENTS

The reactor vessel is designed with one circumferential and six longitudinal welds in the core beltline region.

The ASME Boiler and Pressure Vessel Code, Section XI, 1980 Edition through the Winter 1980 Addenda requires a volumetric examination of 100 percent of the length of one beltline longitudinal weld and one beltline circumferential weld each ten year interval (Code Category B-A).

Relief is requested from the above mentioned Code requirements on the basis of inaccessibility.

II. BASIS FOR RELIEF

Accessibility for the examination of the entire weld lengths was not provided for in the original plant design which occurred prior to the issuance of Section XI Inservice Inspection requirements. Access is sufficient to meet all Code requirements of Section XI up to and including the Summer 1975 Addenda. This requires examination of 10% of the length of each beltline longitudinal weld and 5% of the length of each beltline circumferential weld.

Further examination of the beltline region welds is precluded by the close proximity of the biological shield wall and obstruction by the vessel insulation. The insulation consists of interlocking panels which were not designed to be easily removable. Furthermore, the annular dimensions between the shield wall and the

insulation is not sufficient to allow direct access to personnel.

Examination of the beltline region welds from inside the vessel is impeded by vessel internal design features. The core shroud, jet pumps, and various brackets welded to the vessel wall are not designed to be removable.

III. ALTERNATE PROVISIONS

Boston Edison proposes to examine the wel lengths as specified in Category B-A of the 1974 Edition of Section XI, through and including the Summer 1975 Addenda.

RELIEF REQUEST NO PRR-5

I. IDENTIFICATION OF COMPONENTS AND IMPRACTICAL CODE REQUIREMENTS.

The reactor pressure vessel bottom head contains seventeen circumferential and meridional welds.

Section XI of the ASME Boiler and Pressure Vessel Code, 1980 Edition through the Winter 1980 Addenda requires a volumetric examination of 100 percent of the length of one meridional head weld and one circumferential head weld each inspection interval (Code Category B-A).

Relief is requested from the above mentioned Code requirements on the basis of inaccessibility.

II. BASIS FOR RELIEF

As discussed in Relief Request PRR-4, accessibility for examination of these welds was not considered in the plant design. The bottom head welds cannot be examined because of the limited physical access, the inability to remove vessel insulation panels, and also because of interference from the forest of control rod drive and instrumentation penetrations.

III. ALTERNATE PROVISIONS

Currently, it is not feasible to perform the required volumetric examinations on the bottom head welds. Boston Edison will, however, keep abreast of improvements in state-of-the-art NDE techniques that could provide a viable means of examination.

RELIEF REQUEST NO. PRR-6

I. IDENTIFICATION OF COMPONENTS AND IMPRACTICAL CODE REQUIREMENTS.

The ASME Boiler and Pressure Vessel Code, Section XI, 1980 Edition through and including the Winter 1980 Addenda, requires a surface examination on all Class 1 and 2 pressure retaining piping welds (Category B-J and C-F).

Relief is requested from performing the surface examinations required by Section XI.

II. BASIS FOR RELIEF

Both the Preservice and Inservice Inspection Programs for Pilgrim Nuclear Power Station, there was no surface examination requirements for Class 1 and 2 piping welds. Most piping systems were painted prior to commercial operation. Degradation due to long exposure to the service environment and maintenance activities necessitates additional surface preparation to bring weld surfaces to an acceptable level for surface examination. Boston Edison does not feel that the additional radiation exposure resulting from surface preparation and increased inspection time is commensurate with the increase in quality level of the piping welds.

III. ALTERNATE PROVISIONS

In lieu of surface examination, Boston Edison proposes to extend the examination volume as defined by Figures IWB-2500-8 and IWC-2500-7, to encompass the entire weld volume. Recordable surface indications not attributable to geometry would be subjected to an additional surface examination.

RELIEF REQUEST NO. PRR-7

I. IDENTIFICATION OF COMPONENTS AND IMPRACTICAL CODE REQUIREMENTS

The ASME Boiler and Pressure Vessel Code, Section XI, 1980 Edition through and including the Winter 1980 Addenda requires a surface examination on Class 2 piping welds (Category C-F) less than one half inch in nominal wall thickness.

Relief is requested from performing the surface examinations on the Containment Atmospheric Control System required by Section XI.

II. BASIS FOR RELIEF

This system normally operates at a temperature of 50°F and a pressure of 1 psig. As this system is normally dry and not subjected to high temperatures and pressures, the probability for failure is remote. The pressure testing required by IWC-5000 and the isolation valve test required by Article IWV provide sufficient assurance of system integrity.

III. ALTERNATE PROVISIONS

No alternate examinations are necessary in this case.

LEGEND FOR ISI CLASSIFICATION BOUNDARIES

FOR

PILGRIM NUCLEAR POWER STATION

Class 1 Piping Subject to Surface and/or Volumetric Examination

Class 1 Piping Subject to Pressure Testing Only

Class 2 Piping Subject to Surface and/or Volumetric Examination

Class 2 Piping Subject to Pressure Testing Only

Class 3 Piping Subject to Visual Examination and Pressure Testing