CP&L
A Progress Energy Company

Serial: RNP-RA/01-0100

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United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23

INSERVICE INSPECTION PROGRAM FOR THE FOURTH TEN-YEAR INTERVAL

Ladies and Gentlemen:

Pursuant to 10 CFR 50.55a(g)(5)(i), Carolina Power and Light (CP&L) Company is submitting the "Fourth Ten-Year Interval Inservice Inspection Program" for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2. The HBRSEP, Unit No. 2, Fourth Ten-Year Interval begins on February 19, 2002.

10 CFR 50.55a(g) requires inservice inspection (ISI) of certain American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components and their supports.
10 CFR 50.55a(g)(4)(ii) requires that ISI programs conducted during successive ten-year inspection intervals following the initial ten-year interval comply with the requirements of the latest edition and addenda of the Code, incorporated by reference in paragraph (b) of 10 CFR 50.55a, twelve months prior to the start of the ten-year interval, subject to the limitations and modifications listed within paragraph (b) of that section. Therefore, the HBRSEP, Unit No.2, "Fourth Ten-Year Interval Inservice Inspection Program" is based on the requirements of the ASME Boiler and Pressure Vessel (B&PV) Code, Section XI, 1995 Edition with 1996 Addenda.

The HBRSEP, Unit No.2, "Fourth Ten-Year Interval Inservice Inspection Program" includes requests for relief from ASME Code requirements. Appendix C of Enclosure I to this submittal contains a summary listing of these relief requests. Enclosure II to this submittal provides the detailed descriptions, bases, and proposed alternative examinations or requirements associated with each request for relief.

A047

Robinson Nuclear Plant
3581 West Entrance Road
Hartsville, SC 29550

As noted above, the HBRSEP, Unit No. 2, Fourth Ten-Year Interval begins on February 19, 2002. The first refueling outage of the Fourth Ten-Year Interval is Refueling Outage 21 (RO-21), which is currently scheduled to begin in October 2002. In order to support implementation of the Fourth Ten-Year Interval ISI Program, and to facilitate preparations for RO-21, CP&L requests NRC approval of this submittal and the associated relief requests by January 8, 2002.

If you have any questions regarding this matter, please contact Mr. H. K. Chernoff.

Sincerely,

B. L. Fletcher III
Manager - Regulatory Affairs

CTB/ctb

Enclosures:
I. Fourth Ten-Year Interval Inservice Inspection Program
II. Relief Requests

c: Mr. L. A. Reyes, NRC, Region II
Mr. R. Subbaratnam, NRC, NRR
NRC Resident Inspectors

United States Nuclear Regulatory Commission
Enclosure I to Serial: RNP-RA/01-0100
77 Pages

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

FOURTH TEN-YEAR INTERVAL
INSERVICE INSPECTION PROGRAM

Owner:

Carolina Power & Light Company
Post Office Box 1551
Raleigh, North Carolina 27602-1551

Plant:

Carolina Power & Light Company
H.B. Robinson Steam Electric Plant, Unit No. 2
3581 West Entrance Road
Hartsville, South Carolina 29550

Fourth Ten-Year Interval
Inservice Inspection Program

Revision 0

Service Dates:

Construction Permit:	**July 12, 1966**
Operating License:	**July 31, 1970**
Commercial Operation:	**March 7, 1971**
Fourth Interval:	**02/19/2002 through 02/19/2012**

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1.0 Record of Revisions

Revision Number	Date	Reason for Revision
0	August 17, 2001	Initial Release

2.0 Acronyms and Abbreviations

Listed within this section are acronyms and abbreviations utilized within this document:

AC	Auxiliary Coolant
AIA	Authorized Inspection Agency
AFW	Auxiliary Feedwater
ANII	Authorized Nuclear Inservice Inspector
ASME	American Society of Mechanical Engineers
BC	Branch Connection
BIT	Boron Injection Tank
B&PV	Boiler and Pressure Vessel
CCW	Component Cooling Water
CF	Chemical Feed
CFR	Code of Federal Regulations
CHG	Charging
CP&L	Carolina Power & Light
CRDM	Control Rod Drive Mechanism
CS	Containment Spray
CV	Containment Vessel
CVC	Chemical and Volume Control
CVCS	Chemical and Volume Control System
DW	Demineralized Water
DP	Design Pressure
DT	Design Temperature
FO	Fuel Oil
FP	Fire Protection
FW	Feedwater
GWD	Gaseous Waste Disposal
HBRSEP	H. B. Robinson Steam Electric Plant
HVAC	Heating, Ventilation, and Air Conditioning
HVH	Heating, Ventilation, and Air Handling
HX	Heat Exchanger
ISI	Inservice Inspection
IVSW	Isolation Valve Seal Water
LWD	Liquid Waste Disposal
MD	Motor-Driven
MS	Main Steam
MT	Magnetic Particle Testing (Examination)
N/A	Not Applicable
NDE	Non-Destructive Examination
NOP	Normal Operating Pressure
NOT	Normal Operating Temperature
NRC	Nuclear Regulatory Commission

NPS	Nominal Pipe Size
PASS	Post Accident Sampling System
P&ID	Piping and Instrumentation Diagram
PLP	Plant Program Procedure
PP	Penetration Pressurization
PS	Primary Sampling
PT	Liquid Penetrant Testing (Examination)
RVLIS	Reactor Vessel Level Indication System
PWR	Pressurized Water Reactor
PZR	Pressurizer
RC	Reactor Coolant
RCS	Reactor Coolant System
RCP	Reactor Coolant Pump
RGX	Regenerative Heat Exchanger
RHR	Residual Heat Removal
RPV	Reactor Pressure Vessel
SD	Steam-Driven
SFPC	Spent Fuel Pool Cooling
SG	Steam Generator
SGBD	Steam Generator Blowdown
SI	Safety Injection
SIS	Safety Injection System
SMLS	Seamless
SS	Stainless Steel
SW	Service Water
t	Thickness of Component, Pipe, etc.,
TE	Terminal End
TMM	Technical Management Procedure
TRM	Technical Requirements Manual (PLP-100)
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Testing (Examination)
VT	Visual Testing (Examination)
WD	Waste Disposal

3.0 Abstract

This document provides the bases for the H. B. Robinson Steam Electric Plant, Unit No. 2, Fourth Ten-Year Interval Inservice Inspection Program.

This Program was developed and prepared to meet the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI, 1995 Edition with 1996 Addenda, and is subject to the limitations and modifications of 10 CFR 50.55a(b)(2), with the exception of design and access provisions and preservice examination requirements. This Program identifies those components, systems, and their supports that are subject to examination and testing.

Additional requirements for augmented examinations are identified within Appendix E, "Augmented ISI Examination Programs."

This Program contains requests for relief from certain Code requirements. The bases for these relief requests and proposed alternative examinations or requirements are summarized within Appendix C, "HBRSEP, Unit No. 2, Relief Requests." More detailed descriptions, bases, and proposed alternative examinations or requirements associated with each request for relief were submitted as a separate enclosure to the NRC submittal that transmitted the HBRSEP, Unit No. 2, Fourth Ten-Year Interval Inservice Inspection Program.

Tables have been developed showing the bases for selection of components and are contained within the Fourth Ten-Year Interval Inservice Inspection Program. Definitions of terms are provided within Plant Operating Manual procedures PLP-025, "Inservice Inspection Programs," and TMM-038, "Inservice Examination Program."

4.0 Introduction

4.1 This document details the bases of the Long Term Inservice Inspection Program for the Fourth Ten-Year Interval for HBRSEP, Unit No. 2.

4.2 The Inservice Inspection Program for Class 1, Class 2, and Class 3 systems and components was developed after giving due consideration to the following documents, to the extent practical, within the limitations of design, geometry, and materials of construction:

a. Code of Federal Regulations, 10 CFR 50.55a

b. ASME Code, 1995 Edition with 1996 Addenda, Sections V and XI

c. Regulatory Guide 1.26, "Quality Group Classifications and Standards for Water Steam and Radioactive Waste Containing Components of Nuclear Power Plants," Revision 2, June 1975

d. Regulatory Guide 1.83, "Inservice Examination of Pressurized Water Reactor Steam Generator Tubes," Revision 1, July 1975

e. Regulatory Guide 1.147, "Inservice Inspection Code Case Applicability ASME Section XI" Revision 11

f. Regulatory Guide 1.150, "Ultrasonic Testing of Reactor Vessel Welds during Preservice and Inservice Examinations," Revision 1, February 1983 (as modified by the ASME Code, Section XI, Appendix VIII Program)

g. NUREG-0800, "NRC Standard Review Plan," Section 6.6, Paragraph I.7 (Class 2 Augmented Inspections)

h. NUREG-0800, "NRC Standard Review Plan," Branch Technical Position MEB 3-1, "High Energy Fluid Systems, Protection Against Postulated Piping Failures in Fluid Systems Outside Containment"

i. NUREG-0800, NRC Standard Review Plan, Sections 9.5.4 and 9.5.8, Essential Class 3 Diesel Systems

j. Branch Technical Position APCSB 3.1, paragraph B.2.c(4)

k. HBRSEP, Unit No. 2, Technical Specifications

l. HBRSEP, Unit No. 2, Updated Final Safety Analysis Report

m. First, Second, and Third Ten-Year Inservice Inspection Program Plans

5.0 Other Programs Containing Parts With Details

5.1 The plant IST Program, TMM-004, "Inservice Inspection Testing," addresses inservice testing of Class 1, 2 and 3 pumps and valves.

5.2 The steam generator eddy current testing program is in accordance with the HBRSEP, Unit No. 2, Technical Specifications, and is implemented by plant procedures PLP-114, "Steam Generator Program," and TMM-112, "Steam Generator Inspection (Refueling Outage)."

5.3 Snubber inspection and testing is in accordance with PLP-100, "Technical Requirements Manual," which primarily contains relocated Technical Specification requirements, and is implemented by plant procedure TMM-006, "Shock Suppressor (Snubber) Inspection and Testing Program." Snubber visual examinations are performed in accordance with EST-032, "Visual Inspection of Hydraulic and Mechanical Shock Suppressors (Each 18 Months And As Required)," and functional testing is performed in accordance with EST-033, "Functional Testing of Hydraulic and Mechanical Shock Suppressors (Snubbers) (18 Months And As Required)." Relief has been requested regarding snubber functional testing (reference Relief Request Number 15). ASME B&PV Code, Section XI, visual examinations will be scheduled and examined in accordance with the Fourth Ten-Year Interval Inservice Inspection Program, and repair/replacement of snubbers will be in accordance with the ASME B&PV Code, Section XI.

5.4 Containment IWE/IWL examinations are addressed by the containment inspection programs and are implemented in accordance with procedures EGR-NGGC-0015, "Containment Inspection Program," TMM-124, "Inservice IWE/IWL Program," and EST-150, "Containment Inspection (IWE/IWL)."

5.5 The repair/replacement program is implemented by TMM-015, "Inservice Repair and Replacement Program."

5.6 The pressure testing program is implemented by TMM-020, "Inservice Pressure Testing."

5.7 Non-destructive examination procedures and personnel qualifications are addressed within the nuclear NDE manual, NGGM-PM-0011, "NDEP-A Nuclear NDE Procedures and Personnel Process," or an approved vendor Quality Assurance Program.

6.0 Program History

6.1 During the First Ten-Year Inservice Inspection Interval, the first two periods were conducted in accordance with the ASME B&PV Code, Section XI, 1971 Edition. The last period was conducted in accordance with the ASME B&PV Code, Section XI, 1974 Edition with Addenda through Summer 1975. The first Ten-Year Interval began in March 1971, and ended in March 1981.

6.2 The Second Ten-Year Inservice Inspection Interval was conducted in accordance with the ASME B&PV Code, Section XI, 1977 Edition with Addenda through Summer 1978. The second Ten-Year Interval began in March 1981, and ended in February 1992.

6.3 An interval extension of 349 days occurred in 1984/1985 due to the length of a steam generator replacement outage that occurred in 1984/1985. This interval extension resulted in a Third Ten-Year Interval start date of February 1992 versus March 1991.

6.4 The construction permit for HBRSEP, Unit No. 2, was issued on July 12, 1966, to Carolina Power & Light Company who serves as the Owner of Record. Dates for intervals and periods are as follows:

Interval	Period 1	Period 2	Period 3
1	3/71 - 2/74	2/74 - 3/78	3/78 - 3/81
2	3/81 - 6/85	6/85 - 10/88	10/88 - 2/92
3	2/92 - 2/95	2/95 - 2/99	2/99 - 2/02
4	2/02 - 2/05	2/05 - 2/09	2/09 - 2/12

7.0 Applicable Editions and Addenda to ASME Section XI

7.1 The ASME B&PV Code, 1995 Edition with 1996 Addenda, was incorporated by reference into 10 CFR 50.55a(b)(2) on November 22, 1999. In accordance with 10 CFR 50.55a(g)(4)(ii), Inservice Inspection requirements applicable to HBRSEP, Unit No. 2, for nondestructive examination and system pressure testing during the Fourth Ten-Year Interval are in accordance with this edition of the Code.

8.0 Classifications

8.1 System classifications for the Inservice Inspection Program are based on the requirements of 10 CFR 50 and Regulatory Guide 1.26, Revision 2. Class 1 system boundaries were developed based on 10 CFR 50.2 and the HBRSEP, Unit No. 2, UFSAR. Class 2 and 3 system boundaries were developed based on Regulatory Guide 1.26, Revision 2, and the HBRSEP, Unit No. 2, UFSAR.

8.2 Optional construction of a component within a system boundary to a classification higher than the minimum class established in the component design specification will not affect the overall system classification that determines the applicable rules of Section XI.

8.3 Portions of piping penetrating the containment vessel that are required to be constructed to Class 1 or 2 requirements for piping, and that may differ from the classification of the balance of piping systems, will not affect the overall system classification that determines the applicable rules of Section XI.

8.4 Piping and Instrumentation Diagrams identify specific boundaries for Class 1, 2, and 3 systems to which this program applies. Reference Appendix A, "P&ID/ASME Code Boundary Drawings (Flow Diagrams)," for a listing of P&IDs associated with each system.

9.0 Inspection Program

9.1 Examinations of components are scheduled in accordance with Inspection Program B (IWB, IWC, and IWD-2412, and Tables IWB, IWC, and IWD-2412-1 for Class 1, 2, and 3 systems and components). Examinations are scheduled, to the extent practical, based upon the preceding sequence of the First, Second, and Third Ten-Year Interval Inservice Inspection Programs.

9.2 In order to be consistent in determining percentages, HBRSEP, Unit No. 2, utilized the requirements of IWB, IWC, and IWD-2412. When calculating percentage requirements, values were rounded up to the nearest whole number.

10.0 Regulatory Guides

10.1 Regulatory Guides to HBRSEP, Unit No. 2, for the purposes of this Program are identified within Section 4.2.

11.0 ASME Code Cases

11.1 ASME Code Cases applicable to HBRSEP, Unit No. 2, are identified within Appendix D, "Applicable Code Cases." Some Code Cases may have received NRC review and endorsement by the NRC through incorporation into Regulatory Guide 1.147. Other Code Cases not incorporated within Regulatory Guide 1.147 may be invoked as guidance or by reference with a request for relief. For instances where an HBRSEP, Unit No. 2, relief request references a Code Case that has not yet received NRC endorsement, and this Code Case is incorporated into subsequent revisions of the Regulatory Guide, HBRSEP, Unit No. 2, may continue to use the approved relief request provided any limitations in the Regulatory Guide are followed.

12.0 Administrative Control Documents

12.1 The Fourth Ten-Year Interval Inservice Inspection Program is administratively controlled by plant procedures PLP-025, "Inservice Inspection Programs," and TMM-038, "Inservice Examination Program."

13.0 Development of the Inspection Program

13.1 The Fourth Ten-Year Interval Inservice Inspection Program for components and systems subject to examination was developed using the guidance provided within the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Appendix F, "Preparation of Inspection Plans."

13.2 Plant controlled P&IDs, isometric, and component drawings were used to develop the scope of examinations contained within this program. During examinations, the most recent revision of these drawings will be used to complete each examination item.

14.0 Augmented Examinations

14.1 Augmented examinations and associated requirements within the scope of the Fourth Ten-Year Interval Inservice Inspection Program are identified within Appendix E, "Augmented ISI Examination Programs."

15.0 Program Code Boundary Drawings

15.1 Code-required boundaries for Class 1, 2, and 3 systems are identified by a triangle box on the P&IDs. The P&IDs applicable to the HBRSEP, Unit No. 2, Fourth Ten-Year Inservice Inspection Program are identified within Appendix A, "P&ID/ASME Code Boundary Drawings (Flow Diagrams)."

16.0 Records

16.1 Records for the Fourth Ten-Year Interval Inservice Inspection Program, including equipment calibration records, calibration standards, examination and test procedures, results of activities, final reports, certifications, and corrective actions taken or recommended, will be developed and maintained in accordance with Article IWA-6000, "Records and Reports."

16.2 Non-destructive examination data packages will be submitted to the ISI Specialist following completion of the inservice inspection activity.

16.3 Final reports will be generated for non-destructive examination activities performed on Class 1, 2, or 3 systems, components, supports, system pressure tests, repairs and replacements.

16.4 Final reports will contain, as a minimum, the information required on the NIS-1, as applicable. The NIS-1 will be prepared and certified by CP&L, and verified and signed by the ANII upon completion following a refueling outage.

16.5 An Owners Report for Repair/Replacement Activities, Form NIS-2, will be prepared, as necessary, certified by CP&L, and verified and signed by the ANII.

16.6 Final reports following inservice inspection outages will be submitted to the NRC within ninety days (90) of the end of the outage, i.e., output breaker closed, in accordance with Article IWA-6200. The final report will include the following Owner's Data Reports:

a. NIS-1, Owner's Report for Inservice Inspections (The NIS-1 will contain a listing of the examinations performed during the refueling outage.)

b. NIS-2, Owner's Report for Repair/Replacement Activity

17.0 Repairs, Replacements and Modifications

17.1 HBRSEP, Unit No. 2, will implement the repair and replacement requirements delineated within the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, in accordance with plant procedure TMM-015, "Inservice Inspection Repair and Replacement Program."

18.0 Inservice Inspection Plan and Schedules

18.1 The Fourth Ten-Year Interval Inservice Inspection Plan and schedule tables for inservice examination of systems and components are controlled as a separate document. Periodic revisions to the plan and schedule will be made, as required, to accommodate program additions, deletions, updates, and substitutions, as necessary.

18.2 The Fourth Ten-Year Interval Inservice Inspection Program has been divided by ISI isometric drawings (HBR2-10618 series). These drawings identify the weld locations, hanger locations, and other examination areas for each system. (Reference Appendix F, "ISI Zone/Isometric References")

18.3 The Fourth Ten-Year Interval Inservice Inspection Program contains the applicable information for ASME B&PV Code Examination Category, Item Number, Calibration Block, etc., as it pertains to Section XI requirements.

18.4 Welds and other components that are subject to examination have been identified on ISI isometric drawings. Newly identified welds are added to the Program with the next highest sequential weld number, or by designation of an alpha character from an adjacent weld.

19.0 Subsection IWB for Class 1 Components

19.1 Bases and Scope

The Class 1 system boundaries are based upon the requirements of 10 CFR 50.2 and the HBRSEP, Unit No. 2, UFSAR. Specific examinations are based on the requirements of the ASME B&PV Code, Section XI, Table IWB-2500-1, as indicated below.

In accordance with IWB-1220, "Components Exempt from Examination," the following components or parts of components are exempted from the volumetric and surface examination requirements of IWB-2500, "Examination and Pressure Test Requirements." These Class 1 component exemptions are based on the ASME B&PV Code, Section XI, 1989 Edition, as required by the Federal Register dated September 22, 1999 (Volume 64, Number 183), and 10 CFR 50.55a(b)(2)(xi). Also note that there are no Class 1 systems exempt from surface or volumetric examinations for reasons other than size.

a. Components connected to the reactor coolant system and part of the reactor coolant pressure boundary that are of such a size and shape so that, upon a postulated rupture, the resulting flow of coolant from the reactor coolant system under normal plant operating conditions is within the capacity of makeup systems which are operable from on-site emergency power.

b. Piping of NPS 1 and smaller, except for steam generator tubing, including components and their connections in piping of NPS 1 and smaller.

c. Reactor vessel head connections and associated piping, NPS 2 and smaller, made inaccessible by control rod drive penetrations.

19.2 Table IWB-2500-1, Examination Category B-A

Table B-A provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-A, "Pressure Retaining Welds in Reactor Vessel." Refer to Appendices C and D for applicable Relief Requests and Code Cases, respectively.

The percentage of scheduled examinations for this Examination Category was developed in accordance with IWB-2412, "Inspection Program B," subsections (a)(2) and (a)(3), which allows examinations to be partially deferred or deferred, respectively, to the end of an inspection interval.

Table B-A					
Item Numbers	Parts Examined	Number of Welds	Number Scheduled by Period		
			1	2	3
B1.11	Circumferential	3	0	0	3
B1.12	Longitudinal	9	0	0	9
B1.21	Circumferential	2	0	0	1
B1.22	Meridional	12	0	0	12
B1.30	Shell-to-Flange Welds	1	0	0	1
B1.40	Head-to-Flange Weld	1	0	0	1
B1.51	Beltline Region	None (Not Applicable)	N/A	N/A	N/A
	Totals	28	0	0	27

19.3 Table IWB-2500-1, Examination Category B-B

Table B-B provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-B, "Pressure Retaining Welds in Vessels Other Than Reactor Vessels." Refer to Appendices C and D for applicable Relief Requests and Code Cases, respectively.

Table B-B					
Item Numbers	Parts Examined	Number of Welds	Number Scheduled by Period		
			1	2	3
B2.11	Circumferential	2	0	1	1
B2.12	Longitudinal	2	1	1	0
B2.21	Circumferential	None (Not Applicable)	N/A	N/A	N/A
B2.22	Meridional	None (Not Applicable)	N/A	N/A	N/A
B2.31	Circumferential	None (Not Applicable)	N/A	N/A	N/A
B2.32	Meridional	None (Not Applicable)	N/A	N/A	N/A
B2.40	Tubesheet-to-Head Weld	3	0	0	1
B2.51	Circumferential	3	0	0	0
B2.52	Meridional	None (Not Applicable)	N/A	N/A	N/A
B2.60	Tubesheet-to-Head Welds	3	0	0	0
B2.70	Longitudinal Welds	None (Not Applicable)	N/A	N/A	N/A
B2.80	Tubesheet-to-Shell Welds	None (Not Applicable)	N/A	N/A	N/A
	Totals	13	1	2	2

19.4 Table IWB-2500-1, Examination Category B-D

Table B-D provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-D, "Full Penetration Welded Nozzles in Vessels - Inspection Program B." Refer to Appendices C and D for applicable Relief Requests and Code Cases, respectively.

The percentage of scheduled examinations for this Examination Category was developed in accordance with IWB-2412, "Inspection Program B," subsection (a)(2), which allows examinations to be partially deferred to the end of an inspection interval.

Table B-D					
Item Numbers	Parts Examined	Number of Welds	Number Scheduled by Period		
			1	2	3
B3.90	Nozzle-to-Vessel Welds	6	0	0	6
B3.100	Nozzle Inside Radius Section	6	0	0	6
B3.110	Nozzle-to-Vessel Welds	None (Not Applicable)	N/A	N/A	N/A
B3.120	Nozzle Inside Radius Section	6	1	2	2
B3.130	Nozzle-to-Vessel Welds	None (Not Applicable)	N/A	N/A	N/A
B3.140	Nozzle Inside Radius Section	6	2	2	2
B3.150	Nozzle-to-Vessel Welds	6	0	0	0
B3.160	Nozzle Inside Radius Section	6	0	0	0
	Totals	36	3	4	16

19.5 Table IWB-2500-1, Examination Category B-F

Table B-F provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-F, "Pressure Retaining Dissimilar Metal Welds in Vessel Nozzles." Refer to Appendices C and D for applicable Relief Requests and Code Cases, respectively.

The percentage of scheduled examinations for this Examination Category was developed in accordance with IWB-2412, "Inspection Program B," subsection (a)(2), which allows examinations to be partially deferred to the end of an inspection interval.

Table B-F					
Item Numbers	Parts Examined	Number of Welds	Number Scheduled by Period		
			1	2	3
B5.10	NPS 4 or Larger Nozzle-to-Safe End Butt Welds	6	0	0	6
B5.20	Less Than NPS 4 Nozzle-to-Safe End Butt Welds	None (Not Applicable)	N/A	N/A	N/A
B5.30	Nozzle-to-Safe End Socket Welds	None (Not Applicable)	N/A	N/A	N/A
B5.40	NPS 4 or Larger Nozzle-to-Safe End Butt Welds	6	2	2	2
B5.50	Less Than NPS 4 Nozzle-to-Safe End Butt Welds	None (Not Applicable)	N/A	N/A	N/A
B5.60	Nozzle-to-Safe End Socket Welds	None (Not Applicable)	N/A	N/A	N/A
B5.70	NPS 4 or Larger Nozzle-to-Safe End Butt Welds	6	2	2	2
B5.80	Less Than NPS 4 Nozzle-to-Safe End Butt Welds	None (Not Applicable)	N/A	N/A	N/A
B5.90	Nozzle-to-Safe End Socket Welds	None (Not Applicable)	N/A	N/A	N/A

Table B-F (Continued)					
Item Numbers	Parts Examined	Number of Welds	Number Scheduled by Period		
B5.100	NPS 4 or Larger Nozzle-to-Safe End Butt Welds	None (Not Applicable)	N/A	N/A	N/A
B5.110	Less Than NPS 4 Nozzle-to-Safe End Butt Welds	None (Not Applicable)	N/A	N/A	N/A
B5.120	Nozzle-to-Safe End Socket Welds	None (Not Applicable)	N/A	N/A	N/A
	Totals	18	4	4	10

19.6 Table IWB-2500-1, Examination Category B-G-1

Table B-G-1 provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-G-1, "Pressure Retaining Bolting, Greater Than 2 inches in Diameter." Refer to Appendix D for applicable Code Cases.

The percentage of scheduled examinations for this Examination Category was developed in accordance with IWB-2412, "Inspection Program B," subsection (a)(4), which allows examinations to be deferred until disassembly of a component for maintenance, repair/replacement activity, or volumetric examination.

Table B-G-1					
Item Numbers	Parts Examined	Number of Bolting Assemblies	Number Scheduled by Period		
			1	2	3
B6.10	Closure Head Nuts	50	17	17	16
B6.20	Closure Studs, in place	None (Not Applicable)	N/A	N/A	N/A
B6.30[1]	Closure Studs, when removed	50	17	17	16

[1] Required when removed

Table B-G-1 (Continued)					
Item Numbers	Parts Examined	Number of Bolting Assemblies	Number Scheduled by Period		
			1	2	3
B6.40	Threads in Flange	50	0	0	50
B6.50	Closure Washers, Bushings	50	17	17	16
B6.60	Bolts and Studs	None (Not Applicable)	N/A	N/A	N/A
B6.70	Flange Surface, when connection disassembled	None (Not Applicable)	N/A	N/A	N/A
B6.80	Nuts, Bushings, and Washers	None (Not Applicable)	N/A	N/A	N/A
B6.90	Bolts and Studs	None (Not Applicable)	N/A	N/A	N/A
B6.100	Flange Surface, when connection disassembled	None (Not Applicable)	N/A	N/A	N/A
B6.110	Nuts, Bushings, and Washers	None (Not Applicable)	N/A	N/A	N/A
B6.120	Bolts and Studs	None (Not Applicable)	N/A	N/A	N/A
B6.130	Flange Surface, when connection disassembled	None (Not Applicable)	N/A	N/A	N/A
B6.140	Nuts, Bushings, and Washers	None (Not Applicable)	N/A	N/A	N/A
B6.150	Bolts and Studs	None (Not Applicable)	N/A	N/A	N/A
B6.160	Flange Surface, when connection disassembled	None (Not Applicable)	N/A	N/A	N/A
B6.170	Nuts, Bushings, and Washers	None (Not Applicable)	N/A	N/A	N/A

Table B-G-1 (Continued)					
Item Numbers	Parts Examined	Number of Bolting Assemblies	Number Scheduled by Period		
			1	2	3
B6.180	Bolts and Studs	72	24	24	24
B6.190[2]	Flange Surface, when connection disassembled	3	0	0	0
B6.200	Nuts, Bushings, and Washers	72	24	24	24
B6.210	Bolts and Studs	None (Not Applicable)	N/A	N/A	N/A
B6.220	Flange Surface, when connection disassembled	None (Not Applicable)	N/A	N/A	N/A
B6.230	Nuts, Bushings, and Washers	None (Not Applicable)	N/A	N/A	N/A
	Totals	347	99	99	146

[2] Required when disassembled

19.7 Table IWB-2500-1, Examination Category B-G-2

Table B-G-2 provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-G-2, "Pressure Retaining Bolting, 2 Inches and Less in Diameter."

The percentage of scheduled examinations for this Examination Category was developed in accordance with IWB-2412, "Inspection Program B," subsection (a)(4), which allows examinations to be deferred until disassembly of a component for maintenance, repair/replacement activity, or volumetric examination.

Table B-G-2					
Item Numbers	Parts Examined	Number of Bolting Assemblies	Number Scheduled by Period		
			1	2	3
B7.10	Bolts, Studs, and Nuts	5	2	2	1
B7.20	Bolts, Studs, and Nuts	1	0	0	1
B7.30	Bolts, Studs, and Nuts	6	2	2	2
B7.40	Bolts, Studs, and Nuts	None (Not Applicable)	N/A	N/A	N/A
B7.50	Bolts, Studs, and Nuts	6	2	2	2
B7.60	Bolts, Studs, and Nuts	3	1	1	1
B7.70	Bolts, Studs, and Nuts	29	10	9	10
	Totals	50	17	16	17

19.8 Table IWB-2500-1, Examination Category B-J

Table B-J provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-J, "Pressure Retaining Welds in Piping." Refer to Appendices C and D for applicable Relief Requests and Code Cases, respectively.

The original selection regarding the extent of examinations for Class 1 piping welds was determined by the requirements of Table IWB-2500-1, Examination Category B-J, as provided in the ASME B&PV Code, Section XI, 1974 Edition with the Summer 1975 Addenda, in accordance with 10 CFR 50.55a(b)(2)(ii). These welds are examined each inspection interval in accordance with Note (2) of Table IWB-2500-1, Examination Category B-J, as found within the ASME B&PV Code, Section XI, 1995 Edition with the 1996 Addenda.

Table B-J					
Item Numbers	Parts Examined	Number of Welds	Number Scheduled by Period		
			1	2	3
B9.11	Circumferential Welds	184	11	14	25
B9.21[1]	Circumferential Welds	139	14	15	10
B9.31	NPS 4 or Larger	7	0	0	2
B9.32[1]	Less Than NPS 4	20	3	0	2
B9.40	Socket Welds	378	30	38	35
	Totals	728	58	67	74

[1] Not required for high pressure Safety Injection System per Federal Register dated September 22, 1999, and 10 CFR 50.55a(g)(4)(iii).

19.9 Table IWB-2500-1, Examination Category B-K

Table B-K provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-K, "Welded Attachments for Vessels, Piping, Pumps, and Valves."

Welded attachments for piping inspected under Item Number B10.20 are scheduled in accordance with Notes (4) and (5) of Table IWB-2500-1, Examination Category B-K, as found within the ASME B&PV Code, Section XI, 1995 Edition with the 1996 Addenda.

Table B-K					
Item Numbers	Parts Examined	Number of Welds	Number Scheduled by Period		
			1	2	3
B10.10	Welded Attachments	None (Not Applicable)	N/A	N/A	N/A
B10.20	Welded Attachments	45	2	2	3
B10.30	Welded Attachments	9	0	0	1
B10.40	Welded Attachments	None (Not Applicable)	N/A	N/A	N/A
	Totals	67	2	2	4

19.10 Table IWB-2500-1, Examination Categories B-L-1 and B-L-2

Table B-L-1 and B-L-2 provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-L-1, "Pressure Retaining Welds in Pump Casings." Inspections scheduled under Item Number B12.10 include 100% volumetric examination of the welds in one of three RCPs. In order to reduce radiation exposure, 100% of the required B12.10 examinations will be completed during one refueling outage, as opposed to performing one-third of the required examinations each period. Deferral of these examinations to the end of the interval is in accordance with Table IWB-2500-1. Refer to Appendices C and D for applicable Relief Requests and Code Cases, respectively.

Table B-L-1 and B-L-2 also provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-L-2, "Pump Casings." Inspections scheduled under Item No. B12.20 include visual examination of the interior of one of three RCPs when disassembled for maintenance, repair, or volumetric examination. Refer to Appendices C and D for applicable Relief Requests and Code Cases, respectively. The percentage of scheduled examinations for this Examination Category was developed in accordance with IWB-2412, "Inspection Program B," subsection (a)(4), which allows examinations to be deferred until disassembly of a component for maintenance, repair/replacement activity, or volumetric examination.

Table B-L-1 and B-L-2					
Item Numbers	Parts Examined	Number of Welds or Components	Number Scheduled by Period		
			1	2	3
B12.10	Pump Casing Welds (B-L-1)	9	0	0	3
B12.20	Pump Casing (B-L-2)	3	0	0	0
	Totals	12	0	0	3

19.11 Table IWB-2500-1, Examination Categories B-M-1 and B-M-2

Table B-M-1 and B-M-2 provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-M-1, "Pressure Retaining Welds in Valve Bodies," and Examination Category B-M-2, "Valve Bodies."

The percentage of scheduled examinations for Examination Category B-M-2 was developed in accordance with IWB-2412, "Inspection Program B," subsection (a)(4), which allows examinations to be deferred until disassembly of a component for maintenance, repair/replacement activity, or volumetric examination.

Valve inspections under Examination Category B-M-2, Item No. B12.50, have been grouped based on size, constructional design, manufacturing method, and function in accordance with Note (3) of Table IWB-2500-1, Examination Category B-M-2. These valve groupings are as follows:

Group A: RHR-750, RHR-751 (14")
Group B: SI-876A, SI-876B, SI-876C (10")
Group C: SI-875A, SI-875B, SI-875C, SI-875D, SI-875E, SI-875F (8")

Table B-M-1 and B-M-2

Item Numbers	Parts Examined	Number of Welds or Components	Number Scheduled by Period		
			1	2	3
B12.30	Valves, Less Than NPS 4 - Valve Body Welds (B-M-1)	None (Not Applicable)	N/A	N/A	N/A
B12.40	Valves, NPS 4 or Larger - Valve Body Welds (B-M-1)	None (Not Applicable)	N/A	N/A	N/A
B12.50	Group A	2	*	*	*
	Group B	3	*	*	*
	Group C	6	*	*	*
	Totals	11	*	*	*

* Examination is required only when a pump or valve is disassembled for maintenance, repair, or volumetric examination in accordance with Note (2) of Table IWB-2500-1, Examination Category B-M-2, as found within the ASME B&PV Code, Section XI, 1995 Edition with the 1996 Addenda. A complete examination is required once per interval for each group, if disassembled.

19.12 Table IWB-2500-1, Examination Categories B-N-1, B-N-2, and B-N-3

Table B-N-1, B-N-2, and B-N-3 provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-N-1, "Interior of Reactor Vessel." The scope of examinations performed under this Examination Category include VT-3 visual examination of accessible areas above and below the reactor core made accessible for examination by removal of components during normal refueling activities (once each inspection period). Refer to Appendix C for applicable Relief Requests. The percentage of scheduled examinations for this Examination Category is not applicable in accordance with IWB-2412, "Inspection Program B," subsection (a)(1).

Table B-N-1, B-N-2, and B-N-3 also provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-N-2 (PWR), Item Nos. B13.50 and B13.60, "Interior Attachments Within Beltline Region," and "Interior Attachments Beyond Beltline Region," respectively. The scope of examinations performed under these Item Numbers includes VT-1 visual examination of interior attachments within the beltline region (once per interval), and VT-3 visual examination of interior attachments beyond the beltline region (once per interval). To reduce radiation exposure, 100% of the required examinations will be deferred to the end of the interval in accordance with Table IWB-2500-1, thereby allowing these examinations to be completed during a single, scheduled refueling outage. Additionally, the required percentage of examinations for these Item Numbers is not applicable for examinations deferred to the end of an inspection interval as delineated within IWB-2412, "Inspection Program B," subsection (a)(3).

Table B-N-1, B-N-2, and B-N-3 provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-N-3, "Core Support Structure." The scope of examinations performed under this Examination Category includes VT-3 visual examination of accessible surfaces of the core support structures when removed from the reactor vessel (once per interval). To reduce radiation exposure, 100% of the required examinations will be deferred to the end of the interval in accordance with Table IWB-2500-1, thereby allowing these examinations to be completed during a single, scheduled refueling outage. Additionally, the required percentage of examinations for this Examination Category is not applicable for examinations deferred to the end of an inspection interval as delineated within IWB-2412, "Inspection Program B," subsection (a)(3).

Table B-N-1, B-N-2, and B-N-3					
Item Numbers	Parts Examined	Number of Areas	Number Scheduled by Period		
			1	2	3
B13.10	Vessel Interior (B-N-1)	1	0	0	1
B13.20	Interior Attachments Within Beltline Region (B-N-2)	None (Not Applicable)	N/A	N/A	N/A
B13.30	Interior Attachments Beyond Beltline Region (B-N-2)	None (Not Applicable)	N/A	N/A	N/A
B13.40	Core Support Structure (B-N-2)	None (Not Applicable)	N/A	N/A	N/A
B13.50	Interior Attachments Within Beltline Region (B-N-2)	1	0	0	1
B13.60	Interior Attachments Beyond Beltline Region (B-N-2)	1	0	0	1
B13.70	Core Support Structure (B-N-3)	1	0	0	1
	Totals	4	0	0	4

19.13 Table IWB-2500-1, Examination Category B-O

Table B-O provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-O, "Pressure Retaining Welds in Control Rod Housings." The required extent of this examination is 10% of the peripheral control rod housings. HBRSEP, Unit No. 2, has 24 control rod housings on the periphery. The required percentage of examinations for this Examination Category is not applicable for examinations deferred to the end of an inspection interval as delineated within IWB-2412, "Inspection Program B," subsection (a)(3).

Table B-O					
Item Numbers	Parts Examined	Number of Welds	Number Scheduled by Period		
			1	2	3
B14.10	Welds in CRD Housing	24	1	1	1
	Totals	24	1	1	1

19.14 Table IWB-2500-1, Examination Category B-P

Table B-P provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-P, "All Pressure Retaining Components."

The percentage of scheduled examinations for this Examination Category is not applicable in accordance with IWB-2412, "Inspection Program B," subsection (a)(1). Refer to Appendices C and D for applicable Relief Requests and Code Cases, respectively.

System leakage tests will be conducted in accordance with Articles IWA-5000 and IWB-5000, "System Pressure Tests," as stipulated within TMM-020, "Inservice Pressure Testing Program," including the following:

a. The pressure requirements of IWB-5221, "Pressure."

b. The boundary requirements of IWA-5221, "System Leakage Test Boundary," and IWB-5222, "Boundaries." Also note that system leakage tests conducted at or near the end of the inspection interval require the boundary to be extended to all Class 1 pressure retaining components. Relief is being requested to address instances where it is impractical for HBRSEP, Unit No. 2, to extend these boundaries.

c. The holding time requirements of IWA-5213, "Test Condition Holding Time."

Table B-P

Code Item Number(s)	System Test Description	System Number	Test Procedure	Number Scheduled by Period		
				1	2	3
Applicable Portions, Examination Category B-P	RCS	2005	EST-083[1]	*	*	*
Applicable Portions, Examination Category B-P	RHR System	2045	EST-083[1]	*	*	*

[1] EST-083, "Inservice Inspection Pressure Testing of Reactor Coolant System (Refueling Shutdown Interval)," is performed during each refueling outage.

* Percentage requirements are not applicable in accordance with IWB-2412, subsection (a)(1).

Table B-P (Continued)						
Code Item Number(s)	System Test Description	System Number	Test Procedure	Number Scheduled by Period		
				1	2	3
Applicable Portions, Examination Category B-P	Charging System	2060	EST-083[1]	*	*	*
Applicable Portions, Examination Category B-P	SI System	2080	EST-083[1]	*	*	*

[1] EST-083, "Inservice Inspection Pressure Testing of Reactor Coolant System (Refueling Shutdown Interval)," is performed during each refueling outage.

* Percentage requirements are not applicable in accordance with IWB-2412, subsection (a)(1).

19.15 Table IWB-2500-1, Examination Category B-Q

Table B-Q provides the examination scope and schedule for Table IWB-2500-1, Examination Category B-Q, "Steam Generator Tubing." The extent and frequency of these examinations are governed by HBRSEP, Unit No. 2, Technical Specification 5.5.9, "Steam Generator (SG) Tube Surveillance Program." Also, as noted within Technical Requirements Manual 5.5.9, "Steam Generator (SG) Tube Surveillance Program," the SG Tube Surveillance Program is implemented by TMM-112, "Steam Generator Inspection (Refueling Outage)." The percentage of scheduled examinations for this Examination Category is not applicable in accordance with IWB-2412, "Inspection Program B," subsection (a)(1).

Table B-Q					
Item Numbers	Parts Examined	Number of Welds	Number Scheduled by Period		
			1	2	3
B16.10	Steam Generator Tubing in Straight Tube Design	None (Not Applicable)	N/A	N/A	N/A
B16.20	Steam Generator Tubing in U-Tube Design	10257	*	*	*
	Totals	10257	*	*	*

* Percentage requirements are not applicable in accordance with IWB-2412, subsection (a)(1).

20.0 Subsection IWC for Class 2 Components

20.1 Bases and Scope

The Class 2 system boundaries are based upon the requirements of Regulatory Guide 1.26, and the HBRSEP, Unit No. 2, UFSAR. Specific examinations are in accordance with the ASME B&PV Code, Section XI, Table IWC-2500-1, as further described below.

The following components or parts of components within the residual heat removal (RHR), safety injection/emergency core cooling (ECC), and CV spray/containment heat removal (CHR) systems (or portions of systems) are exempt from the volumetric and surface examination requirements of IWC-2500, "Examination and Pressure Test Requirements," in accordance with IWC-1221, "Components Within RHR, ECC, and CHR Systems or Portions of Systems," and IWC-1223, "Inaccessible Welds":

a. For systems, except high pressure safety injection systems in pressurized water reactor plants:

- Piping NPS 4 and smaller
- Vessels, pumps, and valves and associated connections in piping NPS 4 and smaller

b. For high pressure safety injection systems in pressurized water reactor plants:

- Piping NPS 1 ½ and smaller
- Vessels, pumps, and valves and their connections in piping NPS 1 ½ and smaller

c. Vessels, piping, pumps, valves, other components, and component connections of any size in statically pressurized, passive (i.e., no pumps) safety injection systems of pressurized water reactor plants.

d. Piping and other components of any size beyond the last shutoff valve in open ended portions of systems that do not contain water during normal plant operating conditions.

e. Welds or portions of welds that are inaccessible due being encased in concrete, buried underground, located inside a penetration, or encapsulated by guard pipe.

The following components or parts of components within systems (or portions of systems) other than RHR, ECC, and CHR are exempt from the volumetric and surface examination requirements of IWC-2500, in accordance with IWC-1222, "Components Within Systems or Portions of Systems Other Than RHR, ECC, and CHR Systems," and IWC-1223:

a. Piping NPS 4 and smaller.

b. Vessels, pumps, and valves and associated connections in piping NPS 4.

c. Vessels, piping, pumps, valves, other components, and component connections of any size in systems or portions of systems that operate (when the system function is required) at a pressure equal to or less than 275 psig and at a temperature equal to or less than 200°F.

d. Piping and other components of any size beyond the last shutoff valve in open ended portions of systems that do not contain water during normal plant operating conditions.

e. Welds or portions of welds that are inaccessible due to being encased in concrete, buried underground, located inside a penetration, or encapsulated by guard pipe.

20.2 Table IWC-2500-1, Examination Category C-A

Table C-A provides the examination scope and schedule for Table IWC-2500-1, Examination Category C-A, "Pressure Retaining Welds in Pressure Vessels." Refer to Appendix D for applicable Code Cases.

Table C-A

Item Numbers	Parts Examined	Number of Welds	Number Scheduled by Period		
			1	2	3
C1.10	Shell Circumferential Welds	14	1	2	1
C1.20	Head Circumferential Welds	7	1	0	3
C1.30	Tubesheet-to-Shell Weld	6	0	1	0
	Totals	27	2	3	4

20.3 Table IWC-2500-1, Examination Category C-B

Table C-B provides the examination scope and schedule for Table IWC-2500-1, Examination Category C-B, "Pressure Retaining Nozzle Welds in Vessels."

Table C-B					
Item Numbers	Parts Examined	Number of Welds	Number Scheduled by Period		
			1	2	3
C2.11	Nozzle to Shell (or Head) Weld	None (Not Applicable)	N/A	N/A	N/A
C2.21[1]	Nozzle-to-Shell (or Head) Weld	8	2	2	0
C2.22[1]	Nozzle Inside Radius Section	6	2	0	0
C2.31[1]	Reinforcing Plate Welds to Nozzle and Vessel	8	0	0	4
C2.32	Nozzle-to-Shell (or Head) Welds When Inside of Vessel is Accessible	None (Not Applicable)	N/A	N/A	N/A
C2.33[2]	Nozzle-to-Shell (or Head) Welds When Inside of Vessel is Inaccessible	4	4	4	4
	Totals	22	4	2	4

[1] Examinations are scheduled in accordance with Note (4) of Table IWC-2500-1, Examination Category C-B, for multiple vessels of similar design, size, and service.

[2] VT-2 visual examination is performed during pressure testing in accordance with Note (5) of Table IWC-2500-1, Examination Category C-B. This examination is required each period and is not included in the total period count.

20.4 Table IWC-2500-1, Examination Category C-C

Table C-C provides the examination scope and schedule for Table IWC-2500-1, Examination Category C-C, "Welded Attachments for Vessels, Piping, Pumps, and Valves." Refer to Appendix D for applicable Code Cases.

Examinations are scheduled in accordance with Table IWC-2500-1, Examination Category C-C, Note (5), regarding Class 2 supports with integral attachments.

Table C-C					
Item Numbers	Parts Examined	Number of Welds	Number Scheduled by Period		
			1	2	3
C3.10	Welded Attachments	8	1	1	0
C3.20	Welded Attachments	143	3	2	2
C3.30	Welded Attachments	None (Not Applicable)	N/A	N/A	N/A
C3.40	Welded Attachments	None (Not Applicable)	N/A	N/A	N/A
	Totals	151	4	3	2

20.5 Table IWC-2500-1, Examination Category C-D

Table C-D provides the examination scope and schedule for Table IWC-2500-1, Examination Category C-D, "Pressure Retaining Bolting Greater Than 2 inches in Diameter."

Table C-D					
Item Numbers	Parts Examined	Number of Components	Number Scheduled by Period		
			1	2	3
C4.10	Bolts and Studs	1	0	1	0
C4.20	Bolts and Studs	None (Not Applicable)	N/A	N/A	N/A
C4.30	Bolts and Studs	None (Not Applicable)	N/A	N/A	N/A
C4.40	Bolts and Studs	None (Not Applicable)	N/A	N/A	N/A
	Totals	1	0	1	0

20.6 Table IWC-2500-1, Examination Category C-F-1

Table C-F-1 provides the examination scope and schedule for Table IWC-2500-1, Examination Category C-F-1, "Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping." Refer to Appendix D for applicable Code Cases.

Welds selected for examination include 7.5%, but no less than 28 welds, of dissimilar metal, austenitic stainless steel, or high alloy welds. Some welds not exempted under IWC-1220 are not required to be nondestructively examined in accordance with Examination Category C-F-1. These welds are included in the total weld count to which the 7.5% sampling rate is applied and are listed as Examination Category C-F-3.

Distribution of examinations is consistent with Table IWC-2500-1, Examination Category C-F-1, Note (2), as follows:

- Examinations are distributed among the Class 2 systems prorated, to the degree practical, on the number of nonexempt dissimilar metal, austenitic stainless steel, or high alloy welds in each system, i.e., if a system contains 30% of the nonexempt welds, then 30% of the nondestructive examinations required by Examination Category C-F-1 would be performed on that system;

- Within a system, examinations are distributed among terminal ends, dissimilar metal welds, and structural discontinuities prorated, to the degree practical, on the number of nonexempt terminal ends, dissimilar metal welds, and structural discontinuities in that system; and,

- Within each system, examinations are distributed between line sizes prorated to the degree practical.

Structural discontinuities include pipe weld joints to vessel nozzles, valve bodies, pump casings, pipe fittings (such as elbows, tees, reducers, flanges, etc., conforming to ANSI B16.9), and pipe branch connections and fittings.

The welds selected for examination shall be reexamined in the same sequence during subsequent inspection intervals over the service lifetime of the piping component, to the extent practical.

For circumferential welds with intersecting longitudinal welds, surface examination of the longitudinal piping welds is required for those portions of the welds within the examination boundaries of intersecting circumferential welds.

For circumferential welds with intersecting longitudinal welds, volumetric examination of the longitudinal piping welds is required for those portions of the welds within the examination boundaries of intersecting circumferential welds. The following requirements will also be met:

- When longitudinal welds are specified and locations are known, examination requirements will be met for both transverse and parallel flaws at the intersection of the welds and for that length of longitudinal weld within the circumferential weld examination volume.

- When longitudinal welds are specified but locations are unknown, or the existence of longitudinal welds is uncertain, examination requirements will be met for both transverse and parallel flaws within the entire examination volume of intersecting circumferential welds.

Examination Category C-F-1 Weld Selection Analysis						
System	System Number	Number of Welds		System Total for Welds (C-F-1 + C-F-3)	Required System Percentage Selection	Required Minimum Number of Welds
		Examination Category C-F-1	Examination Category C-F-3			
Residual Heat Removal	2045	72	134	206	29%	19
Safety Injection	2080	390	127	517	72%	47
Containment Spray	2080	0[1]	143	143	0	0
		Total Weld Count for 7.5% Sample Selection		866		
		Minimum Weld Sample Selection		65		

[1] There are no Examination Category C-F-1 welds in the Containment Spray System. Welds are exempt based on pipe thickness, i.e., less than 3/8 inch nominal wall, and are categorized as Examination Category C-F-3 for counting purposes. HBRSEP, Unit No. 2, has committed to perform examinations on a "best effort" basis on twelve welds as described within Section 20.8, "Examination Category C-F-3." Percentage requirements have been adjusted so that the sample selection equals 100% of the required examinations (65-plus welds selected) since no Examination Category C-F-1 welds are available for examination on the Containment Spray System.

Table C-F-1									
Item Numbers	Parts Examined	System (System No.)	Pipe Size	Structural Discontinuity	Terminal End	No. Selected for Examination	Number Scheduled by Period		
							1	2	3
C5.11	Circumferential Weld	RHR (2045)	14 in.	42	2	13	4	5	4
		RHR (2045)	12 in.	26	1	9	3	3	3
C5.11	Circumferential Weld	SI (2080)	14 in.	8	0	1	0	1	0
		SI (2080)	10 in.	13	0	2	1	0	1
		SI (2080)	8 in	12	0	2	1	0	1
C5.21	Circumferential Weld	SI (2080)	2 in.	2	0	1	0	1	0
		SI (2080)	3 in.	76	3	10	3	3	4
		SI (2080)	4 in.	86	2	11	4	4	3
C5.30	Socket Welds	SI (2080)	2 in.	191	1	24	8	8	8
C5.41	Circumferential Weld	SI (2080)	2 in.	2	0	1	0	0	1
					Totals		24	25	25

20.7 Table IWC-2500-1, Examination Category C-F-2

Table C-F-2 provides the examination scope and schedule for Table IWC-2500-1, Examination Category C-F-2, "Pressure Retaining Welds in Carbon Steel or Low Alloy Steel Piping." Refer to Appendix D for applicable Code Cases.

Examination of welds in piping less than or equal NPS 4 for the HBRSEP, Unit No. 2, high pressure safety injection system are scheduled in accordance with IWC-1220, "Components Exempt from Examination." The welds selected for examination include 7.5%, but not less than 28 welds, of carbon and low alloy steel welds not exempted under IWC-1220. Some welds not exempted under IWC-1220 are not required to be nondestructively examined in accordance with Examination Category C-F-2. These welds are included in the total weld count to which the 7.5% sampling rate is applied and are listed as Examination Category C-F-4.

Distribution of examinations is consistent with Table IWC-2500-1, Examination Category C-F-2, Note (2), as follows:

- Examinations are distributed among the Class 2 systems prorated, to the degree practical, on the number of nonexempt carbon and low alloy steel welds in each system. i.e., if a system contains 30% of the nonexempt welds, then 30% of the nondestructive examinations required by Examination Category C-F-2 would be performed on that system;

- Within a system, examinations are distributed among terminal ends and structural discontinuities prorated, to the degree practical, on the number of nonexempt terminal ends and structural discontinuities in that system; and,

- Within each system, examinations are distributed between line sizes prorated to the degree practical.

Structural discontinuities include pipe weld joints to vessel nozzles, valve bodies, pump casings, pipe fittings (such as elbows, tees, reducers, flanges, etc., conforming to ANSI B16.9), and pipe branch connections and fittings.

The welds selected for examination will be reexamined in the same sequence during subsequent inspection intervals over the service lifetime of the piping component, to the extent practical.

Only those welds showing reportable preservice transverse indications need to be examined by the ultrasonic method for reflectors transverse to the weld length direction, except that circumferential welds with intersecting longitudinal welds will meet Table IWC-2500-1, Examination Category C-F-2, Note (7).

For circumferential welds with intersecting longitudinal welds, surface examination of the longitudinal piping welds will be performed for those portions of the welds within the examination boundaries of intersecting circumferential welds.

For circumferential welds with intersecting longitudinal welds, volumetric examination of the longitudinal piping welds will be performed for those portions of the welds within the examination boundaries of intersecting circumferential welds. The following requirements will also be met:

- When longitudinal welds are specified and locations are known, examination requirements will be met for both transverse and parallel flaws at the intersection of the welds and for that length of longitudinal weld within the circumferential weld examination volume.

- When longitudinal welds are specified but locations are unknown, or the existence of longitudinal welds is uncertain, examination requirements will be met for both transverse and parallel flaws within the entire examination volume of intersecting circumferential welds.

Examination Category C-F-2 Weld Selection Analysis						
System	System Number	Number of Welds		System Total for Welds (C-F-2 + C-F-4)	Required System Percentage Selection	Required Minimum Number of Welds
		Examination Category C-F-2	Examination Category C-F-4			
Main Steam	3020	68	23	91	65%	19
Feedwater	3050	43	6	49	35%	10
		Total Weld Count for 7.5% Sample Selection		140		
		Minimum Weld Sample Selection		28		

Table C-F-2									
Item Numbers	Parts Examined	System (System No.)	Pipe Size	Structural Discontinuity	Terminal End	No. Selected for Examination	Number Scheduled by Period		
							1	2	3
C5.51	Circumferential Weld	MS (3020)	26 in.	35	3	10	3	3	4
		MS (3020)	8 in.	15	0	5	2	2	1
C5.51	Circumferential Weld	FW (3050)	18 in.	0	6	2	2	0	0
		FW (3050)	16 in.	31	6	10	3	3	4
C5.61	Circumferential Weld	N/A	N/A	N/A	N/A	None (Not Applicable)	N/A	N/A	N/A
C5.70	Socket Welds	N/A	N/A	N/A	N/A	None (Not Applicable)	N/A	N/A	N/A
C5.81	Circumferential Weld	MS (3020)	8 in.	15	0	5	2	1	2
					Totals		12	9	11

20.8 Examination Category C-F-3

Table C-F-3 provides a summary of welds that have been identified as Examination Category C-F-3, "Non-Exempt Welds (For Counting Purposes Only)."

Welds not exempt under IWC-1220, "Components Exempt from Examination," and not required to be examined in accordance with Table IWC-2500-1, Examination Category C-F-1, are included in the total weld count to which the 7.5% sampling rate is applied. These welds have been identified as Examination Category C-F-3 and are for *counting purposes only* (no examinations are required).

Component support examinations are scheduled for this piping in accordance with Subsection IWF, "Requirements for Class 1, 2, 3, and MC Component Supports of Light-Water Cooled Plants" (reference Section 22.0).

Table C-F-3		
System	System Number	Total Number of Welds
Residual Heat Removal	2045	134
Safety Injection	2080	127
Containment Spray	2080	143

There are no Examination Category C-F-1 welds in the Containment Spray System. These welds are identified as Examination Category C-F-3 (exempt) based on pipe thickness, i.e., less than 3/8 inch nominal wall. HBRSEP, Unit No. 2, has committed to perform examination of the twelve welds identified below on a "best effort" basis.

Containment Spray System Weld Selections Examination Category C-F-3 (System No. 2080)						
Pipe Size	Pipe-to-Pipe	Structural Discontinuity	Terminal End	Number Scheduled by Period		
				1	2	3
12 in.	0	2	0	0	0	0
8 in.	0	8	2	1	0	1
6 in.	17	112	0	3	4	3
4 in.	0	0	2	0	0	0
		Totals		4	4	4

20.9 Examination Category C-F-4

Table C-F-4 provides a summary of welds that have been identified as Examination Category C-F-4, "Non-Exempt Welds (For Counting Purposes Only)."

Welds not exempt under IWC-1220, "Components Exempt from Examination," and not required to be examined in accordance with Table IWC-2500-1, Examination Category C-F-2, are included in the total weld count to which the 7.5% sampling rate is applied. These welds have been identified as Examination Category C-F-4 and are for *counting purposes only* (no examinations are required).

Component support examinations are scheduled for this piping in accordance with Subsection IWF, "Requirements for Class 1, 2, 3, and MC Component Supports of Light-Water Cooled Plants" (reference Section 22.0).

Table C-F-4

System	System Number	Total Number of Welds
Main Steam	3020	23
Feedwater	3050	6

20.10 Table IWC-2500-1, Examination Category C-G

Table C-G provides the examination scope and schedule for Table IWC-2500-1, Examination Category C-G, "Pressure Retaining Welds in Pumps and Valves."

Table C-G

Item Number	Parts Examined	Number of Welds	Number Scheduled by Period		
			1	2	3
C6.10	Pump Casing Welds	None (Not Applicable)	N/A	N/A	N/A
C6.20	Valve Body Welds	4	0	0	2
	Totals	4	0	0	2

20.11 Table IWC-2500-1, Examination Category C-H

Table C-H provides the examination scope and schedule for Table IWC-2500-1, Examination Category C-H, "All Pressure Retaining Components."

Refer to Appendices C and D for applicable Relief Requests and Code Cases, respectively.

System leakage tests will be conducted in accordance Articles IWA-5000 and IWC-5000, "System Pressure Tests," as stipulated within TMM-020, "Inservice Pressure Testing Program," including the following:

- The pressure requirements of IWC-5221, "Pressure."
- The boundary requirements of IWA-5221, "System Leakage Test Boundary," and IWC-5222, "Boundaries." Also note that system leakage test boundaries include those portions of the system required to operate or support the safety function up to and including the first normally closed valve (including a safety or relief valve) or valve capable of automatic closure when the safety function is required. Relief is being requested to address instances where it is impractical for HBRSEP, Unit No. 2, to test certain system boundaries.
- The holding time requirements of IWA-5213, "Test Condition Holding Time."

Table C-H						
Code Item Number(s)	System Test Description	System Number	Test Procedure	Number Scheduled by Period		
				1	2	3
Applicable Portions, Examination Category C-H	SI Pump Discharge Piping Outside Containment	2080	EST-078	*	*	*
Applicable Portions, Examination Category C-H	CV Spray Piping Outside Containment	2080	EST-079	*	*	*
Applicable Portions, Examination Category C-H	RHR Piping Inside and Outside Containment	2045	EST-080	*	*	*
Applicable Portions, Examination Category C-H	SI Pump Discharge Piping Inside Containment	2080	EST-090	*	*	*
Applicable Portions, Examination Category C-H	SI and CV Spray Pump Suction Piping Outside Containment	2080	EST-091	*	*	*
Applicable Portions, Examination Category C-H	CVCS Piping Inside Containment	2060	EST-127	*	*	*
Applicable Portions, Examination Category C-H	SG Secondary Side and Associated Piping Inside and Outside Containment	3005 3020 3050	EST-128 EST-077	*	*	*
Applicable Portions, Examination Category C-H	SI Accumulators and Associated Class 2 Piping Inside Containment	2080	EST-129	*	*	*
Applicable Portions, Examination Category C-H	CVCS Piping Outside Containment	2060	EST-131	*	*	*

* Performed once each inspection period.

21.0 Subsection IWD for Class 3 Components

21.1 Bases and Scope

The Class 3 system boundaries are based upon the requirements of Regulatory Guide 1.26, and the HBRSEP, Unit No. 2, UFSAR. Specific examinations are in accordance with the ASME B&PV Code, Section XI, Table IWD-2500-1, as further described below.

The following components or parts of components are exempted from the VT-1 visual examination requirements of IWD-2500, "Examination and Pressure Test Requirements," in accordance with IWD-1220, "Components Exempt from Examination:"

a. For systems, except auxiliary feedwater systems in pressurized water reactor plants:

- Piping NPS 4 and smaller
- Vessels, pumps, and valves and their connections in piping NPS 4 and smaller

b. For auxiliary feedwater systems in pressurized water reactor plants:

- Piping NPS 1 and smaller
- Vessels, pumps, and valves and their connections in piping NPS 1 and smaller

c. Components that operate at a pressure of 275 psig or less and at a temperature of 200°F or less in systems (or portions of systems) whose function is not required in support of reactor residual heat removal, CV spray/containment heat removal, and safety injection/emergency core cooling.

d. Welds or portions of welds that are inaccessible due to being encased in concrete, buried underground, located inside a penetration, or encapsulated by guard pipe

21.2 Table IWD-2500-1, Examination Category D-A

Table D-A provides the examination scope and schedule for Table IWD-2500-1, Examination Category D-A, "Welded Attachments for Vessels, Piping, Pumps, and Valves."

Examinations will include each vessel welded attachment most subject to corrosion, and each vessel welded attachment most subject to corrosion of one vessel for each multiple-vessel group associated with component supports. Examinations will also include 10% of the piping and pump welded attachments most subject to corrosion that are associated with component supports. The piping and pump welded attachment sample will be proportional to the total number of non-exempt welded attachments connected to the piping and pumps in each system.

Table D-A

Item Numbers	Parts Examined	No. of Welded Attachments	No. of Exams Scheduled	Number Scheduled by Period		
				1	2	3
D1.10	Welded Attachments	16	10	2	2	6
D1.20	Welded Attachments	121	7	2	2	3
D1.30	Welded Attachments	16	7	4	1	2
D1.40	Welded Attachments	N/A	None (Not Applicable)	N/A	N/A	N/A
	Totals	153	24	8	5	11

21.3 Table IWD-2500-1, Examination Category D-B

Table D-B identifies the system leakage and hydrostatic tests conducted in accordance with Table IWD-2500-1, Examination Category D-B, "All Pressure Retaining Components." Refer to Appendices C and D for applicable Relief Requests and Code Cases, respectively.

System leakage and hydrostatic tests are conducted in accordance with Articles IWA-5000 and IWD-5000, "System Pressure Tests," as stipulated within TMM-020, "Inservice Pressure Testing Program." Additionally, system leakage tests will be conducted in accordance with the following:

- The pressure requirements of IWD-5221, "System Leakage Test."
- The boundary requirements of IWA-5221, "System Leakage Test Boundary," and IWD-5240, "Boundaries." Also note that system leakage test boundaries include those portions of the system required to operate or support the safety function up to and including the first normally closed valve (including safety or relief valve) or valve capable of automatic closure when the safety function is required. Relief is being requested to address instances where it is impractical for HBRSEP, Unit No. 2, to test certain system boundaries.
- The holding time requirements of IWA-5213, "Test Condition Holding Time."

System hydrostatic tests will be conducted in accordance with the following:

- Relief is being requested for HBRSEP, Unit No. 2, to provide alternatives to the requirements of IWD-5222, "System Hydrostatic Test," i.e., system leakage test in lieu of system hydrostatic test.
- The pressure requirements of IWD-5221.
- The boundary requirements of IWA-5221 and IWD-5240. The system leakage test boundary includes those portions of the system required to operate or support the safety function up to and including the first normally closed valve (including safety or relief valve) or valve capable of automatic closure when the safety function is required. Relief is being requested to address instances where it is impractical for HBRSEP, Unit No. 2, to test certain system boundaries.
- The holding time requirements of IWA-5213, "Test Condition Holding Time."

Table D-B						
Code Item Number(s)	System Test Description	System Number	Test Procedure	Number Scheduled by Period		
				1	2	3
Applicable Portions, Examination Category D-B	SW Piping Inside Containment to/from HVH Units	4060	EST-081	*	*	*
Applicable Portions, Examination Category D-B	AFW System Piping	3065	EST-082	*	*	*
Applicable Portions, Examination Category D-B	CCW Inside Auxiliary Building	4080	EST-088	*	*	*
Applicable Portions, Examination Category D-B	Spray Additive Tank and Associated Piping	2080	EST-092	*	*	*
Applicable Portions, Examination Category D-B	Steam Supply Piping to Steam-Driven AFW Pump	3065	EST-097	*	*	*
Applicable Portions, Examination Category D-B	Diesel Fuel Oil System Piping	5100	EST-098	*	*	*
Applicable Portions, Examination Category D-B	CCW System Supply to RCPs, Excess Letdown HX, and CRDM HVH Units	4080	EST-076	*	*	*
Applicable Portions, Examination Category D-B	FW Piping Inside and Outside Containment	3050	EST-077	*	*	*
Applicable Portions, Examination Category D-B	CVCS and Associated Piping	2060	EST-093	*	*	*
Applicable Portions, Examination Category D-B	SW Piping System	4060	EST-094	*	*	*
Applicable Portions, Examination Category D-B	CVCS Piping Outside CV	2060	EST-131	*	*	*

* Performed once each inspection period.

22.0 Subsection IWF for Class 1, 2, 3, and MC Component Supports

22.1 Bases and Scope

The Class 1, 2, 3, and MC component support boundaries are based on the requirements of 10 CFR 50.2, Regulatory Guide 1.26, and the HBRSEP, Unit No. 2, UFSAR. Specific examinations are based on the requirements of the ASME B&PV Code, Section XI, Table IWF-2500-1, as indicated below. The term "component support" includes supports for such items as vessels and pumps, and supports for piping that are treated separately for selection purposes.

Exemptions from support examination requirements are in accordance with Article IWF-1000, "Scope and Responsibility," subsection IWF-1230, "Supports Exempt from Examination," with the exception of IWE examinations which are discussed within Section 5.4. Component supports exempt from the requirements of Article IWF-2000, "Examination and Inspection," are those connected to piping and other items exempt from volumetric, surface, VT-1, or VT-3 visual examination under the following:

- IWB-1220, "Components Exempt from Examination"
- IWC-1220, "Components Exempt from Examination"
- IWD-1220, "Components Exempt from Examination"

In addition, portions of supports that are inaccessible due to being encased in concrete, buried underground, or encapsulated by guard pipe, are also exempt from the requirements of Article IWF-2000, in accordance with IWF-1230, "Supports Exempt from Examination."

Component supports selected and examined are those supports for components, i.e., vessels, pumps, etc., that are required to be examined in accordance with the following:

- IWB-2500, "Examination and Pressure Test Requirements"
- IWC-2500, "Examination and Pressure Test Requirements"
- IWD-2500, "Examination and Pressure Test Requirements"

Supports examined for piping are selected in accordance with the percentages and sampling requirements of Table IWF-2500-1 from the support population of all piping not exempted under IWB-1220, IWC-1220, and IWD-1220, in accordance with IWF-2510, "Supports Selected for Examination."

Supports have been categorized in the Fourth Ten-Year Interval Inservice Inspection Program to identify support types by component support function as follows:

A - One directional rod hangers
B – Multi-directional restraints
C - Spring hangers

Examinations will be in accordance with Table IWF-2500-1, Examination Category F-A, and will include 25% of Class 1, 15% of Class 2, and 10% of Class 3 supports on non-exempt piping, including piping supports located on piping classified as Examination Category C-F-3 and C-F-4. Examinations will also include 100% of the Class 1, 2, and 3 component supports for components being examined.

The total percentage sample will be comprised of supports from each system where the individual sample sizes are proportional to the total number of non-exempt supports of each type and function within each system.

For multiple components other than piping, within a system of similar design, function, and service, the supports of only one of the multiple components are required to be examined.

To the extent practical, the same supports selected for examination during the first inspection interval shall be examined during each successive inspection interval.

22.2 Table IWF-2500-1, Examination Category F-A

Table F-A provides the examination scope and schedule for Table IWF-2500-1, Examination Category F-A, "Supports."

Table F-A							
Item Numbers	Code Class and Support Type	Number of Supports	Percent Exams Required	No. of Supports Required	Number Scheduled by Period		
					1	2	3
F1.10	Class 1 Piping Supports	208	25%	52	20	20	21
F1.20	Class 2 Piping Supports	400	15%	61	23	23	24
F1.30	Class 3 Piping Supports	564	10%	57	22	22	22
F1.40[1]	Supports Other Than Piping Supports (Class 1, 2, 3, and MC)	92	100%	40	13	12	15

[1] Components scheduled in accordance with Table IWF-2500-1, Examination Category F-A, Note (3), for multiple components.

Class 1 – Supports by System (F-A, F1.10)

System/ System No.	{No. Type A[1]} (% of Support Type[2]) [No. Required[3]]	{No. Type B[1]} (% of Support Type[2]) [No. Required[3]]	{No. Type C[1]} (% of Support Type[2]) [No. Required[3]]	{Total A, B, &C[4]} (% of Total[5]) [No. Required[6]]	No. Scheduled By Period		
					1	2	3
RCS/2005	{0} (0) [0]	{7} (42%) [3]	{10} (59%) [3]	{17} (9%) [5]	2	2	2
RHR/2045	{0} (0) [0]	{1} (34%) [1]	{2} (67%) [2]	{3} (2%) [2]	1	1	1
CVCS/2060	{46} (32%) [12]	{73} (50%) [19]	{28} (20%) [8]	{147} (71%) [37]	13	13	13
SI/2080	{12} (30%) [4]	{16} (40%) [5]	{13} (32%) [4]	{41} (20%) [11]	4	4	5
Class 1 Support Count/% Required/No. Required				{208} (25%) [52]	20	20	21

[1] Numbers identified in { } are system count totals based on type per system.
[2] Numbers identified in ( ) are the percentage of supports based on total supports per type and system.
[3] Numbers identified in [ ] are the number of supports selected for examination based on system totals.
[4] Numbers identified in { } are support count totals based on system for types A, B and C.
[5] Numbers identified in ( ) are the percentage of supports required to be examined based on system % of total.
[6] Numbers identified in [ ] are the minimum number of supports required to be examined based on system % of the Class 1 total of 208.

Example: There are a total of {17[4]} supports on the RCS/2005 system. There are no "Type A" supports, {7[1]} "Type B" supports, and {10[1]} "Type C" supports. The {7[1]} "Type B" supports equals (42%[2]), and {10[1]} "Type C" supports equals (59%[2]) of the total number of supports on the RCS/2005 system, for a system total of {17[4]}. In accordance with Table IWF-2500-1, Examination Category F-A, Item F1.10, 25% of the supports are required to be examined for Class 1, which is [52[6]]. The RCS population is (9%[5]) of the total Class 1 supports, which requires that [5[6]] be examined. The [5[6]] supports required to be examined are prorated over the type of supports available, i.e., "Type B" {7[1]} and "Type C" {10[1]}. Since (42%[2]) are "Type B," [3[3]] supports have been selected, and since (59%[2]) are "Type C," [3[3]] supports have been selected on the RCS/2005 system.

Note: Numbers and percentages have been rounded up to the nearest whole number/percentage. In accordance with Table IWB-2500-1, Examination Category B-K, Note (5), support selection includes 10% of the [52] examinations to include six supports with integral attachments. These six supports with integral attachments have been included in the support selection for Class 1 and are also scheduled for examination under Examination Category B-K.

Class 2 - Supports by System (F-A, F1.20)

System/ System No.	{No. Type A[1]} (% of Support Type[2]) [No. Required[3]]	{No. Type B[1]} (% of Support Type[2]) [No. Required[3]]	{No. Type C[1]} (% of Support Type[2]) [No. Required[3]]	{Total A, B, &C[4]} (% of Total[5]) [No. Required[6]]	No. Scheduled By Period		
					1	2	3
RHR/2045	{19} (26%) [4]	{36} (49%) [6]	{19} (26%) [4]	{74} (19%) [12]	4	5	5
SI/2080	{58} (30%) [9]	{114} (58%) [18]	{25} (13%) [4]	{197} (50%) [30]	10	10	11
CS/2080	{32} (48%) [6]	{32} (48%) [6]	{3} (5%) [1]	{67} (17%) [11]	5	4	4
MS/3020	{0} (0%) [0]	{20} (63%) [4]	{12} (38%) [2]	{32} (8%) [5]	2	2	2
FW/3050	{0} (0%) [0]	{15} (50%) [3]	{15} (50%) [3]	{30} (8%) [5]	2	2	2
Class 2 Support Count/ % Required/No. Required				{400} (15%) [61]	23	23	24

[1] Numbers identified in { } are system count totals based on type per system.
[2] Numbers identified in ( ) are the percentage of supports based on total supports per type and system.
[3] Numbers identified in [ ] are the number of supports selected for examination based on system and type totals.
[4] Numbers identified in { } are support count totals based on system for types A, B and C.
[5] Numbers identified in ( ) are the percentage of supports required to be examined based on system % of total.
[6] Numbers identified in [ ] are the minimum number of supports required to be examined based on system % of the Class 2 total of 400.

Example: There are a total of {74[4]} supports on the RHR/2045 system. There are {19[1]} "Type A" supports, {36[1]} "Type B" supports, and {19[1]} "Type C" supports. The {19[1]}" Type A" supports equals (26%[2]), {36[1]} "Type B" supports equals (49%[2]) and {19[1]} "Type C" supports equals (26%[2]) of the total number of RHR supports, for a system total of {74[4]}. In accordance with Table IWF-2500-1, Examination Category F-A, Item F1.20, 15% of the supports are required to be examined for Class 2, which is [61[6]]. The [12[6]] RHR supports required to be examined are prorated over the type of supports available, i.e., "Type A" {19[1]}, "Type B" {36[1]}, and "Type C" {19[1]}. Since (26%[2]) are "Type A," [4[3]] supports have been selected; since (49%[2]) are "Type B," [6[3]] supports have been selected; and, since (26%[2]) are "Type C," [4[3]] supports have been selected on the RHR/2045 system.

Note: Numbers and percentages have been rounded up to the nearest whole number/percentage. In accordance with Table IWC-2500-1, Examination Category C-C, Note (5), support selection includes 10% of the [61] examinations to include seven supports with integral attachments. These seven supports with integral attachments have been included in the support selection for Class 2.

Class 3 – Supports by System (F-A, F1.30)

System/ System No.	{No. Type A[1]} (% of Support Type[2]) [No. Required[3]]	{No. Type B[1]} (% of Support Type[2]) [No. Required[3]]	{No. Type C[1]} (% of Support Type[2]) [No. Required[3]]	{Total A, B, &C[4]} (% of Total[5]) [No. Required[6]]	No. Scheduled By Period		
					1	2	3
FW/3050	{3} (6%) [1]	{36} (67%) [5]	{15} (28%) [2]	{54} (10%) [6]	2	3	3
AFW/3065	{19} (28%) [3]	{41} (61%) [5]	{8} (12%) [1]	{68} (13%) [8]	3	3	3
SW/4060	{76} (25%) [8]	{233} (75%) [24]	{3} (1%) [1]	{312} (56%) [32]	11	11	11
CCW/4080	{48} (43%) [6]	{65} (58%) [7]	{1} (1%) [1]	{114} (21%) [12]	5	4	5
SFPC/7110	{0} (0) [0]	{16} (100%) [2]	{0} (0) [0]	{16} (3%) [2]	1	1	0
Class 3 Support Count/% Required/No. Required				{564} (10%) [57]	22	22	22

[1] Numbers identified in { } are system count totals based on type per system.
[2] Numbers identified in ( ) are the percentage of supports based on total supports per type and system.
[3] Numbers identified in [ ] are the number of supports selected for examination based on system and type totals.
[4] Numbers identified in { } are support count totals based on system for types A, B, and C.
[5] Numbers identified in ( ) are the percentage of supports required to be examined based on system % of total.
[6] Numbers identified in [ ] are the minimum number of supports required to be examined based on system % of the Class 3 total of 564.

Example: There are a total of {54[4]} supports on the FW/3050 system. There are {3[1]} "Type A" supports, {36[1]} "Type B" supports, and {15[1]} "Type C" supports. The {3[1]}"Type A" supports equals (6%[2]), the {36[1]}"Type B" supports equals (67%[2]) and the {15[1]} "Type C" supports equals (28%[2]) of the total number of supports located on the FW/3050 system, for a system total of {54[4]}. In accordance with Table IWF-2500-1, Examination Category F-A, Item F1.30, 10% of the supports are required to be examined for Class 3, which is [57[6]]. Therefore, (10%[5]) of the supports on FW/3050, which is [6[6]], are required to be examined. The [6[6]] supports required to be examined are prorated over the type of supports available, i.e., "Type A" {3[1]}, "Type B" {36[1]}, and "Type C" {15[1]}. Since (6%[2]) are "Type A," [1[3]] support has been selected; since (67%[2]) are "Type B," [5[3]] supports have been selected; and, since (28%[2]) are "Type C," [2[3]] supports have been selected on the FW/3050 system.

Note: Numbers and percentages have been rounded up to the nearest whole number/percentage. In accordance with Table IWD-2500-1, Examination Category D-A, Note (3), support selection includes 10% of the [57] examinations to include seven supports with integral attachments. These seven supports with integral attachments have been included in the support selection for Class 3.

Supports Other Than Piping Supports (F-A, F1.40)

Group	Number in Group	Supports per Group	Number of Supports Required	No. Scheduled By Period[1]		
				1	2	3
Pressurizer	1	1	1	0	0	1
Regenerative Heat Exchanger	1	6	6	0	0	0
SG (Primary Side)	3	4	4	2	1	1
Reactor Coolant Pump	3	3	3	0	0	3
Boron Injection Tank	1	4	4	1	1	2
RHR Heat Exchanger	2	2	2	1	1	0
SG (Secondary Side)	3	5	5	0	0	5
RHR Pump	2	1	1	0	1	0
SI Pump	2	1	1	0	1	0
CV Spray Pump	2	1	1	0	1	0
Charging Pump	3	1	1	1	0	0
EDG Jacket Cooling	2	2	2	2	0	0
EDG Lube Oil	2	1	1	0	2	0
CCW Heat Exchanger	2	2	2	2	0	0
SFPC Heat Exchanger	1	2	2	0	2	0
CCW Surge Tank	1	2	2	0	0	2
SW Pump	4	1	1	0	1	0
SW Booster Pump	2	1	1	0	1	0
CCW Pump	2	1	1	1	0	0
SD AFW Pump	1	1	1	1	0	0
MD AFW Pump	2	2	1	2	0	0
SFPC Pump	2	1	1	0	0	1
			Totals	13	12	15

[1] Components scheduled in accordance with Examination Category F-A, Item No. F1.40, Note (3).

NOTE: Refer to Appendix C for applicable Relief Requests.

Appendix A

P&ID/ASME Code Boundary Drawings (Flow Diagrams)

Drawing No.	Sheet No.	Acronym	P&ID Title
G-190196	1	MS, AFW	Main & Extraction Steam
G-190197	1	FW, AFW	Feedwater, Condensate & Air Evacuation
G-190197	4	FW, AFW	Feedwater, Condensate & Air Evacuation
G-190199	1	SW	Service & Cooling Water
G-190199	2	SW	Service & Cooling Water
G-190199	4	SW	Service & Cooling Water
G-190199	5	SW	Service & Cooling Water
G-190199	6	SW	Service & Cooling Water
G-190199	7	SW	Service & Cooling Water
G-190199	8	SW	Service & Cooling Water
G-190199	9	SW	Service & Cooling Water
G-190199	10	SW	Service & Cooling Water
G-190202	3	DW	Primary & Makeup Water
G-190204-A	2	SW	Emergency Diesel Generator
G-190204-A	3	SW	Emergency Diesel Generator
G-190204-C	1	CF	Chemical Feed
G-190204-D	2	FO	Fuel Oil
G-190234	1	SGBD	Steam Generator Blowdown & Wet Layup
G-190261	2	PP	Penetration Pressurization
G-190261	4	PP	Penetration Pressurization
G-190262	1	IVSW	Isolation Valve Seal Water
G-190304	1	HVAC	HVAC - Turbine, Fuel, Aux., Reactor, & Radwaste Buildings
5379-353	1	PS	Primary Sampling
5379-376	1	AC, CCW	Component Cooling Water
5379-376	2	AC, CCW	Component Cooling Water
5379-376	3	AC, CCW	Component Cooling Water
5379-376	4	AC, CCW	Component Cooling Water
5379-684	1	CHG, CVCS	CVCS Boron Recirculation Distillate
5379-685	1	CHG, CVCS	CVCS Purification & Makeup
5379-685	2	CHG, CVCS	CVCS Purification & Makeup
5379-685	3	CHG, CVCS	CVCS Purification & Makeup
5379-686	1	CHG, CVCS	CVCS Boron Recirculation Process & Storage
5379-920	3	WD, LWD	Liquid Waste Disposal

Appendix A (Continued)

P&ID/ASME Code Boundary Drawings (Flow Diagrams)

Drawing No.	Sheet No.	Acronym	P&ID Title
5379-921	2	WD, GWD	Gaseous Waste Disposal
5379-1082	1	SI, SIS	Safety Injection
5379-1082	2	SI, SIS	Safety Injection
5379-1082	3	SI, SIS	Safety Injection
5379-1082	4	SI, SIS	Safety Injection
5379-1082	5	SI, SIS	Safety Injection
5379-1484	1	AC, RHR	Residual Heat Removal
5379-1485	1	AC, SFPC	Spent Fuel Pit Cooling
5379-1971	1	RC, RCS	Reactor Coolant System
5379-1971	2	RC, RCS	Reactor Coolant System
HBR2-6490	1	PASS	Containment Vapor and Pressure Sampling
HBR2-6933	1	PASS	Post Accident CV Venting & H_2 Recombiner
HBR2-8255	2	FP	Fire Protection
HBR2-8255	3	FP	Fire Protection
HBR2-9067	1	RVLIS	Reactor Vessel Level Indicator Switches
HBR2-7063	1		Flow Diagram Legends
HBR2-7063	2		Flow Diagram Legends

Appendix B

Calibration Block List

Item No.	Block ID	CP&L Part No.	Size	Schedule	Material Specification	Heat Number	Application
1[1]	CPL/10A	0072547862	2½"	"T"	A-376 316	D8770	Pipe
2	CPL/20	0071591846	1½"	"T"	A-515 GR70	66B093	Skirt
3	CPL/21	0071591754	1½"	"T"	A-312 316H	87623	Pipe
4	CPL/22	0071503577	2"	S/160	A-376 304	01003	Pipe
5	CPL/23	0071591820	3"	S/160	A-312 316H	26896	Pipe
6	CPL/24	0071503569	4"	S/160	A-376 316	M9290	Pipe
7	CPL/25	0071591689	6"	S/40	A-333 GB.6	32849	Pipe
8	CPL/26	0071591663	6"	S/40S	A-312 304	M9959	Pipe
9	CPL/27	0071591697	8"	S/40S	A-312 316	M0937	Pipe
10	CPL/28	0071591762	8"	S/120	A-312 304	M0176	Pipe
11	CPL/29	0071591705	8"	S/140	A-376 316	4-098	Pipe
12	CPL/30	0071591648	10"	S/40S	A-312 316	K24123	Pipe
13	CPL/31	0071591812	10"	S/120	A-312 304	6-448	Pipe
14	CPL/32	0071591853	10"	S/140	A-312 304	D61232	Pipe
15	CPL/33	0071591813	12"	S/40S	A-312 316	8052221	Pipe
16	CPL/34	0071503551	12"	S/140	A-312 304	F0959	PZR Surge Line
17	CPL/35	0071591796	14"	S/40	A-358 316	14085	Pipe
18	CPL/36	0071803886	14"	S/140	A-312 304	1762	Pipe
19	CPL/37	0071591747	14"	S/160	A-312 304	4-483	Pipe
20	CPL/38	0071591804	16"	S/120	A-333 GR.6	42794	Pipe
21	CPL/39	0071591788	24"	S/80	A-106	N13070	Pipe
22	CPL/40	0071591861	32"	1.203"	SA-156 GR70	802N67160	Pipe
23	CPL/41	0071591721	16"	S/80S	A-312 304	26265	Pipe
24	CPL/42	0071817720	0.313"	"T"	SA-240 303	856455	Flat
25	CPL/43	0071817688	0.438"	"T"	SA-240 303	856455	Flat

Appendix B (Continued)

Calibration Block List

Item No.	Block ID	CP&L Part No.	Size	Schedule	Material Specification	Heat Number	Application
26	CPL/44	0071817753	5.0"	"T"	SA-533	D8366-5	PZR
27	CPL/45	0071817761	3 ½"	"T"	A-508	123P118	FW Nozzle
28	CPL/46	0071817787	8"	S/40S	A-312 316	M0937	Pipe
29	CPL/47a	0072237324	2.006"	"T"	SA-240 304	F07931	BIT
30	CPL/47B	0071591671	14"	S/10	SA-312 304	182	Piping
31	CPL/47	0072699796	8"	"T"	SA-533 CL. 1 TP. B	D8366-5	RPV Head
32	CPL/48	0072699846	8"	S/160	A-106 GR. B	50465	MS Nozzles
33	CPL/49	0072699861	0.875"	"T"	SA-240 304	F07931	RHR HX
34	CPL/51	0072699754	5.0"	"T"	A-508	122P169	S/Gs
35	CPL/56	0072699879	26"	1.042"	A-155-KC-55 CL. 1	3G6735	MS
36	CPL/57	0072699887	18"	S/100	SA-508 CL. 2	128097	FW
37	CPL/54	0072699911	16"	S/100	A-106 GR. B	82565	FW
38	CPL/50a	0072699937	3 ½"	"T"	A-533 CL. 1 TP. B	D8366	SGs
39	RV-1	0072545064	10"	"T"	A-508 CL. 2	BW-PC-3	Ligaments
40	RV-2	0072545098	4""T"	"T"	A-508 CL. 2	BW-PC-3	RPV Flange & Nozzle
41	RV-3	0072545122	10.5"	"T"	SA-533 CL. 1 TP. B	D8366-5	RPV Shell
42	RV-4	0072545163	6"	"T"	SA-533 CL. 1 TP. B	D8366-5	RPV Bottom Head
43	RV-5	0072545189	3"	"T"	A-508 CL. 2 & SA-182 TP. 316	8651885	RPV Safe End
44	CPL/58	0073168932	8"	S/160	A-376 316	M0035	Piping
45	CPL/59	0073168882	10"	S/160	SA-376 316	2543-4-1	Piping
46	CPL/60	0073741340	7"	DIA.	4340 TO SA-193	Spare	RPV Studs
47	CPL/61	0073741357	2.5"	DIA.	A-479 TP. B-410	99069	BIT Studs

Appendix B (Continued)

Calibration Block List

Item No.	Block ID	CP&L Part No.	Size	Schedule	Material Specification	Heat Number	Application
48	CPL/62	0073570111	3.30"	DIA.	SA-540 GR. B23	Spare	RCP Studs
49	CPL/63	0073741233	Irregular		SA-508 CL. 2	6-5858	FW Inner Radius
50	CPL-64	0073741365	Irregular		SA-508 CL. 2	31-3212	MS Inner Radius
51	CPL/61A	0073828972	2.5"	DIA.	A-479 TP B-410	31067	BIT Studs (Spare)
52	CPL/65	0073985855	6"	S/10	A-312 304	81547	Piping
53	CPL/66	0073985889	6"	S/40	A-312 304	90191	Piping
54	CPL/67	0073985897	8"	S/10	A312 304	A030501	Piping
55	CPL/65A	0073854606	27.5"	0.6" "T"	SA-376	K2980	Wrought SS
56	CPL/66A	0073854598	31"	0.383" "T"	SA-351 CF8A	5160C-1	Cast Elbow
57	CPL/68	A1069	16"	1.5"	CrMo A234 WP 22	1322B	FW Reducer
58	CPL/69	A1070	18"	1.44"	CrMo A234 WP 22	1322B	FW Reducer
59	CPL/70	0076324559	4"	S/80	A312 TP316	MR022	Piping
60	CPL/71	0076324560	3"	S/80	A312 TP316	K37872	Piping
61	CPL/72	0076324561	2"	S/80	A312 TP316	443571	Piping
62	CPL/73	0076325201	10"	Sch/140	A182 F316	1822ANE	BC Block
64	CPL/74	0076325202	7.0"	RPV Studs	AISI 4340 TO SA-193	SPARE	RPV Studs
65	CPL/75	0076325203	3.5"	RCP Studs	SA-540 GR B-23 CL4	11303	RCP Studs

[1] Calibration block CPL/10A is obsolete and no longer used.

Appendix C

HBRSEP, Unit No. 2, Relief Requests

Relief Request Number	Affected Component(s)	Examination Category	Item No.	Examination Area	Alternative Examinations	Status
RR-01	Pressurizer	B-D	B3.120	Surge line nozzle inside radius section	None	Submitted
RR-02	Regenerative Heat Exchanger	B-B B-D B-J F-A	B2.51 B2.80 B3.150 B3.160 B9.32 B9.21 F1.40	Circumferential head welds Tubesheet-to-shell weld Nozzle-to-vessel welds Nozzle inside radius section Branch connections Circumferential welds Associated supports	None	Submitted
RR-03	Calibration Block Material	Appendix I	N/A	Materials for fabrication of calibration blocks	Use of existing calibration blocks	Submitted
RR-04	RPV Closure Head Peel Segment-To-Disk Circumferential Weld	B-A	B1.21	The accessible length of the RPV closure head peel segment-to-disk circumferential	None	Submitted
RR-05	RCS	B-J	B9.11	RCS piping cold leg circumferential butt welds	None	Submitted
RR-06	SGs	B-D	B3.140	Primary side SG nozzle inside radius section	VT-3 examination	Submitted
RR-07	RPV Nozzles	B-F	B5.10	RPV nozzle-to-safe end welds	Ultrasonic examination from inside diameter	Submitted
RR-08	Reactor Vessel Interior	B-N-1	B13.10	RPV interior surface made accessible by removal of components during normal refueling outages	VT-3 examination during third inspection period	Submitted
RR-09	Insulated Borated Systems	B-P C-H D-B	All	Insulation removal from pressure retaining bolted connections during pressure test on borated systems.	System pressure testing and VT-2 examination without insulation removal	Submitted

Appendix C (Continued)

HBRSEP, Unit No. 2, Relief Requests

Relief Request Number	Affected Component(s)	Examination Category	Item No.	Examination Area	Alternative Examinations	Status
RR-10	Bolted Connections	B-P C-H D-B	All	Removal of bolting when leakage is discovered	Limited visual examinations and/or Engineering Evaluation	Submitted
RR-11	Components Subject to Ten-Year Hydrostatic Testing	D-B	D2.20 D2.40 D2.60 D2.80	Class 3 pressure retaining components	System pressure testing at nominal operating pressure	Submitted
RR-12	System Leakage Test	B-P	All	Class 1 pressure retaining components.	Testing with Class 1 systems in normal, operational configuration	Submitted
RR-13	Class 2 and High Energy Class 3 Piping	N/A	N/A	Wall thickness restoration	Weld overlay repair	Submitted
RR-14	Moderate Energy Class 3 Piping	N/A	N/A	Wall thickness restoration	Weld overlay repair	Submitted
RR-15	Snubbers	N/A	N/A	Class 1, 2, and 3 snubbers	As specified by Technical Requirements Manual (TRM) Section 3.18	Submitted
RR-16	RPV Flange Welds	B-A	B1.30 B1.40	RPV shell-to-flange and head-to-flange welds	Deferral to end of inspection interval	Submitted
RR-17	Welding and Brazing Procedure Qualifications	N/A	N/A	Transfer of welding and brazing procedure qualification records	In accordance with ASME Code Case N-573	Submitted

Appendix D

Applicable Code Cases

Code Case	Subject	Examination Category	Item Number(s)
N-307-1	Revised Ultrasonic Examination Volume for Class 1 Bolting When the Examinations are Conducted From the Center Drilled Hole	B-G-1	B6.30
N-416-1	Alternative Pressure Test Requirement for Welded Repairs or Installation of Replacement Items by Welding, Class 1, 2, and 3	N/A IWA-4000	N/A IWA-4000
N-460	Alternative Examination Coverage for Class 1 and Class 2 Welds	B-A, B-B, B-D, B-F, B-J, B-K, B-L-1, C-A, C-B, C-C, C-F-1, C-F-2, C-G	All Applicable
N-481	Alternate Examination Requirements for Cast Austenitic Pump Casings	B-L-1	B12.10
N-522	Pressure Testing of Containment Penetration Piping	C-H	C7.30
N-533-1*	Alternative Requirements for VT-2 Visual Examination of Class 1, 2, and 3 Insulated Pressure Retaining Bolted Connections	B-P	All
N-537	Location of Ultrasonic Depth Sizing Flaws	N/A Appendix VIII	N/A Appendix VIII
N-561-1*	Alternative Requirements for Wall Thickness Restoration of Class 2 and High Energy Class 3 Carbon Steel Piping	N/A IWA-4000	N/A IWA-4000
N-562-1*	Alternative Requirements for Wall Thickness Restoration of Class 3 Moderate Energy Carbon Steel Piping	N/A IWA-4000	N/A IWA-4000
N-623*	Deferral of Inspection of Shell-to-Flange and Head-to-Flange Welds of a Reactor Vessel	B-A	B1.30 B1.40

* Code Cases being invoked via Relief Requests.

Appendix E

Augmented ISI Examination Programs

Source Item	Action Response
NRC Bulletin No. 79-13, "Cracking in Feedwater System Piping"	Ultrasonic inspection of steam generator feedwater nozzles, elbows, reducers, and weld configurations and base metal each refueling outage. HBRSEP, Unit No. 2, will perform an augmented examination each refueling outage on the steam generator feedwater nozzle piping from the nozzle taper to a point one pipe diameter down on the first elbow. These examinations will continue each refueling outage until an engineering evaluation concludes these examinations are no longer required. (Reference Serial RNPD/92-2981)
Information Notice No. 91-05, "Intergranular Stress Corrosion Cracking in Pressurized Water Reactor Safety Injection Accumulator Nozzles"	NDE is being performed in accordance with NED-R-5225 Letter in File R9X-XXX-CA-A528.
NRC Bulletin 88-08 and Supplements, "Thermal Stresses in Piping Connected to Reactor Coolant Systems"	Evaluation of HBRSEP, Unit No. 2, unisolable piping systems connected to the RCS determined that the potential does not exist for unacceptable thermal stresses as defined in NRC Bulletin 88-08. (Reference Serials NLS-88-235 and NLS-90-100)
NRC Information Notice 82-37, "Cracking in the Upper Shell to the Transition Cone Girth Weld of a Steam Generator at an Operating PWR." Steam Generator Girth Weld Examinations at the upper transition cone, Weld 5, Sketches 205, 205A, and 205B.	Periodic monitoring is performed of indications along with fatigue analysis, as required.
Reactor Coolant Pump Flywheels - Technical Requirements Manual Section 5.5.7	RCP pump flywheels will be visually examined at the first refueling outage after each ten-year inspection, at the fourth refueling outage after each ten-year inspection, and at each fourth refueling outage thereafter. The outside surfaces will be examined by ultrasonic examination methods.

Appendix E (Continued)

Augmented ISI Examination Programs

Source Item	Action Response
NUREG-0800, Section 3.6.2, Branch Technical Position MEB 3-1	Branch Technical Position MEB 3-1 required CP&L to determine when a piping failure in fluid systems outside of containment would have an adverse effect on other components and equipment. In response, a detailed engineering analysis was completed in 1973 of the Residual Heat Removal, Chemical and Volume Control, Main Steam, Main Feedwater, Auxiliary Feedwater, and Steam Generator Blowdown Systems. At that time, modifications were made to eliminate areas of concern. Based on this analysis and the previously completed modifications, augmented ISI examinations on these systems are not required.
NUREG-0800, Standard Review Plan, Section 6.6	This requirement relates to welds in those portions of systems addressed in Standard Review Plan, Section 6.6, paragraph I.7. HBRSEP, Unit No. 2, has no required examinations in this area.
Augmented ISI Inspections on the CV Spray System	Twelve welds will be examined in the CV Spray System during the Fourth Ten-Year Interval.

Appendix F

ISI Zone/Isometric References

Zone Number	Isometric Drawing Number	Sheet Number	ASME Code Class
CPL-101	HBR2-10618	001	1
CPL-101A	HBR2-10618	002	1
CPL-101B	HBR2-10618	003	1
CPL-101C	HBR2-10618	004	1
CPL-103	HBR2-10618	005	1
CPL-105	HBR2-10618	006	1
CPL-105A	HBR2-10618	007	1
CPL-105B	HBR2-10618	008	1
CPL-106	HBR2-10618	009	1
CPL-107	HBR2-10618	010	1
CPL-107A	HBR2-10618	011	1
CPL-107B	HBR2-10618	012	1
CPL-108	HBR2-10618	013	1
CPL-109	HBR2-10618	014	1
CPL-110	HBR2-10618	015	1
CPL-111	HBR2-10618	016	1
CPL-112	HBR2-10618	017	1
CPL-113	HBR2-10618	018	1
CPL-114	HBR2-10618	019	1
CPL-115	HBR2-10618	020	1
CPL-116	HBR2-10618	021	1
CPL-116A	HBR2-10618	022	1
CPL-116B	HBR2-10618	023	1
CPL-117	HBR2-10618	024	1
CPL-117A	HBR2-10618	025	1
CPL-118	HBR2-10618	026	1
CPL-118A	HBR2-10618	027	1
CPL-118B	HBR2-10618	028	1
CPL-119	HBR2-10618	029	1
CPL-120	HBR2-10618	030	1
CPL-121	HBR2-10618	031	1
CPL-122	HBR2-10618	032	1

Appendix F (Continued)

ISI Zone/Isometric References

Zone Number	Isometric Drawing Number	Sheet Number	ASME Code Class
CPL-122A	HBR2-10618	033	1
CPL-123	HBR2-10618	034	1
CPL-123A	HBR2-10618	035	1
CPL-125	HBR2-10618	037	1
CPL-126	HBR2-10618	038	1
CPL-127	HBR2-10618	039	1
CPL-128	HBR2-10618	040	1
CPL-129	HBR2-10618	041	1
CPL-130	HBR2-10618	042	1
CPL-131	HBR2-10618	043	1
CPL-132	HBR2-10618	044	1
CPL-133	HBR2-10618	045	1
CPL-134	HBR2-10618	046	1
CPL-135	HBR2-10618	047	1
CPL-136	HBR2-10618	048	1
CPL-137	HBR2-10618	049	1
CPL-138	HBR2-10618	050	1
CPL-139	HBR2-10618	051	1
CPL-140	HBR2-10618	052	1
CPL-141	HBR2-10618	053	1
CPL-142	HBR2-10618	054	1
CPL-143	HBR2-10618	055	1
CPL-144	HBR2-10618	056	1
CPL-144A	HBR2-10618	057	1
CPL-202	HBR2-10618	058	2
CPL-203	HBR2-10618	059	2
CPL-204	HBR2-10618	060	2
CPL-205	HBR2-10618	061	2
CPL-205A	HBR2-10618	062	2
CPL-205B	HBR2-10618	063	2
CPL-206	HBR2-10618	064	2

Appendix F (Continued)

ISI Zone/Isometric References

Zone Number	Isometric Drawing Number	Sheet Number	ASME Code Class
CPL-207	HBR2-10618	065	2
CPL-208	HBR2-10618	066	2
CPL-209	HBR2-10618	067	2
CPL-210	HBR2-10618	068	2
CPL-211	HBR2-10618	069	2
CPL-211A	HBR2-10618	070	2
CPL-212	HBR2-10618	071	2
CPL-213	HBR2-10618	072	2
CPL-214	HBR2-10618	073	2
CPL-215	HBR2-10618	074	2
CPL-216	HBR2-10618	075	2
CPL-217	HBR2-10618	076	2
CPL-218	HBR2-10618	077	2
CPL-219	HBR2-10618	078	2
CPL-219A	HBR2-10618	079	2
CPL-220	HBR2-10618	080	2
CPL-220A	HBR2-10618	081	2
CPL-221	HBR2-10618	082	2
CPL-221A	HBR2-10618	083	2
CPL-221B	HBR2-10618	084	2
CPL-222	HBR2-10618	085	2
CPL-222A	HBR2-10618	086	2
CPL-222B	HBR2-10618	087	2
CPL-223	HBR2-10618	088	2
CPL-224	HBR2-10618	089	2
CPL-224A	HBR2-10618	090	2
CPL-229	HBR2-10618	091	2
CPL-230	HBR2-10618	092	2
CPL-231	HBR2-10618	093	2
CPL-232	HBR2-10618	094	2
CPL-232A	HBR2-10618	095	2

Appendix F (Continued)

ISI Zone/Isometric References

Zone Number	Isometric Drawing Number	Sheet Number	ASME Code Class
CPL-233	HBR2-10618	096	2
CPL-234	HBR2-10618	097	2
CPL-234A	HBR2-10618	098	2
CPL-234B	HBR2-10618	099	2
CPL-235	HBR2-10618	100	2
CPL-236	HBR2-10618	101	2
CPL-237	HBR2-10618	102	2
CPL-237A	HBR2-10618	103	2
CPL-238	HBR2-10618	104	2
CPL-239	HBR2-10618	105	2
CPL-240	HBR2-10618	106	2
CPL-241	HBR2-10618	107	2
CPL-242	HBR2-10618	108	2
CPL-243	HBR2-10618	109	2
CPL-244	HBR2-10618	110	2
CPL-245	HBR2-10618	111	2
CPL-246	HBR2-10618	112	2
CPL-247	HBR2-10618	113	2
CPL-248	HBR2-10618	165	2
CPL-249	HBR2-10618	166	2
CPL-250	HBR2-10618	167	2
CPL-301	HBR2-10618	114	3
CPL-302	HBR2-10618	115	3
CPL-303	HBR2-10618	116	3
CPL-304	HBR2-10618	117	3
CPL-305	HBR2-10618	118	3
CPL-306	HBR2-10618	119	3
CPL-307	HBR2-10618	120	3
CPL-308	HBR2-10618	121	3
CPL-309	HBR2-10618	122	3
CPL-310	HBR2-10618	123	3

Appendix F (Continued)

ISI Zone/Isometric References

Zone Number	Isometric Drawing Number	Sheet Number	ASME Code Class
CPL-311	HBR2-10618	124	3
CPL-312	HBR2-10618	125	3
CPL-313	HBR2-10618	126	3
CPL-313A	HBR2-10618	127	3
CPL-314	HBR2-10618	128	3
CPL-314A	HBR2-10618	129	3
CPL-315	HBR2-10618	130	3
CPL-316	HBR2-10618	131	3
CPL-321	HBR2-10618	132	3
CPL-322	HBR2-10618	133	3
CPL-323	HBR2-10618	134	3
CPL-324A	HBR2-10618	164	3
CPL-324B	HBR2-10618	168	3
CPL-324C	HBR2-10618	169	3
CPL-324D	HBR2-10618	170	3
CPL-324E	HBR2-10618	171	3
CPL-324F	HBR2-10618	172	3
CPL-324G	HBR2-10618	173	3
CPL-324H	HBR2-10618	174	3
CPL-324J	HBR2-10618	135	3
CPL-324K	HBR2-10618	175	3
CPL-324L	HBR2-10618	176	3
CPL-324M	HBR2-10618	177	3
CPL-324P	HBR2-10618	178	3
CPL-324R	HBR2-10618	179	3
CPL-324T	HBR2-10618	180	3
CPL-324W	HBR2-10618	181	3
CPL-325	HBR2-10618	139	3
CPL-326	HBR2-10618	140	3
CPL-327	HBR2-10618	141	3
CPL-328	HBR2-10618	142	3
CPL-329	HBR2-10618	143	3

Appendix F (Continued)

ISI Zone/Isometric References

Zone Number	Isometric Drawing Number	Sheet Number	ASME Code Class
CPL-330	HBR2-10618	144	3
CPL-331	HBR2-10618	145	3
CPL-331A	HBR2-10618	146	3
CPL-331B	HBR2-10618	147	3
CPL-332	HBR2-10618	148	3
CPL-333	HBR2-10618	149	3
CPL-334	HBR2-10618	150	3
CPL-334A	HBR2-10618	151	3
CPL-334B	HBR2-10618	152	3
CPL-335	HBR2-10618	153	3
CPL-336	HBR2-10618	154	3
CPL-337	HBR2-10618	155	3
CPL-338	HBR2-10618	156	3
CPL-339	HBR2-10618	157	3
CPL-340	HBR2-10618	158	3
CPL-341	HBR2-10618	159	3
CPL-342	HBR2-10618	160	3
CPL-343	HBR2-10618	161	3
CPL-344	HBR2-10618	162	3
CPL-345	HBR2-10618	163	3

Appendix G

Class 1 Acceptance Criteria

Examination Category	Parts Examined	Acceptance Standard
B-A	Pressure Retaining Welds in Reactor Vessel	IWB-3510
B-B	Pressure Retaining Welds in Vessels Other Than Reactor Vessels	IWB-3510
B-D	Full Penetration Welded Nozzles in Vessels (Inspection Program B)	IWB-3512
B-F	Pressure Retaining Dissimilar Metal Welds in Vessel Nozzles	IWB-3514
B-G-1	Pressure Retaining Bolting, Greater Than 2 inches in Diameter	IWB-3515 & IWB-3517
B-G-2	Pressure Retaining Bolting, 2 inches and Less in Diameter	IWB-3517
B-J	Pressure Retaining Welds in Piping	IWB-3514
B-K	Welded Attachments for Vessels, Piping, Pumps, and Valves	IWB-3516
B-L-1	Pressure Retaining Welds in Pump Casings	IWB-3518
B-L-2	Pump Casings	IWB-3519
B-M-1	Pressure Retaining Welds in Valve Bodies	IWB-3518
B-M-2	Valve Bodies	IWB-3519
B-N-1	Interior of Reactor Vessel	IWB-3520
B-N-2	Welded Core Support Structures and Interior Attachments to Reactor Vessels	IWB-3520
B-N-3	Removable Core Support Structures	IWB-3520
B-O	Pressure Retaining Welds in Control Rod Housings	IWB-3523
B-P	All Pressure Retaining Components	IWB-3522
B-Q	Steam Generator Tubing	IWB-3521

Appendix H

Class 2 Acceptance Criteria

Examination Category	Parts Examined	Acceptance Standard
C-A	Pressure Retaining Welds in Pressure Vessels	IWC-3510
C-B	Pressure Retaining Nozzle Welds in Vessels	IWC-3511
C-C	Welded Attachments for Vessels, Piping, Pumps and Valves	IWC-3512
C-D	Pressure Retaining Bolting Greater than 2 inches in Diameter	IWC-3513
C-F-1	Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping	IWC-3514
C-F-2	Pressure Retaining Welds in Carbon or Low Alloy Steel Piping	IWC-3514
C-G	Pressure Retaining Welds in Pumps and Valves	IWC-3515
C-H	All Pressure Retaining Components	IWC-3516

Appendix I

Class 3 Acceptance Criteria

Examination Category	Parts Examined	Acceptance Standard
D-A	Welded Attachments for Vessels, Piping, Pumps, and Valves	IWD-3000
D-B	All Pressure Retaining Components	IWD-3000

Appendix J

Component Support Acceptance Standards

Examination Category	Parts Examined	Acceptance Standard
F-A	Class 1, 2, 3 and MC Component Supports	IWF-3410

Appendix K

NRC Safety Evaluation Reports

United States Nuclear Regulatory Commission
Enclosure II to Serial: RNP-RA/01-0100
40 Pages

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

FOURTH TEN-YEAR INTERVAL
INSERVICE INSPECTION PROGRAM

RELIEF REQUESTS

Relief Request Number RR-01

Component(s) for Which Relief is Requested

The component applicable to this relief request is the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2, pressurizer surge line nozzle inside radius section.

Code Examination Requirements

The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-D, "Full Penetration Welded Nozzles in Vessels - Inspection Program B," Item No. B3.120, "Nozzle Inside Radius Section," requires volumetric examination of the pressurizer surge line nozzle inside radius section during each inspection interval in accordance with Figure No. IWB-2500-7.

Requested Relief

HBRSEP, Unit No. 2, requests relief from ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-D, Item B3.120, regarding volumetric examination of the pressurizer surge line nozzle inside radius section.

Basis for Requested Relief

HBRSEP, Unit No. 2, requests relief in accordance with 10 CFR 50.55a(g)(6)(i) on the basis that performance of the Code-required volumetric examination of the pressurizer surge line nozzle inside radius section is impractical to perform.

The pressurizer surge line nozzle inside radius section is not accessible for volumetric examination from the exterior of the pressurizer due to interferences associated with the pressurizer heater penetrations. Examination from the interior of the pressurizer is precluded due to access restrictions caused by the pressurizer retaining basket. Major design modifications to the pressurizer bottom head, involving significant worker radiation exposures, would be required to establish a configuration that would allow the Code-required volumetric examination of the pressurizer surge line nozzle inside radius section. Based on the configurations of the exterior and interior areas surrounding the pressurizer surge line nozzle inside radius section, and the significant modifications that would be required to allow performance of the Code-required examinations, HBRSEP, Unit No. 2, has concluded that these Code-required examinations are impractical to perform.

Proposed Alternative Examinations

No alternative examinations are proposed.

The pressurizer surge line nozzle is examined by VT-2 visual examination during pressure testing each refueling outage in accordance with the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-P. This Code-required pressure testing provides reasonable assurance of structural integrity.

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year Inservice Inspection (ISI) Interval, which will begin on February 19, 2002.

Relief Request Number RR-02

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2, regenerative heat exchanger circumferential head welds, tube sheet-to-shell weld, nozzle-to-vessel welds, nozzle inside radius section, branch connections, socket welds, and associated supports.

Code Examination Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-B, "Pressure Retaining Welds in Vessels Other Than Reactor Vessels," Item Nos. B2.51, "Circumferential," and B2.80, "Tubesheet-to-Shell Welds," require volumetric examination of the regenerative heat exchanger vessel head weld and the tube sheet-to-head weld.

Table IWB-2500-1, Examination Category B-D, "Full Penetration Welded Nozzles in Vessels – Inspection Program B," Item Nos. B3.150, "Nozzle-to-Vessel Welds," and B3.160, "Nozzle Inside Radius Section," require volumetric examination of the regenerative heat exchanger nozzle shell welds and inside radius section.

Table IWB-2500-1, Examination Category B-J, "Pressure Retaining Welds in Piping," Item Nos. B9.32, "Branch Pipe Connection Welds Less Than NPS 4," and B9.21, "Circumferential Welds" (less than NPS 4), require surface examination of the inlet, outlet, and intermediate connecting piping welds between the shell courses.

Table IWF-2500-1, Examination Category F-A, "Supports," Item No. F1.40, "Supports Other Than Piping Supports (Class 1, 2, 3 and MC)," requires VT-3 visual examination supports to be examined by the VT-3 method.

Requested Relief

HBRSEP, Unit No. 2, requests relief from ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-B, Item Nos. B2.51 and B2.80, Examination Category B-D, Item Nos. B3.150 and B3.160, Examination Category B-J, Item Nos. B9.32 and B9.21, and Examination Category F-A, Item No. F1.40, for the required surface, volumetric, and VT-3 visual examination of the regenerative heat exchanger vessel head weld, tube sheet-to-shell weld, vessel welds, inlet, outlet, intermediate connecting piping welds, inside radius section, and component supports.

Basis for Requested Relief

HBRSEP, Unit No. 2, requests relief in accordance with 10 CFR 50.55a(a)(3)(ii) on the basis that performance of the Code-required examinations associated with the regenerative heat exchanger would result in hardship and unusual difficulty without a compensating increase in the level of quality and safety.

Radiation surveys in the regenerative heat exchanger room identified general area dose rates of 1 to 2 Rem/hour, and heat exchanger contact dose rates of 3 to 4 Rem/hour. As a result, significant worker exposures would result from the preparation for and performance of the Code-required examinations. In order to maintain occupational exposures As Low As Reasonably Achievable (ALARA), relief from these requirements is being requested. Additionally, the VT-2 visual examination performed each refueling outage during pressure testing provides reasonable assurance of structural integrity.

Proposed Alternative Examinations

No alternative examinations are proposed.

The regenerative heat exchanger pressure-retaining boundary is examined by VT-2 visual examination during pressure testing that is performed during each refueling outage in accordance with Table IWB-2500-1, Examination Category B-P. This Code-required pressure testing provides reasonable assurance of structural integrity.

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which begins on February 19, 2002.

Relief Request Number RR-03

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2, existing ISI calibration block material.

Code Examination Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, IWA-2232, "Ultrasonic Examination," requires that ultrasonic examination be conducted in accordance with Appendix I, "Ultrasonic Examinations." Appendix I requires that calibration block material be the same material specification, product form, and heat treatment condition as the materials being joined.

Requested Relief

HBRSEP, Unit No. 2, requests relief from the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, IWA-2232, and Appendix I, regarding calibration block material.

The requested relief would authorize the use of SA-533, Grade B, material in lieu of SA-302, Grade B, material, and the use of SA-508 material in lieu of SA-336 material for the reactor vessel calibration blocks. The requested relief would also authorize the use of SA-533, Grade B, material in lieu of SA-302, Grade B, material for the pressurizer calibration blocks. Additionally, this relief would authorize the use of existing, manually clad calibration blocks for reactor vessel examinations in lieu of the automatically clad blocks required by the Code.

Basis for Requested Relief

HBRSEP, Unit No. 2, requests relief in accordance with 10 CFR 50.55a(g)(6)(i) on the basis that compliance with Code requirements for calibration block materials is impractical, i.e., the required calibration block materials are not available.

Based on chemical and physical properties, SA-533, Grade B, is considered to be essentially equivalent to SA-302, Grade B. This parity is also evident in the properties of the SA-336 and SA-508 materials. These materials are considered to be acoustically equivalent, thereby meeting the intent of the Code.

The use of manually clad reactor vessel calibration blocks would facilitate comparison of data obtained during the Fourth Ten-Year ISI Interval with examination data obtained during the previous interval.

Based on the above, there is reasonable assurance that the requested relief will provide assurance of structural integrity, and that an acceptable level of quality and safety will be maintained during the Fourth Ten-Year ISI Interval.

Proposed Alternate Examinations

As an alternative to the calibration material requirements provided within IWA-2232 and Appendix I, examinations will be performed using calibration blocks fabricated of similar materials, i.e., SA-533, Grade B, in lieu of SA-302, Grade B, and SA-508 in lieu of SA-336.

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which begins on February 19, 2002.

Relief Request Number RR-04

Component(s) for Which Relief is Requested

The component applicable to this relief request is the HBRSEP, Unit No. 2, reactor pressure vessel closure head peel segment-to-disk circumferential weld.

Code Examination Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-A, "Pressure Retaining Welds in Reactor Vessel," Item No. B1.21, "Circumferential Head Welds," requires volumetric examination of the accessible length of the reactor pressure vessel closure head peel segment-to-disk circumferential weld in accordance with Figure No. IWB-2500-3.

Requested Relief

HBRSEP, Unit No. 2, requests relief from the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-A, Item No. B1.21, regarding volumetric examination of the reactor pressure vessel closure head peel segment-to-disk circumferential weld.

Basis for Requested Relief

HBRSEP, Unit No. 2, requests relief in accordance with 10 CFR 50.55a(g)(6)(i) on the basis that performance of the Code-required volumetric examination of the reactor pressure vessel closure head peel segment-to-disk circumferential weld is impractical to perform.

Accessibility for examination of this weld was not provided in the original plant design, which occurred prior to issuance of the Section XI ISI examination requirements. The closure head peel segment-to-disk weld is completely enclosed within the pattern of Control Rod Drive Mechanism (CRDM) penetrations inside the reactor vessel shroud, such that no portion of the weld is accessible for either surface or volumetric examination. Therefore, this weld is considered inaccessible for volumetric examination due to physical space constraints.

Proposed Alternative Examinations

No alternative examinations are proposed.

The reactor pressure vessel closure head peel segment-to-disk circumferential weld is examined by VT-2 visual examination during pressure testing each refueling outage in accordance with the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-P. This Code-required pressure testing provides reasonable assurance of structural integrity.

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which begins on February 19, 2002.

Relief Request Number RR-05

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2, reactor coolant system piping cold leg circumferential butt welds attaching the pipe to the 27.5 inch inside diameter elbow in each reactor coolant cold leg. These welds are identified as CPL-107/13 for loop "A," CPL-107A/13 for loop "B," and CPL-107B/13 for loop "C."

Code Examination Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-J, "Pressure Retaining Welds in Piping," Item No. B9.11, "Circumferential Welds," requires volumetric and surface examination of the circumferential welds of NPS 4 or larger in accordance with Figure No. IWB-2500-8.

Requested Relief

HBRSEP, Unit No. 2, requests relief from the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-J, Item No. B9.11, regarding volumetric and surface examination of circumferential welds associated with the reactor coolant system piping cold leg circumferential butt welds.

Basis for Requested Relief

HBRSEP, Unit No. 2, requests relief in accordance with 10 CFR 50.55a(g)(6)(i) on the basis that performance of the Code-required volumetric and surface examinations associated with the reactor coolant system piping cold leg circumferential butt welds are impractical to perform.

Accessibility for examination of these welds was not provided in the original plant design, which occurred prior to issuance of Section XI ISI examination requirements. These welds are inaccessible for volumetric and surface examination due to being completely enclosed within the concrete structure that constitutes the biological shield wall.

Proposed Alternate Examinations

No alternative examinations are proposed.

The reactor coolant system piping cold leg circumferential butt welds are examined by VT-2 visual examination during pressure testing each refueling outage in accordance with the ASME B&PV Code, Section XI, Table IWB-2500-1, Examination Category B-P. This Code-required

pressure testing provides reasonable assurance of structural integrity, thereby maintaining an acceptable level of quality and safety during the Fourth Ten-Year ISI Interval.

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which begins on February 19, 2002.

Relief Request Number RR-06

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2, primary side steam generator nozzle inside radius sections.

Code Examination Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-D, "Full Penetration Welded Nozzles in Vessels - Inspection Program B," Item No. B3.140, "Nozzle Inside Radius Section," requires a volumetric examination of the inside radius section in accordance with Figure No. IWB-2500-7.

Requested Relief

HBRSEP, Unit No. 2, requests relief from the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-D, Item No. B3.140, regarding volumetric examination of the primary side steam generator nozzle inside radius sections.

Basis for Requested Relief

HBRSEP, Unit No. 2, requests relief in accordance with 10 CFR 50.55a(g)(6)(i) on the basis that performance of the Code-required volumetric examinations of the primary side steam generator nozzle inside radius sections are impractical to perform.

Examination of the primary side steam generator nozzle inside radius sections was not considered as part of the plant design. The component geometry and the cast material, together with the excessively long test metal distance that results in high attenuation, preclude volumetric examination of the nozzle inside radius sections from the external surface. The steam generator nozzles are integrally cast with the vessel head, and the inside radius is covered by weld-deposited stainless steel cladding that is in an "as-welded" condition. Therefore, the Code-required volumetric examinations are impractical to perform.

It should also be noted that radiation fields inside the primary channel head are in the range of 5 Rem/hour, which would result in significant worker exposures to accomplish the Code-required examinations.

Proposed Alternative Examinations

VT-3 visual examination using remote video equipment will be performed on one primary side steam generator nozzle, both hot let and cold leg inside radius sections, during each inspection period.

Steam generator nozzles are examined by VT-2 visual examination during pressure testing each refueling outage in accordance with the ASME B&PV Code, Section XI, Table IWB-2500-1, Examination Category B-P. VT-3 visual examination using remote video equipment was performed on one steam generator nozzle inside radius section during the Third Ten-Year ISI Interval as part of Refueling Outage 20 with no recordable indications identified. The Code-required pressure testing, combined with the VT-3 visual examination, provides reasonable assurance of structural integrity, thereby maintaining an acceptable level of quality and safety during the Fourth Ten-Year ISI Interval.

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which begins on February 19, 2002.

Relief Request No RR-07

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2, reactor pressure vessel (RPV) nozzle-to-safe end welds on each loop on the reactor vessel inlet and outlet piping. These are dissimilar metal welds on the hot and cold leg piping of each reactor coolant system loop, i.e., RPV inlet and outlet piping. The affected welds are uniquely identified as follows:

Weld Identification Number	Location
CPL-107/1DM	Hot Leg "A"
CPL-107/14DM	Cold Leg "A"
CPL-107A/1DM	Hot Leg "B"
CPL-107A/14DM	Cold Leg "B"
CPL-107B/1DM	Hot Leg "C"
CPL-107B/14DM	Cold Leg "C"

Code Examination Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-F, "Pressure Retaining Dissimilar Metal Welds in Vessel Nozzles," Item No. B5.10, requires volumetric and surface examination of RPV nozzle-to-safe end welds in accordance with Figure No. IWB-2500-8.

Requested Relief

HBRSEP, Unit No. 2, requests relief from the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-F, Item No. B5.10, regarding volumetric and surface examination RPV nozzle-to-safe end welds.

Basis for Relief

HBRSEP, Unit No. 2, requests relief in accordance with 10 CFR 50.55a(a)(3)(ii) on the basis that hardship and unusual difficulty exists, without a compensating increase in the level of quality and safety, regarding performance of the Code-required volumetric and surface examinations of the RPV nozzle-to-safe end welds.

Examination of the RPV nozzle-to-safe end welds was not considered as part of the original plant design, which occurred prior to issuance of Section XI ISI requirements. Access to the affected welds from the refueling cavity is significantly limited. Additionally, due to the configuration of the RPV nozzles as they penetrate the biological shield wall, the weld area accessible for the Code-required examinations is approximately the top one-third of the weld outside diameter.

Significant personnel hazards are associated with examinations of the RPV nozzle-to-safe end welds that are not commensurate with the benefits gained from performing such examinations. Access to the affected welds from the refueling cavity involves entry into an area that is physically confining with elevated ambient temperatures. These ambient conditions, combined with the required use of personnel protective equipment, create the potential for heat stress and exhaustion. Detailed dose assessments have concluded that performance of the Code-required examinations is not consistent with the principal of "As Low As Reasonably Achievable" (ALARA). For example, with an assumed area dose rate of 600 mRem/hour, worker exposure for surface examination of the six affected welds is estimated at approximately 7.5 Rem.

Previous examination history supports the Proposed Alternative Examinations in lieu of the Code-required volumetric and surface examinations. No rejectable indications have been identified by examinations conducted during the Third Ten-Year ISI Interval. The dissimilar metal welds, as well as the safe end-to-pipe welds, were examined at the conclusion of the Third Ten-Year Interval for the ASME Code-required volume. Two indications were identified in the hot let "B" safe end on the nozzle side, and one indication was identified in the cold leg "C" nozzle side. These three indications were evaluated in accordance with Code requirements and found to be acceptable.

Proposed Alternative Examinations

Ultrasonic examinations will be conducted from the inside diameter of the RPV nozzle and will include the Code-required weld volume, i.e., lower one-third, as well as the heat-affected zone. These examinations will be performed concurrently with vessel examinations required at or near the end of the interval.

As an alternative to the Code-required surface examination, a VT-2 visual examination will be conducted in accordance with the ASME Code, Section XI, 1995 Edition with 1996 Addenda, IWA-5242, "Insulated Components."

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which begins on February 19, 2002.

Relief Request Number RR-08

Component(s) for Which Relief is Requested

The component applicable to this relief request is the HBRSEP, Unit No. 2, reactor vessel interior.

Code Examination Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-N-1, "Interior of Reactor Vessel," Item No. B13.10, requires a VT-3 visual examination during each inspection period of the reactor vessel interior surface that is made accessible for examination by removal of components during normal refueling outages.

Requested Relief

HBRSEP, Unit No. 2, requests relief from the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-N-1, Item No. B13.10, regarding VT-3 visual examination during each inspection period of the reactor vessel interior surface.

Basis for Relief

HBRSEP, Unit No. 2, requests relief to perform the Proposed Alternative Examinations pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative provides an acceptable level of quality and safety.

Performance of visual examinations of the reactor vessel interior when the reactor vessel is disassembled for a normal refueling outage provides for an extremely limited examination. The lower internals and core barrel remain installed during a normal refueling outage, which generally limits the examination to the reactor vessel flange surface and inside nozzle surfaces. Such a limited examination provides negligible net safety benefit when considering worker exposures and the potential for loose parts or foreign material to enter the vessel as a result of the equipment used to perform this examination.

Recent performance of these visual examinations during Refueling Outage 20 as part of the Third Ten-Year ISI Interval identified no unacceptable conditions or indications that might warrant performance of these examinations on the Code-required periodicity.

Based on the above, the Proposed Alternative Examinations described below will provide an acceptable level of quality and safety when compared to the Code-required examinations.

Proposed Alternative Examinations

VT-3 visual examination of the reactor vessel interior surface will be performed during the third inspection period of the Fourth Ten-Year ISI Interval, coincident with the reactor vessel Ten-Year ISI examinations in accordance with Table IWB-2500-1, Examination Category B-N-1, Item No. B13.10. VT-3 visual examination will be performed prior to the third inspection period should the reactor vessel lower internals be removed for inspection, maintenance, or repair activities.

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which begins on February 19, 2002.

Relief Request Number RR-09

Component(s) for Which Relief is Requested

The components applicable to this relief request are HBRSEP, Unit No. 2, bolting on systems borated for the purpose of controlling reactivity.

Code Examination Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, IWA-5242, "Insulated Components," subsection (a), requires that for systems borated for the purpose of controlling reactivity, insulation shall be removed from pressure retaining bolted connections for VT-2 visual examination.

Requested Relief

HBRSEP, Unit No. 2, requests relief from the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, IWA-5242(a), regarding removal of insulation from Class 1, 2, and 3 pressure retaining bolted connections to perform a VT-2 visual examination. Alternative examinations, as specified within ASME Code Case N-533-1, "Alternative Requirements for VT-2 Visual Examination of Class 1, 2, and 3 Insulated Pressure-Retaining Bolted Connections, Section XI, Division 1," will be performed in lieu of the Code-required examinations.

Basis for Relief

HBRSEP, Unit No. 2, requests relief to perform the Proposed Alternative Examinations pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative provides an acceptable level of quality and safety.

For certain Class 1 and 2 systems borated for the purpose of controlling reactivity, achieving required test pressures would involve elevated system or component temperatures. With these elevated system temperatures, removal and reinstallation of insulation becomes a personnel safety concern.

System pressure testing and VT-2 visual examination in accordance with ASME Code Case N-533-1 provides an acceptable means to detect system leakage when the appropriate hold time is imposed after pressurization and prior to examination. Removal of insulation from bolted connections for performance of a VT-2 visual examination each refueling outage will detect evidence of borated water leakage in the form of boric acid residue or staining, and such visual examinations can provide effective results without pressurization of the effected system or component. Evidence of leakage identified during these examinations will be evaluated in accordance with IWA-5250, "Corrective Action."

ASME Code Case N-533-1 was approved for use by ASME on February 26, 1999, as an acceptable alternative to the requirements of IWA-5242(a). This Code Case has not been endorsed by the NRC via inclusion in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1." However, pursuant to 10 CFR 50.55a, licensees may implement such Code Cases provided specific authorization is granted. ASME Code Case N-533-1 recognizes that alternatives to IWA-5242(a) are available that provide an acceptable level of quality and safety. The Proposed Alternative Examinations described below will adequately detect evidence of leakage in a manner comparable to the Code-required examinations.

Proposed Alternative Examinations

A system pressure test and VT-2 visual examination, without removal of insulation, will be performed each refueling outage for Class 1 bolted connections, and each inspection period for Class 2 and 3 bolted connections, for systems borated for the purpose of controlling reactivity. The VT-2 visual examination will be performed after an appropriate hold time following pressurization.

Removal of insulation and VT-2 visual examination will be performed each refueling outage for Class 1 bolted connections, and each inspection period for Class 2 and 3 bolted connections, in systems borated for the purpose of controlling reactivity. These visual examinations will not require pressurization of the effected system or component. Evidence of leakage identified during these examinations will be evaluated in accordance with IWA-5250, "Corrective Action."

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which begins on February 19, 2002.

Relief Request Number RR-10

Component(s) for Which Relief is Requested

The components applicable to this relief request are HBRSEP, Unit No. 2, Class 1, 2, and 3 pressure retaining bolting.

Code Examination Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, IWA-5250, "Corrective Action," requires that if leakage occurs at a bolted connection on other than a gaseous system during the conduct of a system pressure test, one of the bolts shall be removed, VT-3 examined, and evaluated in accordance with IWA-3100, "Evaluation." The bolt selected shall be the one closest to the source of leakage. When the removed bolt has evidence of degradation, all remaining bolting in the connection shall be removed, VT-3 examined, and evaluated in accordance with IWA-3100.

Requested Relief

HBRSEP, Unit No. 2, requests relief from the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, IWA-5250, regarding the actions to be taken when leakage occurs at a bolted connection on other than a gaseous system during the conduct of a system pressure test. Specifically, removal and examination of one bolt closest to the source of leakage would be by VT-1 visual examination in lieu of the Code-required VT-3 visual examination. Additionally, relief is requested from the requirement to remove all remaining bolting when leakage is observed at a bolted connection and the examined bolt closest to the source of leakage has evidence of degradation.

Basis for Relief

HBRSEP, Unit No. 2, requests relief to perform the Proposed Alternative Examinations pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternatives provide an acceptable level of quality and safety.

The use of a VT-1 visual examination in lieu of the Code-required VT-3 visual examination will provide a comparable level of quality and safety. The ASME B&PV Code, Section XI, references the VT-1 visual examination for pressure retaining bolting. Guidance for performing VT-1 visual examinations of bolting are already incorporated within examination procedures and are considered more stringent than those associated with the VT-3 visual examination.

A comprehensive requirement to remove bolting where leakage has been observed does not recognize such variables as fluid corrosiveness, bolting and component materials, the type and location of the leakage, the service age of the bolting, and the physical configuration of the bolted connection.

The Proposed Alternative Examinations described below will provide an acceptable level of quality and safety when compared with the Code-required examinations.

Proposed Alternative Examinations

If leakage is identified at a bolted connection on other than a gaseous system during the conduct of a system pressure test, one of the following actions will be taken:

1. The bolt closest to the source of leakage will be removed and a VT-1 visual examination performed. The condition will be evaluated in accordance with IWA-3100; or,
2. An engineering evaluation will be performed to determine the susceptibility of the bolting to corrosion and to assess the potential for failure. The following factors will be considered, as applicable, when evaluating the condition:

    - Service age of the bolting
    - Bolt and component material
    - Corrosiveness of the process fluid
    - Leakage location and system function
    - Leakage history at the specific location
    - Visual evidence of corrosion (while connection is assembled)
    - Physical configuration of the bolted connection

    If evaluation of the above criteria concludes that the condition has not degraded the bolting, no further action will be necessary.

    If the evaluation is inconclusive or concludes that the bolting is degraded, the bolt closest to the source of leakage will be removed, a VT-1 visual examined performed, and the condition will be evaluated in accordance with IWA-3100. When the removed bolt shows evidence of degradation, the remaining bolting will be removed, a VT-1 visual examination performed, and the condition will be evaluated in accordance with IWA-3100.

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which begins on February 19, 2002.

Relief Request Number RR-11

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2, Class 3 components that are subject to system hydrostatic testing in accordance with Table IWD-2500-1, Examination Category D-B.

Code Examination Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWD-2500-1, Examination Category D-B, "All Pressure Retaining Components," Item Nos. D2.20, D2.40, D2.60, and D2.80, require that a system hydrostatic test be conducted on Class 3 components at or near the end of each inspection interval. These tests are to be conducted in accordance with IWD-5222, "System Hydrostatic Test."

Requested Relief

HBRSEP, Unit No. 2, requests relief from the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWD-2500-1, Examination Category D-B, Item Nos. D2.20, D2.40, D2.60, and D2.80, regarding system hydrostatic testing of Class 3 components. This requested relief would authorize the Proposed Alternative Examinations in lieu of these Code-required hydrostatic tests.

Basis for Relief

HBRSEP, Unit No. 2, requests relief to perform the Proposed Alternative Examinations pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternatives provide an acceptable level of quality and safety.

Experience has demonstrated that Class 3 system leaks are generally identified with systems at nominal operating pressure, not as a result of hydrostatic test pressure propagating a pre-existing, through-wall flaw. Class 3 system leaks generally result from erosion-corrosion, microbiologically induced corrosion, or general corrosion. HBRSEP, Unit No. 2, has existing programs for the prevention, detection, and evaluation of erosion-corrosion and microbiologically induced corrosion. Leakage from general corrosion is readily identified by VT-2 visual examinations performed during system pressure testing conducted at nominal operating pressure.

Performance of Class 3 system hydrostatic pressure tests in accordance with Table IWD-2500-1, Examination Category D-B, provides negligible safety benefit when compared to the impacts associated with alignment for and execution of these hydrostatic tests. This testing often involves a number of personnel from different plant organizations, such as Engineering for test coordination, Maintenance for removal and reinstallation of piping insulation, and Operations for valve lineups and system operations. These resources could be better utilized to address more risk significant or cost beneficial plant issues. Preparation for and performance of such system tests also increases worker exposure to industrial and radiation safety hazards. These tests often involve placing the system in an off-normal alignment or condition to establish and maintain the required test conditions.

The concept of performing system pressure tests at nominal operating pressure in lieu of hydrostatic test pressure has been previously authorized as demonstrated by ASME Code Case N-498-1, "Alternative Rules for 10-Year System Hydrostatic Testing for Class 1, 2 and 3 Systems, Section XI, Division 1," which has been endorsed within Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1." This Code Case allows an alternative to the hydrostatic pressure testing required by the ASME B&PV Code, Section XI, 1989 Edition with 1991 and subsequent Addenda, Table IWD-2500-1, Examination Category D-B. In lieu of the Code-required hydrostatic pressure testing, Code Case N-498-1 states that a system pressure test may be conducted at or near the end of each inspection interval. While this Code Case has not been approved for the 1995 Edition with 1996 Addenda, the technical bases remain applicable and support the requested relief.

The Proposed Alternative Examinations described below will provide an acceptable level of quality and safety when compared with the Code-required examinations.

Proposed Alternative Examinations

A system pressure test at nominal operating pressure will be conducted on applicable Class 3 systems at the end of the interval during the third inspection period. This system pressure testing will be in lieu of the Code-required hydrostatic pressure testing, and will satisfy the third inspection period system leakage test required by Table IWD-2500-1, Examination Category D-B, Items Nos. D2.10, D2.30, D2.50, and D2.70. Test boundaries will in accordance with IWD-5240, "Boundaries."

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which begins on February 19, 2002.

Relief Request Number RR-12

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2, Class 1 pressure test boundaries subject to system hydrostatic testing in accordance with IWB-5222, "Boundaries," subsection (b).

Code Examination Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, IWB-5222(b), requires that the pressure retaining boundary during the system leakage test conducted at or near the end of each inspection interval be extended to all Class 1 pressure retaining components within the system boundary.

Requested Relief

HBRSEP, Unit No. 2, requests relief from the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, IWB-5222(b), regarding extension of the pressure retaining boundary during system leakage tests conducted at or near the end of the inspection interval to Class 1 pressure retaining components within the system boundary.

Basis for Relief

HBRSEP, Unit No. 2, requests relief in accordance with 10CFR50.55a(a)(3)(ii) on the basis that hardship and unusual difficulty exists, without a compensating increase in the level of quality and safety, regarding extension of the pressure retaining boundary during system leakage tests to all Class 1 pressure retaining components within the system boundary.

Table 1 identifies the Class 1 pressure retaining components that are associated with the requested relief.

The HBRSEP, Unit No. 2, design of Class 1 vents and drains typically consists of a single isolation valve with a capped end that constitutes the Class 1 system boundary. Many of these valves are not readily accessible due to their physical locations and radiation/contamination levels in the area. System hydrostatic testing is performed in Mode 3 and would involve opening these single isolation valves to pressurize to the extended Class 1 system boundary. After performance of the required VT-2 visual examination, these single isolation valves would be closed, isolating a high temperature, pressurized volume of water between the isolation valve and the capped end. This results in an undesirable configuration that would be conducive to pressure lock or the initiation of system leakage from valve packing or capped ends.

The HBRSEP, Unit No. 2, design also requires substantial effort to extend the Class 1 system boundary where check valves or non-redundant components serve as the first system isolation from the reactor coolant system. Such configurations may require check valve disassembly or other temporary configurations to achieve test pressures at upstream piping and valves. Since the Class 1 system hydrostatic testing is performed in Mode 3, these temporary configurations could conflict with Technical Specification requirements. Establishing and restoring such temporary configurations could also result in an unwarranted increase in worker radiation exposures.

Based on the above, extension of the pressure retaining boundary during system leakage tests to Class 1 pressure retaining components within the system boundary represents a hardship and unusual difficulty that does not provide a compensating increase in the level of quality and safety.

Proposed Alternative Examinations

The Class 1 system boundary during leakage tests will be maintained in a normal, operational alignment with items identified within Table 1 constituting exceptions to the Code-required boundary. The VT-2 visual examination will extend to the Class 1 boundary.

Items within Table 1 will be visually examined for evidence of leakage during system leakage testing without being pressurized.

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which begins on February 19, 2002.

Table 1
Relief Request Number RR-12
Affected Class 1 Pressure Retaining Components

Affected Line or Component	Code Class	Pipe Dia.	Pipe Sch.	Approx. Length	Examination Category	Drawing No.	Boundary Exception(s)
Drain line below PZR safety valve RC-551A (pipe piece between RC-545 and RC-545A)	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1971, Sheet 2	Valve RC-545 remains closed to avoid pressurizing downstream Class 1 pipe piece and valve RC-545A
Drain line below PZR safety valve RC-551B (pipe piece between RC-546 and RC-546A)	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1971, Sheet 2	Valve RC-546 remains closed to avoid pressurizing downstream Class 1 pipe piece and valve RC-546A
Drain line below PRZ safety valve RC-551C (pipe piece between RC-547and RC-547A)	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1971, Sheet 2	Valve RC-547 remains closed to avoid pressurizing downstream Class 1 pipe piece and valve RC-547A
Vent valve and blind flange on PZR spray line	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1971, Sheet 2	Valve RC-527C remains closed to avoid pressurizing downstream Class 1 pipe piece and blind flange
RCS loop intermediate loop "A" drain valve and liquid waste disposal piping	1	2 in.	A376 TP316 SMLS Sch. 160	1 ft.	B-P	5379-1971, Sheet 1	Valve RC-505A remains closed to avoid pressurizing downstream Class 1 piping and valve RC-505B
RCS loop intermediate loop "B" drain valve and liquid waste disposal piping	1	2 in.	A376 TP316 SMLS Sch. 160	7 in.	B-P	5379-1971, Sheet 1	Valve RC-508A remains closed to avoid pressurizing downstream Class 1 piping and valves RC-508B and RC-542
		0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 in.			
RCS loop intermediate loop "C" drain valve and liquid waste disposal piping	1	2 in.	A376 TP316 SMLS Sch. 160	8 in.	B-P	5379-1971, Sheet 1	Valve RC-515A remains closed to avoid pressurizing downstream Class 1 piping and valves RC-515B and RC-601
		0.75 in.	A376 TP316 SMLS Sch. 160	1 ft.			

Table 1 (Continued)
Relief Request Number RR-12
Affected Class 1 Pressure Retaining Components

Affected Line or Component	Code Class	Pipe Dia.	Pipe Sch.	Approx. Length	Examination Category	Drawing No.	Boundary Exception(s)
RPV head vent valves and piping	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1971, Sheet 1	Valve RC-567 remains closed to avoid pressurizing downstream Class 1 piping and valves RC-572, RC-571, RC-569, and RC-570
		1 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.			
RCP "A" seal injection drain valve and blind flange	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-300A remains closed to avoid pressurizing downstream pipe piece and flange
RCP "A" seal leakoff vent valve and blind flange	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-300C remains closed to avoid pressurizing downstream pipe piece and flange
RCP "A" seal water bypass drain valve and cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-307C remains closed to avoid pressurizing downstream pipe piece and cap
RCP "B" seal injection drain valve and blind flange	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-300D remains closed to avoid pressurizing downstream pipe piece and flange
RCP "B" seal leakoff vent valve and blind flange	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-300F remains closed to avoid pressurizing downstream pipe piece and flange
RCP "B" seal water bypass drain valve and cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-307E remains closed to avoid pressurizing downstream pipe piece and cap

Table 1 (Continued)
Relief Request Number RR-12
Affected Class 1 Pressure Retaining Components

Affected Line or Component	Code Class	Pipe Dia.	Pipe Sch.	Approx. Length	Examination Category	Drawing No.	Boundary Exception(s)
RCP "B" seal water bypass drain valve and cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-307F remains closed to avoid pressurizing downstream pipe piece and cap
RCP "C" seal injection drain valve and blind flange	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-300G remains closed to avoid pressurizing downstream pipe piece and flange
RCP "C" seal leakoff vent valve and blind flange	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-300J remains closed to avoid pressurizing downstream pipe piece and flange
RCP "C" seal water bypass drain valve and cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-307C remains closed to avoid pressurizing downstream pipe piece and cap
Auxiliary spray valve and downstream piping	1	2 in.	A376 TP316 SMLS Sch. 160	500 ft.	B-P	5379-685, Sheet 1	Valve CVC-311 remains closed to avoid pressurizing downstream piping to check valve CVC-313
CVCS letdown drain valve and downstream cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-460H remains closed to avoid pressurizing downstream pipe piece and cap
CVCS letdown vent valve and downstream cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-460G remains closed to avoid pressurizing downstream pipe piece and cap
CVCS letdown drain valve and downstream cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-685, Sheet 1	Valve CVC-475 remains closed to avoid pressurizing downstream pipe piece and cap
Safety injection loop "1" cold leg injection vent valve and cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1082, Sheet 4	Valve SI-875N remains closed to avoid pressurizing downstream pipe piece and cap

Table 1 (Continued)
Relief Request Number RR-12
Affected Class 1 Pressure Retaining Components

Affected Line or Component	Code Class	Pipe Dia.	Pipe Sch.	Approx. Length	Examination Category	Drawing No.	Boundary Exception(s)
Safety injection loop "2" cold leg injection vent valve and cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1082, Sheet 4	Valve SI-875P remains closed to avoid pressurizing downstream pipe piece and cap
Safety injection loop "3" cold leg injection vent valve and cap	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1082, Sheet 4	Valve SI-875T remains closed to avoid pressurizing downstream pipe piece and cap
Safety injection loop "1" cold leg injection check valve SI-875A and upstream piping	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1082, Sheet 4	Check valve to remain closed to avoid disassembly or other temporary configurations required to achieve test pressures at upstream piping and valves SI-873F, SI-850B, SI-876A, SI-875H, SI-875D, and SI-875M
		8 in.	A376 TP316 SMLS Sch. 120	3 ft.			
		10 in.	A376 TP316 SMLS Sch. 140	62 ft.			
Safety injection loop "2" cold leg injection check valve SI-875B and upstream piping	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1082, Sheet 4	Check valve to remain closed to avoid disassembly or other temporary configurations required to achieve test pressures at upstream piping and valves SI-875S, SI-873E, SI-876E, SI-876B, SI-875J, SI-850D, and SI-875E
		8 in.	A376 TP316 SMLS Sch. 120	5 ft.			
		10 in.	A376 TP316 SMLS Sch. 140	52 ft.			
Safety injection loop "3" cold leg injection check valve SI-875C and upstream piping	1	0.75 in.	A376 TP316 SMLS Sch. 160	≤ 1 ft.	B-P	5379-1082, Sheet 4	Check valve to remain closed to avoid disassembly or other temporary configurations required to achieve test pressures at upstream piping and valves SI-875R, SI-873D, SI-875L, SI-850F, SI-876C, and SI-875F
		8 in.	A376 TP316 SMLS Sch. 120	8 ft.			
		10 in.	A376 TP316 SMLS Sch. 140	63 ft.			

Table 1 (Continued)
Relief Request Number RR-12
Affected Class 1 Pressure Retaining Components

Affected Line or Component	Code Class	Pipe Dia.	Pipe Sch.	Approx. Length	Examination Category	Drawing No.	Boundary Exception(s)
Safety injection loop "2" hot leg injection check valve SI-874B and upstream piping	1	2 in.	A376 TP316 SMLS Sch. 160	92 ft.	B-P	5379-1082, Sheet 4	Check valve to remain closed to avoid disassembly or other temporary configurations required to achieve test pressures at upstream piping and valves SI-874C and SI-866B
Safety injection loop "3" hot leg injection check valve SI-874A and upstream piping	1	2 in.	A376 TP316 SMLS Sch. 160	44 ft.	B-P	5379-1082, Sheet 4	Check valve to remain closed to avoid disassembly or other temporary configurations required to achieve test pressures at upstream piping and valves SI-874D and SI-866A
Residual heat removal motor-operated valve RHR-750 and common suction piping	1	14 in.	A376 TP316 SMLS Sch. 140	42 ft.	B-P	5379-1484, Sheet 1	Valve RHR-750 to remain closed to avoid pressuring downstream piping and valve RHR-751, which would result in single valve isolation between hydrostatic test boundary and decay heat removal system

Relief Request Number RR-13

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2, Class 2 and high energy Class 3 carbon steel piping that may require wall thickness restoration due to wall thinning or pitting from conditions such as, but not limited to, flow-assisted corrosion and microbiologically induced corrosion.

Code Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, IWC-3124, "Repair/Replacement Activity and Reexamination," and IWB-3123, "Repair/Replacement Activity and Reexamination" (via Article IWD-3000, "Acceptance Standards"), require that repair/replacement activity and reexamination comply with the requirements of IWA-4000, "Repair/Replacement Activities."

Requested Relief

HBRSEP, Unit No. 2, requests relief from the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, IWA-4000, as invoked by IWC-3124 and IWB-3123 (via Article IWD-3000), regarding Class 2 and high energy Class 3 carbon steel piping that may require wall thickness restoration due to wall thinning or pitting from conditions such as, but not limited to, flow-assisted corrosion and microbiologically induced corrosion. Excluded from this relief are conditions involving corrosion-assisted cracking or any other form of cracking.

Basis for Relief

HBRSEP, Unit No. 2, requests relief to authorize the Proposed Alternative Requirements pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternatives provide an acceptable level of quality and safety.

The Code-required repair techniques for inside diameter piping degradation resulting from wall-thinning or pitting are intended to restore the affected piping to the as-designed configuration. Such repairs are typically a significant undertaking that involve removal of the system or component from service, completing the required repairs and post-repair examinations, and restoration of the system or component to service. Often it is difficult or impractical to perform such repairs on small-bore piping, which then results in an piping replacement. Such piping replacements can involve added system out-of-service time, worker radiation exposure, and generation of radioactive waste.

An acceptable and preferred alternative to an internal weld repair or piping replacement is to have the wall thickness restored externally by means of a weld-deposited carbon or low-alloy steel reinforcement, i.e., weld overlay, on the piping outer diameter. Such weld overlay techniques have been delineated within ASME Code Case N-561-1, "Alternative Requirements for Wall Thickness Restoration of Class 2 and High Energy Class 3 Carbon Steel Piping, Section XI, Division 1." This Code Case provides guidelines in such areas as weld overlay design, installation, and examination; places restrictions on the thickness of the overlay; and, requires an initial evaluation of the material beneath the surface to which the weld overlay is being applied.

While ASME Code Case N-561-1 has not been endorsed by the NRC within Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," this Code Case delineates an effective methodology for restoring or assuring pressure boundary and structural integrity without the complexity and burden associated with an inside diameter repair.

Proposed Alternative Requirements

Where Class 2 and high energy Class 3 carbon steel piping requires wall thickness restoration due to wall thinning or pitting, the weld overlay will be an acceptable alternative repair methodology. The weld overly technique will not be applied to conditions involving corrosion-assisted cracking or any other form of cracking. The weld overlay repair technique will be performed consistent with the guidelines provided by ASME Code Case N-561-1.

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which begins on February 19, 2002.

Relief Request Number RR-14

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2, moderate energy Class 3 carbon steel piping that may require wall thickness restoration due to wall thinning or pitting from conditions such as, but not limited to, flow-assisted corrosion and microbiologically induced corrosion.

Code Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, IWB-3123, "Repair/Replacement Activity and Reexamination" (via Article IWD-3000, "Acceptance Standards"), requires that repair/replacement activity and reexamination comply with the requirements of IWA-4000, "Repair/Replacement Activities."

Requested Relief

HBRSEP, Unit No. 2, requests relief from the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, IWA-4000, as invoked by IWB-3123 (via Article IWD-3000), regarding moderate energy Class 3 carbon steel piping that may require wall thickness restoration due to wall thinning or pitting from conditions such as, but not limited to, flow-assisted corrosion and microbiologically induced corrosion. Excluded from this relief are conditions involving corrosion-assisted cracking or any other form of cracking.

Basis for Relief

HBRSEP, Unit No. 2, requests relief to authorize the Proposed Alternative Requirements pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternatives provide an acceptable level of quality and safety.

The Code-required repair techniques for inside diameter piping degradation resulting from wall-thinning or pitting are intended to restore the affected piping to the as-designed configuration. Such repairs are typically a significant undertaking that involve removal of the system or component from service, completing the required repairs and post-repair examinations, and restoration of the system or component to service. Often it is difficult or impractical to perform such repairs on small-bore piping, which then results in an piping replacement. Such piping replacements can involve added system out-of-service time, worker radiation exposure, and generation of radioactive waste.

An acceptable and preferred alternative to an internal weld repair or piping replacement is to have the wall thickness restored externally by means of a weld-deposited carbon or low-alloy steel reinforcement, i.e., weld overlay, on the piping outer diameter. Such weld overlay techniques have been delineated within ASME Code Case N-562-1, "Alternative Requirements for Wall Thickness Restoration of Class 3 Moderate Energy Carbon Steel Piping, Section XI, Division 1." This Code Case provides guidelines in such areas as weld overlay design, installation, and examination; places restrictions on the thickness of the overlay; and, requires an initial evaluation of the material beneath the surface to which the weld overlay is being applied.

While ASME Code Case N-562-1 has not been endorsed by the NRC within Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," this Code Case delineates an effective methodology for restoring or assuring pressure boundary and structural integrity without the complexity and burden associated with an inside diameter repair.

Proposed Alternative Requirements

Where moderate energy Class 3 carbon steel piping requires wall thickness restoration due to wall thinning or pitting, the weld overlay will be an acceptable alternative repair methodology. The weld overly technique will not be applied to conditions involving corrosion-assisted cracking or any other form of cracking. The weld overlay repair technique will be performed consistent with the guidelines provided by ASME Code Case N-562-1.

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which begins on February 19, 2002.

Relief Request Number RR-15

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2, snubbers.

Code Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Article IWF-5000, "Inservice Inspection Requirements for Snubbers," subsections IWF-5200, "Preservice Examinations and Tests," and IWF-5300, "Inservice Examinations and Tests," provide requirements for examinations and tests of snubbers.

Requested Relief

HBRSEP, Unit No. 2, requests relief from the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, IWF-5200 and IWF-5300, regarding snubber examinations and tests.

Basis for Relief

HBRSEP, Unit No. 2, requests relief to perform the Proposed Alternative Examinations pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative provides an acceptable level of quality and safety.

Preservice and inservice functional testing of snubbers has been performed in accordance with the HBRSEP, Unit No. 2, Technical Requirements Manual (TRM), Section 3.18, "Snubbers." These requirements represent HBRSEP, Unit No. 2, Technical Specifications that were relocated as part of an Improved Technical Specifications Upgrade Project. Testing prescribed within TRM Section 3.18 includes such items as visual inspection of hydraulic and mechanical snubbers; functional testing of hydraulic and mechanical snubbers; and, service life monitoring of safety-related snubbers. These TRM requirements provide a level of safety, quality, and structural integrity comparable to that provided by the Code-required tests.

VT-3 visual examination of snubbers will be performed in accordance with Table IWF-2500-1, Examination Category F-A, "Supports," for Class 1, 2, and 3 snubbers, as scheduled within the Fourth Ten-Year Interval ISI Program.

Proposed Alternative Examinations

Preservice and inservice functional testing of snubbers will be in accordance with TRM Section 3.18, "Snubbers."

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which begins on February 19, 2002.

Relief Request Number RR-16

Component(s) for Which Relief is Requested

The components applicable to this relief request are the HBRSEP, Unit No. 2, RPV flange welds.

Code Examination Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-A, "Pressure Retaining Welds in Reactor Vessel," Item Nos. B1.30 and B1.40, require volumetric examination of the RPV shell-to-flange weld and head-to-flange weld, respectively, and also require these welds to be examined in the first and third periods. Fifty percent of the shell-to-flange weld shall be examined by the end of the first period, and the remainder by the end of the third period.

Requested Relief

HBRSEP, Unit No. 2, requests relief from the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Table IWB-2500-1, Examination Category B-A, Item Nos. B1.30 and B1.40, regarding the scheduling of examinations for RPV shell-to-flange and head-to-flange welds.

Basis for Relief

HBRSEP, Unit No. 2, requests relief to perform the Proposed Alternative Examinations pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternatives provide an acceptable level of quality and safety.

HBRSEP, Unit No. 2, proposes to defer examination of the RPV shell-to-flange and head-to-flange welds to the end of the inspection interval without conducting partial examinations from the flange face. For the shell-to-flange weld, this will allow the examination to be performed concurrently with other reactor vessel examinations that will be required at or near the end of the Fourth Ten-Year ISI Interval. HBRSEP, Unit No. 2, plans to examine 100% of the RPV shell-to-flange weld and 100% of the threads in the flange utilizing automated techniques that will eliminate or greatly reduce worker radiation exposures associated with this examination.

Similarly, examination of the RPV head-to-flange weld involves the potential for significant worker radiation exposures that are not commensurate with the benefits achieved from performance of the Code-required examinations.

HBRSEP, Unit No. 2, has performed no welded repair/replacement activities on the shell-to-flange or head-to-flange welds, and neither of these welds contain identified flaws or relevant conditions. Recent performance of these examinations during Refueling Outage 20 as part of the Third Ten-Year ISI Interval identified no unacceptable conditions or indications. HBRSEP, Unit No. 2, will begin the Fourth Ten-Year ISI Interval on February 19, 2002.

The shell-to-flange and head-to-flange welds are examined by VT-2 visual examination during pressure testing in accordance with Table IWB-2500-1, Examination Category B-P, "All Pressure Retaining Components," Item No. B15.10.

Proposed Alternative Examinations

Examination of the RPV shell-to-flange and head-to-flange welds will be deferred to the end of the inspection interval without conducting partial examinations from the flange face. These examinations will be performed concurrently with other reactor vessel examinations that will be required at or near the end of the Fourth Ten-Year ISI Interval.

VT-2 visual examination of the shell-to-flange and head-to-flange welds will be performed during pressure testing in accordance with Table IWB-2500-1, Examination Category B-P, Item No. B15.10.

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which begins on February 19, 2002.

Relief Request Number RR-17

Requirement(s) for Which Relief is Requested

The requirements applicable to this relief request are the HBRSEP, Unit No. 2, welding and brazing procedure qualification requirements.

Code Requirements

The ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, Article IWA-4000, "Repair/Replacement Activities," including IWA-4440, "Welding and Welder Qualification (Including Welding Operators)," provides welding and brazing procedure qualification requirements.

Relief Requested

HBRSEP, Unit No. 2, requests relief from the ASME B&PV Code, Section XI, 1995 Edition with 1996 Addenda, IWA-4000, including IWA-4440, regarding welding and brazing procedure qualification requirements.

Basis for Relief

HBRSEP, Unit No. 2, requests relief to authorize the Proposed Alternative Requirements pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternatives provide an acceptable level of quality and safety.

A substantial number of welding and brazing procedures are required to be qualified, and each procedure receives a Procedure Qualification Record (PQR). Provided that conservative and specific administrative processes are established, there is no adverse effect on safety or quality by allowing a PQR qualified by one Owner to be used by another Owner. HBRSEP, Unit No. 2, would intend to implement an administrative process that is consistent with that provided by ASME Code Case N-573, "Transfer of Procedure Qualification Records Between Owners, Section XI, Division 1."

Proposed Alternative Requirements

In lieu of the Code-required repair/replacement activities specified for welding and brazing procedure qualification requirements HBRSEP, Unit No. 2, would intend to implement an administrative process that is consistent with that provided by ASME Code Case N-573, "Transfer of Procedure Qualification Records Between Owners, Section XI, Division 1." Specifically, a PQR qualified by one Owner may be used by another Owner provided the following requirements are met:

- The Owner that performed the procedure qualification test will certify, by signing the PQR, that testing was performed in accordance with Section XI.
- The Owner that performed the procedure qualification test will certify, in writing, that the procedure qualification was conducted in accordance with a Quality Assurance Program that satisfies the requirements of IWA-1400.
- The Owner accepting the completed PQR will accept responsibility for obtaining any additional supporting information needed for WPS development.
- The Owner accepting the completed PQR will document, on each resulting WPS, the parameters applicable to welding. Each WPS will be supported by all necessary PQRs.
- The Owner accepting the completed PQR will accept responsibility for the PQR. Acceptance will be documented by the Owner's approval of each WPS that references the PQR.
- The Owner accepting the completed PQR will demonstrate technical competence in application of the received PQR by completing a performance qualification test using the parameters of a resulting WPS.
- The Owner may accept and use a PQR only when it is received directly from the Owner that certified the PQR.
- Use of this administrative process will be shown on the NIS-2 form documenting welding and brazing.

Implementation Schedule

This relief is requested for and will be implemented in the HBRSEP, Unit No. 2, Fourth Ten-Year ISI Interval, which begins on February 19, 2002.