NMC
Committed to Nuclear Excellence

Prairie Island Nuclear Generating Plant
Operated by Nuclear Management Company, LLC

JUN 2 1 2004

L-PI-04-076
10 CFR 50.55a

U S Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Prairie Island Nuclear Generating Plant Units 1 and 2
Dockets 50-282 and 50-306
License Nos. DPR-42 and DPR-60

Submittal of the 4th Interval Inservice Inspection Plan – Units 1 & 2

Attached is the 4th Interval Inservice Inspection Plan – Units 1 and 2, December 21, 2004 through December 20, 2014, Revision 0, for the Prairie Island Nuclear Generating Plant. Requests for relief, included in this program, are being submitted for NRC review and approval in accordance with 10 CFR Part 50, Section 50.55a.

The program has been developed to American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI, 1998 Edition with 2000 Addenda. The 4th Interval officially begins December 21, 2004 and the first refueling outage of the 4th Interval is scheduled for May 2005. Future Requests for Relief will be submitted as the need occurs.

Please contact Jack Leveille (612-388-1121, Ext. 4662) if you have any questions related to this letter.

Summary of Commitments

This letter contains no new commitments and no revisions to existing commitments.

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Enclosure

ENCLOSURE

Prairie Island Nuclear Generating Plant H10.5, Revision 0
4th Interval Inservice Inspection Plan –
Units 1 & 2, December 21, 2004 through December 20, 2014

82 pages follow

H	4TH INTERVAL INSERVICE INSPECTION PLAN - UNITS 1 & 2 DECEMBER 21, 2004 THROUGH DECEMBER 20, 2014	NUMBER: H10.5 REV: 0 Page 1 of 82

INFORMATION USE

- *Procedure may be performed from memory.*
- *User remains responsible for procedure adherence.*
- *Procedure should be available, but not necessarily at, the work location.*

O.C. REVIEW DATE:	OWNER:	EFFECTIVE DATE
6/9/2004	T. Downing	6/10/2004

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1.0 PURPOSE

1.1 This document establishes the implementation controls and schedule for the Inservice Inspection (ISI) Program Plan for the fourth ten-year inspection interval at the Xcel Energy Prairie Island Nuclear Generating Plant (PINGP), Units 1&2. The Nuclear Management Company (NMC) operates the plant and is the Owner as defined by IWA-9000.

1.2 This ISI Program Plan details the requirements for the examination of ASME Class 1, 2, and 3 components and component supports at the Prairie Island Nuclear Generating Station required to be examined in accordance with the 1998 Edition with 2000 Addenda of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI (the Code) within the limitations and modifications required by Title 10 of the Code of Federal Regulation, Part 50.55a, Codes and Standards.

1.3 By letter dated January 24, 2003, Prairie Island proposed an alternative under 10CFR50.55(a)(3)(i) that the third ten-year interval end date and successive interval start and end dates for Unit 1 be aligned with the Unit 2 interval start and end dates. Formal NRC approval of this alternative was received on October 2, 2003 (TAC Nos. MB7564 and MB7565). As a result, the 4th Interval Inservice Inspection Plan is effective for Unit 1 and Unit 2 from December 21, 2004 through December 20, 2014. An extension of the 3rd and successive intervals as allowed by paragraph (d) or (e) of IWA-2430 is still permissible for use, if needed, at a later date.

2.0 REFERENCES

2.1 Code of Federal Regulations, Title 10, Part 50, Paragraph 50.55a, "Codes and Standards"

2.2 ASME Boiler and Pressure Vessel Code, Section XI, Division 1, "Inservice Inspection of Nuclear Power Plant Components", the 1974 Edition with Addenda through Summer 1975

2.3 ASME Boiler and Pressure Vessel Code, Section XI, Division 1, "Inservice Inspection of Nuclear Power Plant Components", the 1998 Edition, 2000 Addenda

2.4 Regulatory Guide 1.26, Revision 3, "Quality Group Classifications and Standards for Water-, Steam-, and Radioactive Waste- Containing Components of Nuclear Power Plants"

2.5 Regulatory Guide 1.147, Revision 13, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1

2.6 Prairie Island Updated Safety Analysis Report (USAR)

2.7 Prairie Island Technical Specifications

2.8 NRC Bulletin 82-02, "Degradation of Threaded Fasteners in the Reactor Coolant Pressure Boundary of PWR Plants"

2.9 NRC Bulletin 88-11, "Pressurizer Surge Line Thermal Stratification"

2.10 NSP Letter dated February 10, 1993, entitled "Supplemental Reply to a Notice of Deviation NRC Inspection Report Nos. 282/92008 and 306/92008 Final Safety Analysis Report Commitment for Inservice Examination of High Energy Line Piping"

2.11 NSP Letter dated March 21, 1997, entitled "LER 97-02-00 Failure to Submit Relief Requests for Limited Inservice Inspection Examinations"

2.12 5AWI 14.6.0, ASME Section XI Inservice Inspection and Pressure Testing

2.13 5AWI 3.12.2, ASME Repair/Replacement Program

2.14 Procedure H1, "Quality Classification Criteria"

2.15 NMC Corporate Directive 5.6, Inservice Inspection Standard

2.16 Technical Manual NX-62893-1, Unit 1 and 2 ISI Isometric Drawings

2.17 Regulatory Guide 1.14, Revision 1, "Reactor Coolant Pump Flywheel Integrity"

2.18 USNRC Branch Technical Position APCSB 3.1

2.19 ANSI N14.6, "Special Lifting Devices for Shipping Containers Weighing 10,000 Pounds (4500 kg) or More"

2.20 NUREG 0612, "Control of Heavy Loads at Nuclear Power Plants"

2.21 Information Notice 97-19, "Safety Injection System Weld Flaw at Sequoyah Nuclear Power Plant Unit 2"

2.22 Information Notice 93-20, "Thermal Fatigue Cracking of Feedwater Piping"

2.23 Information Notice 91-05, "Intergranular Stress Corrosion Cracking in Pressurized Water Reactor Safety Injection Accumulator Nozzles"

2.24 Generic Letter 88-05, "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in PWR Plants"

2.25 NRC Order EA-03-009, "Issuance of Order Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors"

2.26 NRC Letter dated October 2, 2003, entitled "Evaluation of Relief Request Associated With Extending Unit 1 IST/ISI Interval to Align the Fourth 10-Year Interval With Unit 2 (TAC Nos. MB7564 and MB7565)"

2.27 Technical Manual, NX-62910-1, Unit 1 and 2 ISI 4th Interval Schedule

3.0 DISCUSSION

3.1 The Inservice Inspection (ISI) Program implements the pre-service and in-service inspection and pressure testing requirements mandated by the Code of Federal Regulations (CFR) in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI. Per the regulations, the ASME Code requirements apply to all components classified as ASME Code Class 1, 2, 3, and MC. Requirements for Code Class MC components are governed by procedure H10.3, Containment Inspection Plan.

3.2 Per 10CFR50.55a, licensees are required to update their ISI Programs for each ten-year interval of the facility operating license. The first ten-year interval begins at the date of commercial operation. The programs must be updated to the inspection, testing, and examination requirements of the Edition and Addenda of the ASME Codes approved for use in paragraph (b) of these regulations 12 months prior to the start of the new ten-year interval. Construction of PINGP began on June 26, 1968. Commercial operation of Unit 1 began on December 16, 1973. Commercial operation of Unit 2 began on December 21, 1974. As stated in Section 1.3, the fourth ten-year interval for PINGP Units 1 & 2 began on December 21, 2004. The inspection and testing Code of record is the 1998 Edition with 2000 Addenda Edition.

3.3 Components are assigned Code classifications based on the safety-related functions that they perform. The ASME Code Classifications are established for the purposes of inspection, testing, and examination only and do not modify facility design requirements. While the ASME Code classifications determine the rules for conducting repairs and replacements and the component inspection requirements, all repairs and replacements are performed to meet, at a minimum, the specifications of the original design code.

3.4 Procedure H1, Quality Classification Criteria, provides the basis for the classification of safety-related, pressure retaining, ASME Code Class 1, 2, and 3 fluid systems and components (those containing water, steam, air, oil, etc.) for the Prairie Island Nuclear Generating Plant (PINGP). Safety-related systems and components means those structures, systems and components that are relied upon to remain functional during and following design basis events to assure:

(1) The integrity of the reactor coolant pressure boundary (RCPB),

(2) The capability to shut down the reactor and maintain it in a safe shutdown condition, or

(3) The capability to prevent or mitigate the consequences of accidents, which could result in potential offsite exposures comparable to the applicable guideline exposures set forth in 10CFR50.34(a)(1) or 10CFR100.11, as applicable.

H1 and the ISI Boundary Diagrams detail the specific system and component classifications and the Code Class boundaries. The component classifications in turn dictate what inspections and pressure tests are required by the ASME Codes.

3.5 PI has committed to performing augmented inspection and testing of non-ASME Code Class components that are outside the scope of 10CFR50.55a. The components defined within section 6.0 are considered "important to safety" but not safety-related. The requirements for inspection of these components comes from documents such as the PI Updated Safety Analysis Report (USAR), PI Technical Specifications or licensing commitments resulting from NRC Orders or Generic Letters.

Also described in section 6.0 are the examinations of components that have been deemed necessary by Prairie Island as a result of engineering judgment, industry operating experience, NRC Information Notices, etc. These may or may not be internal site commitments.

4.0 REQUIREMENTS

4.1 ASME Section XI Code and Regulatory Requirements

The ASME Section XI Code and Regulatory requirements in this ISI Inspection Program **SHALL**, at a minimum, comply with the following:

- Code of Federal Regulations, Title 10, Part 50.55a
- ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition with 2000 Addenda

The Inservice Inspection Program and any major revisions **SHALL** be submitted to the NRC as required. In addition, requests for specific relief **SHALL** be forwarded to the NRC for approval prior to implementation. The program elements and the required documentation must be maintained on site for audit.

4.2 ISI Requirements

The general requirements for ISI are contained in the ASME B&PV Code, Section XI, Article IWA. Article IWA includes requirements for examination methods, personnel qualification, flaw evaluation, repair/replacement, hydrostatic and system pressure tests, and records and reports.

ISI requirements for examination and pressure testing vary depending on whether the components are ASME Code Class 1, 2, or 3. Section XI Code Cases contain alternative rules, which may be voluntarily adopted. A complete list of ISI Code Cases adopted, or considered for future use, at PINGP are contained in Appendix A.

5AWI 14.6.0, ASME Section XI In-Service Inspection and Pressure Testing, details how PINGP will implement the requirements of 10CFR50.55a.

4.2.1 Section XI Requirements for ASME Code Class 1 Components

The components within the ASME Code Class 1 boundary are subject to the volumetric, surface, and visual examination requirements and pressure test requirements of Article IWB-2500 and Table IWB-2500-1. Component supports must meet the examination requirements of IWF-2500 and Table IWF-2500-1. The examination categories of Table IWB-2500-1 are as follows:

Examination Category	Examination Area
B-A	Pressure retaining welds in the reactor vessel.
B-B	Pressure retaining welds in vessels other than the reactor vessel.
B-D	Full penetration welded nozzles in vessels.
B-F	Pressure retaining dissimilar metal welds in vessel nozzles.
B-G-1	Pressure retaining bolting greater than 2 inches in diameter.
B-G-2	Pressure retaining bolting 2 inches or less in diameter.
B-J	Pressure retaining welds in piping.
B-K	Welded attachments for vessels, piping, pumps, and valves.
B-L-1	Pressure retaining welds in pump casings.
B-L-2	Pump casings.
B-M-1	Pressure retaining welds in valve bodies.
B-M-2	Valve bodies.
B-N-1	Interior of the reactor vessel.
B-N-2	Welded core support structures and interior attachments to the reactor vessel.
B-N-3	Removable core support structures.
B-O	Pressure retaining welds in control rod housings.
B-P	All pressure retaining components.
B-Q	Steam generator tubing.

4.2.2 Section XI Exemptions for ASME Code Class 1 Components

The following components or parts of components are exempted from the volumetric and surface examination requirements of IWB-2500:

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

- Piping of NPS 1, except for steam generator tubing, and smaller.

- Components and their connections in piping and tubing (defined as having one inlet and one outlet pipe, each of which **SHALL** be NPS 1 or smaller) of NPS 1 and smaller (for example, this would include a 1.5 inch valve in an NPS-1 piping line).

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

- Supports are exempt from the examination requirements of IWF-2000 connected to piping and components exempted from volumetric, surface, VT-1, or VT-3 as outlined above.

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

4.2.3 Section XI Requirements for ASME Code Class 2 Components

The components within the ASME Code Class 2 boundary are subject to the volumetric, surface, and visual examination requirements and pressure test requirements of Article IWC-2500 and Table IWC-2500-1. Component supports must meet the examination requirements of IWF-2500 and Table IWF-2500-1. The examination categories of Table IWC-2500-1 are as follows:

Examination Category	Examination Area
C-A	Pressure retaining welds in the pressure vessels.
C-B	Pressure retaining nozzle welds in vessels.
C-C	Welded attachments for vessels, piping, pumps, and valves.
C-D	Pressure retaining bolting greater than 2 inches in diameter.
C-F-1	Pressure retaining welds in austenitic stainless steel or high alloy steel piping.
C-F-2	Pressure retaining welds in carbon or low steel alloy piping.
C-G	Pressure retaining welds in pumps and valves.
C-H	All pressure retaining components.

4.2.4 Section XI Exemptions for ASME Code Class 2 Components

The following components or parts of components are exempted from the volumetric and surface examination requirements of IWC-2500:

- Components Within Residual Heat Removal (RHR), Emergency Core Cooling (ECC), and Containment Heat Removal (CHR) or Portions of Systems

  1. Piping NPS 4 and smaller and associated vessels, pumps, and valves and their connections, for all systems with the exception of the high pressure safety injection system,

  2. Piping NPS 1 ½ and smaller and associated vessels, pumps, and valves and their connections in high pressure safety injection systems,

  3. Component connections NPS 4 and smaller (including nozzles, socket fittings and other connections) in vessels, piping, pumps, and other components of any size in all systems with the exception of the high pressure safety injection system,

  4. Component connections NPS 1 ½ and smaller (including nozzles, socket fittings and other connections) in vessels, piping, pumps, and other components of any size in high pressure safety injection systems,

  5. Vessels, piping, pumps, valves and other connections of any size in statically pressurized passive safety injection systems (e.g., the safety injection accumulators and associated components),

  6. Piping and 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.

- Components Within Systems or Portions of Systems Other Than RHR, ECC, and CHR Systems

  1. Piping NPS 4 and smaller, for all systems with the exception of the auxiliary feedwater system,

  2. Piping NPS 1 ½ and smaller in the auxiliary feedwater system,

  3. Vessels, pumps, and valves, and their connections in piping NPS 4 and smaller, for all systems with the exception of the auxiliary feedwater system,

  4. Vessels, pumps and valves and their connections in piping NPS 1 ½ and smaller in the auxiliary feedwater system,

  5. Component connections NPS 4 and smaller (including nozzles, socket fittings and other connections) in vessels, piping, pumps, and other components of any size, for all systems with the exception of the auxiliary feedwater system,

  6. Component connections NPS 1 ½ and smaller in vessels, piping, pumps and other components of any size in the auxiliary feedwater system,

  7. 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,

  8. 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.

- 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.

4.2.5 Section XI Requirements for ASME Code Class 3 Components

The components within the ASME Code Class 3 boundary are subject to the visual examination and pressure test requirements of Article IWD-2500 and Table IWD-2500-1. Component supports must meet the examination requirements of IWF-2500 and Table IWF-2500-1. The examination categories of Table IWD-2500-1 are as follows.

Examination Category	Examination Area
D-A	Welded attachments for vessels, piping, pumps and valves
D-B	All pressure retaining components

4.2.6 Section XI Exemptions for ASME Code Class 3 Components

The following components or parts of components are exempted from the visual examination requirements of IWD-2500:

- Integral attachments of supports and restraints to piping, vessels, pumps and valves and their connections in piping NPS 4 and smaller,
- Integral attachments of supports and restraints to components that operate at a pressure of 275 psig or less and 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, containment heat removal, and emergency core cooling,
- 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.

4.3 Inspection Schedule

Prairie Island will follow the inspection schedule of IWB/C/D-2412 and IWF-2410, Inspection Program B for the fourth ten-year interval. The Inspection Interval **SHALL** include three Inspection Periods.

Per IWA-2430(d) an Inspection Period may be decreased or extended by as much as one year to enable examinations to coincide with a plant outage provided the adjustment does not cause successive intervals to be altered by more than one (1) year from the original pattern of intervals.

Inspection Interval	Period	Minimum Examinations Completed, %	Maximum Examinations Completed, %
4th	1	16	50
	2	50[1]	75
	3	100	100

Note:

(1) If the first period completion percentage for any examination category exceeds 34%, at least 16% of the required examinations **SHALL** be performed in the second period.

4.4 Component Scheduling Codes

The following list describes the scheduling designators that are used in the ISI database for tracking when and why a component was examined.

Scheduled	s	Identifies component scheduled for examination that will be used to meet the percentage requirements of ASME Section XI.
Completed	c	Identifies that the examination of a component has been completed to meet the percentage requirements of ASME Section XI.
Re-scheduled	r	Identifies that a component originally scheduled has been rescheduled to another outage.
Expanded	e	Identifies a component that is scheduled for an expanded scope examination.
	E	Identifies that the examination of a component has been completed as part of an expanded scope.
Additional Expanded Scope	a	Identifies a component that is scheduled for an additional expanded scope examination.
	A	Identifies that the examination of a component has been completed as part of an additional expanded scope.
Partial	p	Identifies that the examination requirements for a component have been partially completed.
Deferred	d	Identifies that an examination for a component has been deferred to another outage or period.
Limited	L	Identifies an examination that has limited coverage. Once the NRC has approved a relief request for the limitation, the "L" designator will be changed to a "c" for exams that are required for credit in order for the reporting and compliance calculators to work accurately.
Multiple	b	Identifies multiple scheduling of a component within the same interval. This examination will not be used to meet the percentage requirements of ASME Section XI.
	B	Identifies that the examination of a component has been completed. This examination will not be used to meet the percentage requirements of ASME Section XI.
Tickler	t	Identifies that the examination of a component has been completed. While all of the requirements of the examination were met in order to take credit for the exam as a code exam, this examination will not be used to meet the percentage requirements of ASME Section XI.
Successive Examinations	h	Identifies a component that is scheduled for a successive examination.
	H	Identifies that the examination of a component has been completed as part of a successive examination.

5.0 INSERVICE INSPECTION PROGRAM SUMMARY TABLES

The following Tables in this section provide a summary of the Section XI component, component support, and system pressure testing examinations and tests for Interval 4 at PINGP.

The format of the Inservice Inspection Summary Tables is shown below with an explanation of each column. The detailed examination schedule for components is contained in Technical Manual NX-62910-1 for Unit 1 and Unit 2.

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)

(1) Examination Category:

Provides the examination category and description as identified in ASME Section XI, Tables IWB-2500-1, IWC-2500-1, IWD-2500-1, and IWF-2500-1. Only those examination categories applicable to PINGP are identified.

(2) Item Number:

Provides the item number as identified in ASME Section XI, Tables IWB-2500-1, IWC -2500-1, IWD-2500-1, and IWF-2500-1. Only those item numbers applicable to PINGP are identified.

(3) Item Number Description:

Provides the description as identified in ASME Section XI, Tables IWB-2500-1, IWC-2500-1, IWD-2500-1, and IWF-2500-1.

(4) Examination Method:

Provides the examination method(s), i.e., volumetric, surface, visual, required by ASME Section XI, Tables IWB-2500-1, IWC-2500-1, IWD-2500-1, and IWF-2500-1.

(5) Required Exams:

Provides for the examinations required by ASME Section XI, Tables IWB-2500-1, IWC-2500-1, IWD-2500-1, and IWF-2500-1.

(6) Deferral to End:

Provides for whether a deferral of examination requirement required by ASME Section XI, Tables IWB-2500-1 is permissible.

(7) Total Number:

Provides the number of components within an Item Number.

(8) Number Required:

Provides the number of components required by ASME Section XI, Tables IWB-2500-1, IWC-2500-1, IWD-2500-1, and IWF-2500-1.

(9) Number 1st Period:

Provides the number of components selected for examination during the First Period of the ten-year inspection interval.

(10) Number 2nd Period:

Provides the number of components selected for examination during the Second Period of the ten-year inspection interval.

(11) Number 3rd Period:

Provides the number of components selected for examination during the Third Period of the ten-year inspection interval.

(12) Relief Request/Code Case:

Provides a listing of relief requests and/or code cases applicable to the Section XI Item Number. If a relief request or Code Case is identified, see Appendix A or Appendix B, as applicable.

Unit 1 Class 1 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-A Pressure Retaining Welds in Reactor Vessel	B1.11	Circumferential – Shell Welds	Volumetric	All Welds	Yes	3	3	-	-	3	RR-4-1
	B1.21	Circumferential – Head Welds	Volumetric	Acces. Length All Welds	Yes	1	1	-	-	1	RR-4-1
	B1.30	Shell-to-Flange Weld	Volumetric	Acces. Weld Length	Partial	1	1	Partial From Flange Face	-	1	
	B1.40	Head-to-Flange Weld	Volumetric & Surface	Acces. Weld Length	No	1	1	-	1	-	

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-B Pressure Retaining Welds In Vessels Other Than Reactor Vessels		**Pressurizer (Shell-To-Head Welds)**									
	B2.11	Circumferential	Volumetric	All Welds	No	2	2	1	1	-	
	B2.12	Longitudinal	Volumetric	1 ft of welds intersecting B2.11 welds	No	2	2	1	1	-	
		Steam Generators (Primary Side)									
	B2.40	Tube Sheet-To-Head Weld	Volumetric	Weld	No	2	1	-	-	1	
		Heat Exchangers (Primary Side)									
	B2.60	Tubesheet to Head Welds*	Visual, VT-2	-	No	3	3	-	-	-	RR-4-2

* All items under Item Number B2.60 are examined each refueling outage per SP 1070

Unit 1 Class 1 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-D Full Penetration Welds of Nozzles in Vessels - Inspection Program B	B3.90	Nozzle-to-Vessel Welds, Reactor Vessel	Volumetric	All Nozzles	Yes	6	6	-	-	6	N-521
	B3.100	Nozzle Inside Radius Section, Reactor Vessel	Visual, VT-1	All Nozzles	Yes	6	6	-	-	6	N-648-1 N-521
	B3.110	Nozzle-to-Vessel Welds, Pressurizer	Volumetric	All Nozzles	No	5	5	1	2	2	
	B3.130	Nozzle-to-Vessel Welds, Steam Generator	Volumetric	All Nozzles	No	4	4	1	1	2	
	B3.160	Nozzle Inside Radius Section, Heat Exchangers* (Primary Side)	Visual, VT-2	All Nozzles	No	6	6	-	-	-	RR-4-2

* All items under Item Number B2.60 are examined each refueling outage per SP 1070

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-F Pressure Retaining Dissimilar Metal Welds In Vessel Nozzles		**Reactor Vessel**									
	B5.10	Dissimilar Metal - Nozzle-to-Safe End Butt Welds NPS 4 or Larger	Volumetric & Surface	All Welds	Yes	6	6	-	-	6	N-521
		Pressurizer									
	B5.40	Dissimilar Metal Nozzle-to-Safe End Butt Welds NPS 4 or Larger	Volumetric & Surface	All Welds	No	5	5	1	2	2	
		Steam Generator									
	B5.70	Dissimilar Metal Nozzle-to-Safe End Butt Welds NPS 4 or Larger	Volumetric & Surface	All Welds	No	4	4	1	1	2	

Unit 1 Class 1 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-G-1* Pressure Retaining Bolting, Greater Than 2 in. in Diameter	B6.10	Reactor Vessel Closure Head Nuts	Visual, VT-1	All Nuts > 2"	Yes	48	48	16	16	16	
	B6.30	Reactor Vessel Closure Studs, when Removed	Volumetric or Surface	All Studs > 2"	Yes	48	48	16	16	16	
	B6.40	Threads in Reactor Vessel Flange	Volumetric	All Studs Holes > 2"	Yes	48	48	-	-	48	
	B6.50	Reactor Vessel Closure Washers	Visual, VT-1	All Washers > 2"	Yes	48	48	16	16	16	
	B6.180	Bolts and Studs, Pumps	Volumetric	All Bolts/Studs > 2"	Yes	48	24	-	24	-	
	B6.190	Flange Surface, When Disassembled, in Pumps	Visual, VT-1	When Disassembled	Yes	2	-	-	-	-	
*Code Case N-307-2 may be used											

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-G-2 Pressure Retaining Bolting, 2 in. and Less in Diameter	B7.10	Bolts, Studs, & Nuts in Reactor Vessel	Visual, VT-1	All < 2"	No	3	3	1	1	1	
	B7.20	Bolts, Studs, & Nuts in Pressurizer	Visual, VT-1	All < 2"	No	1	1	-	1	-	
	B7.30	Bolts, Studs, & Nuts in Steam Generator	Visual, VT-1	All < 2"	No	4	4	1	1	2	
	B7.50	Bolts, Studs, & Nuts in Piping	Visual, VT-1	All < 2"	No	11	11	3	4	4	
	B7.60	Bolts, Studs, & Nuts in Pumps	Visual, VT-1	All < 2"	No	2	2	1	-	1	
	B7.70	Bolts, Studs, & Nuts in Valves	Visual, VT-1	All < 2"	No	17	17	5	6	6	
* The "Total Number" represents individual components by grouping. 100% of the applicable bolting will be examined on each component.											

Unit 1 Class 1 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-J Pressure Retaining Welds in Piping	B9.11	Circumferential Welds – NPS 4 or Larger	Surface & Volumetric	25% of All Circumferential Welds	No	145	37	12	12	13	
	B9.21	Circumferential Welds – Less than NPS 4	Surface	25% of All Circumferential Welds	No	450	113	37	38	38	
	B9.31	Branch Pipe Connection Welds - NPS 4 or Larger	Surface & Volumetric	25% All Welds	No	9	3	1	1	1	
	B9.32	Branch Pipe Connection Welds - Less Than NPS 4	Surface	25% All Welds	No	16	4	1	2	1	
	B9.40	Socket Welds	Surface	25% of All Socket Welds	No	51	13	4	5	4	

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-K Welded Attachments For Vessels, Piping, Pumps, and Valves	B10.10	Welded Attachment - Vessels	Surface	1 of each similar vessel	No	3	2	1	-	1	
	B10.20	Welded Attachments – Piping	Surface	10%	No	47	5	1	2	2	
	B10.30	Welded Attachments - Pumps	Surface	10%	No	3	1	-	-	1	

Unit 1 Class 1 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-L-1 Pressure Retaining Welds in Pumps Casings	B12.10	Pump Casing Welds	Visual, VT-1	All Welds 1 Pump	Yes	2	1	-	1	-	
B-L-2 Pump Casings	B12.20	Pump Casing Internal Surfaces	Visual, VT-3	Internal Surfaces, If Disassembled	Yes	2	0	-	-	-	
B-M-2 Valve Bodies	B12.50	Valve Internal Surfaces, Exceeding NPS 4	Visual, VT-3	Internal Surfaces, If Disassembled	Yes	17	0	-	-	-	

Unit 1 Class 1 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-N-1 Interior of Reactor Vessel	B13.10	Vessel Interior	Visual, VT-3	Accessible Areas During Each Inspection Period	No	1	1	All Accessible Areas Once Each Period			
B-N-2 Welded Core Support Structures and Interior Attachments to Reactor Vessels	B13.50	Interior Attachments Within Beltline Region in Reactor Vessel	Visual, VT-1	Accessible Welds	Yes	1	1	-	-	1	
B-N-2 Welded Core Support Structures and Interior Attachments to Reactor Vessels	B13.60	Interior Attachments Beyond Beltline Region in Reactor Vessel	Visual, VT-3	Accessible Welds	Yes	1	1	-	-	1	
B-N-3 Removable Core Support Structures	B13.70	Core Support Structure in Reactor Vessel	Visual, VT-3	Accessible Welds/Surfaces	Yes	1	1	-	-	1	

Unit 1 Class 1 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-O Pressure Retaining Welds in Control Rod Housings	B14.10	Welds in CRD Housing	Volumetric or Surface	10% Peripheral Housings	Yes	20	2	-	1	1	
B-P* All Pressure Retaining Components (Periodic) Code Case N-533-1 RR-4-3	B15.10	Reactor Vessel - System Leakage Test	Visual, VT-2	-	No	-	-	-	-	-	
	B15.20	Pressurizer - System Leakage Test	Visual, VT-2	-	No	-	-	-	-	-	
	B15.30	Steam Generator - System Leakage Test	Visual, VT-2	-	No	-	-	-	-	-	
	B15.40	Heat Exchangers – System Leakage Test	Visual, VT-2	-	No	-	-	-	-	-	
	B15.50	Piping - System Leakage Test	Visual, VT-2	-	No	-	-	-	-	-	
	B15.60	Pumps - System Leakage Test	Visual, VT-2	-	No	-	-	-	-	-	
	B15.70	Valves - System Leakage Test	Visual, VT-2	-	No	-	-	-	-	-	
B-Q Steam Generator Tubing	B16.20	Steam Generator Tubing in U-Tube Design	Volumetric**	-	-	-	-	-	-	-	

* All items under Category B-P are examined each outage per SP 1070 and SP 1372.

** Volumetric Per Technical Specifications

Unit 1 Class 1 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
F-A Supports	F1.10a	Class 1 Piping Supports (One Direction Support)	Visual, VT-3	25% (of F1.10a, b & c)	N/A	50	13	4	4	5	
	F1.10b	Class 1 Piping Supports (Multi Directional Supports)	Visual, VT-3	25% (of F1.10a, b & c)	N/A	94	24	8	8	8	
	F1.10c	Class 1 Piping Supports (Spring Can Supports & Snubbers)	Visual, VT-3	25% (of F1.10a, b & c)	N/A	64	16	5	5	6	
	F1.40	Supports Other Than Piping Supports (Class 1, 2, 3 and MC)	Visual, VT-3	100% (One of Multiple)	N/A	24	13	4	4	5	

Unit 1 Class 2 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
C-A Pressure Retaining Welds in Pressure Vessels	C1.10	Shell Circumferential Welds (SG)	Volumetric	At Gross Structural Discontinuities	N/A	12	6	2	2	2	
	C1.20	Head Circumferential Welds (SG)	Volumetric	Head-to-Shell Weld	N/A	4	2	1	-	1	
	C1.30	Tubesheet-to-Shell Weld	Volumetric	Tube-to-Shell Weld	N/A	2	1	-	1	-	

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
C-B Pressure Retaining Nozzle Welds in Vessels	C2.21	Nozzle-to-Shell (or Head) Weld without Reinforcing Plate, > 1/2" Nominal Thickness	Surface & Volumetric	All nozzles under C-F	N/A	4	2	1	-	1	
	C2.22	Nozzle Inside Radius Section	Volumetric	All nozzles under C-F	N/A	4	2	-	1	1	
	C2.31	Nozzles with Reinforcing Plate Welds to Nozzle and Vessel, > 1/2" Nominal Thickness	Surface	All nozzles under C-F	N/A	4	2	1	1	-	

Unit 1 Class 2 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
C-C Welded Attachments for Vessels, Piping, Pumps, and Valves	C3.10	Welded Attachments to Pressure Vessels	Surface	100% of required area of each welded attachment	N/A	4	2	-	1	1	
	C3.20	Welded Attachments to Piping	Surface	100% of required area of each welded attachment	N/A	117	12	4	4	4	
	C3.30	Welded Attachments to Pumps	Surface	100% of required area of each welded attachment	N/A	16	8	2	3	3	
	C3.40	Welded Attachments to Valves	Surface	100% of required area of each welded attachment	N/A	2	1	1	-	-	

Unit 1 Class 2 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
C-F-1 Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping	C5.11	Circumferential Welds in Austenitic Stainless Steel or High Alloy Piping ≥ 3/8" Nominal Wall Thickness for Piping > NPS 4	Surface & Volumetric	7.5% but not less than 28 welds total	N/A	29	4	1	1	2	
	C5.21	Circumferential Welds in Austenitic Stainless Steel or High Alloy Piping >1/5" Nominal Wall Thickness for Piping ≥ NPS 2 and ≤ NPS 4	Surface & Volumetric	7.5% but not less than 28 welds total	N/A	231	36	12	12	12	
	C5.30	Socket Welds	Surface	7.5% but not less than 28 welds total	N/A	62	10	3	3	4	
	C5.41	Pipe Branch Connections of Branch Piping NPS ≥ 2, Circumferential Weld	Surface	7.5% but not less than 28 welds total	N/A	7	2	1	1	-	
	CX.XX	Welds in Austenitic Stainless Steel or High Alloy Piping < 3/8" Nominal Wall Thickness for Piping > NPS 4 (XX)	*	7.5% but not less than 28 welds total	N/A	393	0	-	-	-	

* Thin wall piping welds not required to be inspected, but are included in the total weld count to which the 7.5% sampling rate is applied.

Unit 1 Class 2 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
C-F-2 Pressure Retaining Welds in Carbon or Low Alloy Steel Piping	C5.51	Circumferential Welds in Carbon or Low Alloy Steel Piping < 3/8" Nominal Wall Thickness for Piping > NPS 4	Volumetric & Surface	7.5% but not less than 28 welds total	N/A	77	14	4	5	5	
	C5.61	Circumferential Welds in Carbon or Low Alloy Steel Piping > 1/5" Nominal Wall Thickness for Piping ≥ NPS 2 and ≤ NPS 4	Volumetric & Surface	7.5% but not less than 28 welds total	N/A	43	8	2	3	3	
	C5.81	Circumferential Welds - Pipe Branch Connections of Branch Piping ≥ NPS 2	Surface	7.5% but not less than 28 welds total	N/A	10	2	1	-	1	

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
C-H* All Pressure Retaining Components	C7.10	Pressure Retaining Components - System Leakage Test	Visual, VT-2	-	-	-	-	-	-	-	N-522 N-533-1

* All items under Category C-H are examined each period per SP 1168.

Unit 1 Class 2 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
F-A Supports	F1.20a	Class 2 Piping Supports (One Direction Support)	Visual – VT-3	15% (of type a, b, and c)	N/A	107	17	5	5	7	
	F1.20b	Class 2 Piping Supports (Multi Directional Supports)	Visual – VT-3	15% (of type a, b, and c)	N/A	83	13	4	5	4	
	F1.20c	Class 2 Piping Supports (Spring Can Supports & Snubbers)	Visual – VT-3	15% (of type a, b, and c)	N/A	58	9	3	3	3	
	F1.40	Supports Other Than Piping Supports (Class 1, 2, 3 & MC)	Visual – VT-3	100% (one of multiple)	N/A	43	7	2	2	3	

Unit 1 Class 3 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
D-A Welded Attachments for Vessels, Piping, Pumps and Valves	D1.10	Welded Attachments - Vessels	Visual, VT-1	100% of required area of each welded attachment	N/A	8	4	1	1	2	
	D1.20	Welded Attachments - Piping	Visual, VT-1	100% of required area of each welded attachment	N/A	83	9	3	3	3	
	D1.30	Welded Attachments – Pumps	Visual, VT-1	100% of required area of each welded attachment	N/A	6	1	-	1	-	

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
D-B* All Pressure Retaining Components	D2.10	Pressure Retaining Components – System Leakage Test	Visual, VT-2	IWD-5221	N/A	-	-	-	-	-	
	D2.20	Pressure Retaining Components – System Hydrostatic Test	Visual, VT-2	IWD-5222	N/A	-	-	-	-	-	
Code Cases N-498-4 N-533-1											

* All items under Category D-B are examined each period per SP 1168.

Unit 1 Class 3 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
F-A Supports	F1.30a	Class 3 Piping Supports (One Direction Support)	Visual – VT-3	10% (of type a, b, and c)	N/A	257	26	8	8	10	
	F1.30b	Class 3 Piping Supports (Multi Directional Supports)	Visual – VT-3	10% (of type a, b, and c)	N/A	131	13	5	5	3	
	F1.30c	Class 3 Piping Supports (Spring Can Supports & Snubbers)	Visual – VT-3	10% (of type a, b, and c)	N/A	52	6	2	2	2	
	F1.40	Supports Other Than Piping (Class 1, 2, 3, and MC)	Visual – VT-3	100% (One of multiple)	N/A	20	10	3	3	4	

Unit 2 Class 1 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-A Pressure Retaining Welds in Reactor Vessel	B1.11	Circumferential – Shell Welds	Volumetric	All Welds	Yes	3	3	-	-	3	RR-4-1
	B1.21	Circumferential – Head Welds	Volumetric	Acces. Length All Welds	Yes	1	1	-	-	1	RR-4-1
	B1.30	Shell-to-Flange Weld	Volumetric	Acces. Weld Length	Partial	1	1	Partial From Flange Face	-	1	
	B1.40	Head-to-Flange Weld	Volumetric & Surface	Acces. Weld Length	Partial	1	1	-	1	-	

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-B Pressure Retaining Welds In Vessels Other Than Reactor Vessels		**Pressurizer (Shell-To-Head Welds)**									
	B2.11	Circumferential	Volumetric	All Welds	No	2	2	1	1-	-	
	B2.12	Longitudinal	Volumetric	1 ft of welds intersecting B2.11 welds	No	2	2	1	1	-	
		Steam Generators (Primary Side)									
	B2.40	Tube Sheet-To-Head Welds	Volumetric	Weld	No	2	1	-	-	1	
		Heat Exchangers (Primary Side)									
	B2.60	Tubesheet to Head Welds*	Visual, VT-2	-	No	3	3	-	-	-	RR-4-2

* All items under Item Number B2.60 are examined each outage per SP 1070

Unit 2 Class 1 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-D Full Penetration Welds of Nozzles in Vessels - Inspection Program B	B3.90	Nozzle-to-Vessel Welds, Reactor Vessel	Volumetric	All Nozzles	Yes	6	6	-	-	6	N-521
	B3.100	Nozzle Inside Radius Section, Reactor Vessel	Visual, VT-1	All Nozzles	Yes	6	6	-	-	6	N-648-1 N-521
	B3.130	Nozzle-to-Vessel Welds, Pressurizer	Volumetric	All Nozzles	No	5	5	1	2	2	
	B3.150	Nozzle-to-Vessel Welds, Steam Generator	Volumetric	All Nozzles	No	4	4	1	1	2	
	B3.160	Nozzle Inside Radius Section, Heat Exchangers (Primary Side)*	Visual, VT-2	All Nozzles	No	6	6	-	-	-	RR-4-2

* All items under Item Number B3.160 are examined each outage per SP 1070

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-F *Pressure* Retaining Dissimilar Metal Welds In Vessel Nozzles		**Reactor Vessel**									
	B5.10	Dissimilar Metal - Nozzle-to-Safe End Butt Welds NPS 4 or Larger	Volumetric & Surface	All Welds	Yes	6	6	-	-	6	N-521
		Pressurizer									
	B5.40	Dissimilar Metal Nozzle-to-Safe End Butt Welds NPS 4 or Larger	Volumetric & Surface	All Welds	No	5	5	1	2	2	
		Steam Generator									
	B5.70	Dissimilar Metal Nozzle-to-Safe End Butt Welds NPS 4 or Larger	Volumetric & Surface	All Welds	No	4	4	1	1	2	

Unit 2 Class 1 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-G-1* Pressure Retaining Bolting, Greater Than 2 in. in Diameter	B6.10	Reactor Vessel Closure Head Nuts	Visual, VT-1	All Nuts > 2"	Yes	48	48	16	16	16	
	B6.30	Reactor Vessel Closure Studs, when Removed	Volumetric or Surface	All Studs > 2"	Yes	48	48	16	16	16	
	B6.40	Threads in Reactor Vessel Flange	Volumetric	All Studs Holes > 2"	Yes	48	48	-	-	48	
	B6.50	Reactor Vessel Closure Washers	Visual, VT-1	All Washers > 2"	Yes	48	48	16	16	16	
	B6.180	Bolts and Studs, Pumps	Volumetric	All Bolts/Studs > 2"	Yes	48	24		24	-	
	B6.190	Flange Surface, When Disassembled, in Pumps	Visual, VT-1	When Disassembled	Yes	2	-	-	-	-	
*Code Case N-307-2 may be used.											

Unit 2 Class 1 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-G-2* Pressure Retaining Bolting, 2 in. and Less in Diameter	B7.10	Bolts, Studs, & Nuts in Reactor Vessel	Visual, VT-1	All < 2"	No	3	3	1	1	1	
	B7.20	Bolts, Studs, & Nuts in Pressurizer	Visual, VT-1	All < 2"	No	1	1	-	1	-	
	B7.30	Bolts, Studs, & Nuts in Steam Generator	Visual, VT-1	All < 2"	No	4	4	1	1	2	
	B7.50	Bolts, Studs, & Nuts in Piping	Visual, VT-1	All < 2"	No	9	9	3	3	3	
	B7.60	Bolts, Studs, & Nuts in Pumps	Visual, VT-1	All < 2"	No	2	2	1	-	1	
	B7.70	Bolts, Studs, & Nuts in Valves	Visual, VT-1	All < 2"	No	17	17	5	6	6	
Total Number of Exams Per Column						36	36	11	12	13	
Total Number of Exams Accumulated								11	23	36	
Required Accumulated Number Per Period								6-12	18-24	36	

* The "Total Number" represents individual components by grouping. 100% of the applicable bolting will be examined on each component.

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-J Pressure Retaining Welds in Piping	B9.11	Circumferential Welds – NPS 4 or Larger	Surface & Volumetric	25% of All Circumferential Welds	No	174	44	12	17	15	
	B9.21	Circumferential Welds – Less Than NPS 4	Surface	25% of All Circumferential Welds	No	396	99	33	33	33	
	B9.31	**Branch Pipe Connection Welds** - NPS 4 or Larger	Surface & Volumetric	25% All Welds	No	9	3	1	1	1	
	B9.32	**Branch Pipe Connection Welds** - Less Than NPS 4	Surface	25% All Welds	No	19	5	2	2	1	
	B9.40	Socket Welds	Surface	25% of All Socket Welds	No	84	21	7	7	7	

Unit 2 Class 1 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-K Welded Attachments For Vessels, Piping, Pumps, and Valves	B10.10	Welded Attachment - Vessels	Surface	1 of each similar Vessel	No	3	2	1	-	1	
	B10.20	Welded Attachments – Piping	Surface	10%	No	41	5	1	2	2	

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-L-1 Pressure Retaining Welds in Pumps Casings	B12.10	Pump Casing Welds	Visual, VT-1	All Welds 1 Pump	Yes	2	1	-	1	-	
B-L-2 Pump Casings	B12.20	Pump Casing Internal Surfaces	Visual, VT-3	Internal Surfaces, If Disassembled	Yes	2	0	-	-	-	
B-M-2 Valve Bodies	B12.50	Valve Internal Surfaces, Exceeding NPS 4	Visual, VT-3	Internal Surfaces, If Disassembled	Yes	17	0	-	-	-	

Unit 2 Class 1 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-N-1 Interior of Reactor Vessel	B13.10	Vessel Interior	Visual, VT-3	Accessible Areas During Each Inspection Period	No	1	1	All Accessible Areas Once Each Period			
B-N-2 Welded Core Support Structures and Interior Attachments to Reactor Vessels	B13.50	Interior Attachments Within Beltline Region in Reactor Vessel	Visual, VT-1	Accessible Welds	Yes	1	1	-	-	1	
B-N-2 Welded Core Support Structures and Interior Attachments to Reactor Vessels	B13.60	Interior Attachments Beyond Beltline Region in Reactor Vessel	Visual, VT-3	Accessible Welds	Yes	1	1	-	-	1	
B-N-3 Removable Core Support Structures	B13.70	Core Support Structure in Reactor Vessel	Visual, VT-3	Accessible Welds/Surfaces	Yes	1	1	-	-	1	

Unit 2 Class 1 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
B-O Pressure Retaining Welds in Control Rod Housings	B14.10	Welds in CRD Housing	Volumetric or Surface	10% Peripheral Housings	Yes	20	2	-	1	1	
B-P* All Pressure Retaining Components (Periodic) Code Case N-533-1 RR-4-3	B15.10	Reactor Vessel - System Leakage Test	Visual, VT-2	-	No	-	-	-	-	-	
	B15.20	Pressurizer - System Leakage Test	Visual, VT-2	-	No	-	-	-	-	-	
	B15.30	Steam Generator - System Leakage Test	Visual, VT-2	-	No	-	-	-	-	-	
	B15.40	Heat Exchangers – System Leakage Test	Visual, VT-2	-	No	-	-	-	-	-	
	B15.50	Piping - System Leakage Test	Visual, VT-2	-	No	-	-	-	-	-	
	B15.60	Pumps - System Leakage Test	Visual, VT-2	-	No	-	-	-	-	-	
	B15.70	Valves - System Leakage Test	Visual, VT-2	-	No	-	-	-	-	-	
B-Q Steam Generator Tubing	B16.20	Steam Generator Tubing in U-Tube Design	Volumetric**	-	-	-	-	-	-	-	

*All items under Category B-P are examined each outage per SP 2070 and SP 2392

**Volumetric Per Technical Specifications

Unit 2 Class 1 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
F-A Supports	F1.10a	Class 1 Piping Supports (One Direction Support)	Visual, VT-3	25% (of F1.10a, b & c)	N/A	70	18	6	6	6	
	F1.10b	Class 1 Piping Supports (Multi Directional Supports)	Visual, VT-3	25% (of F1.10a, b & c)	N/A	79	20	6	7	7	
	F1.10c	Class 1 Piping Supports (Spring Can Supports & Snubbers)	Visual, VT-3	25% (of F1.10a, b & c)	N/A	63	16	5	5	6	
	F1.40	Supports Other Than Piping Supports (Class 1, 2, 3 and MC)	Visual, VT-3	100% (One of Multiple)	N/A	23	12	4	4	4	

Unit 2 Class 2 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
C-A Pressure Retaining Welds in Pressure Vessels	C1.10	Shell Circumferential Welds (SG)	Volumetric	At Gross Structural Discontinuities	N/A	12	6	2	2	2	
	C1.20	Head Circumferential Welds (SG)	Volumetric	Head-to-Shell Weld	N/A	4	2	1	-	1	
	C1.30	Tubesheet-to-Shell Weld	Volumetric	Tube-to-Shell Weld	N/A	2	1	-	1	-	

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
C-B Pressure Retaining Nozzle Welds in Vessels	C2.21	Nozzle-to-Shell (or Head) Weld without Reinforcing Plate, > 1/2" Nominal Thickness	Surface & Volumetric	All nozzles under C-F	N/A	4	2	1	-	1	
	C2.22	Nozzle Inside Radius Section	Volumetric	All nozzles under C-F	N/A	4	2	-	1	1	
	C2.31	Nozzles with Reinforcing Plate Welds to Nozzle and Vessel, >1/2" Nominal Thickness	Surface	All nozzles under C-F	N/A	4	2	1	1	-	

Unit 2 Class 2 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
C-C Welded Attachments for Vessels, Piping, Pumps, and Valves	C3.10	Welded Attachments to Pressure Vessels	Surface	100% of required area of each welded attachment	N/A	4	2	1	-	1	
	C3.20	Welded Attachments to Piping	Surface	100% of required area of each welded attachment	N/A	101	11	1	-	1	
	C3.30	Welded Attachments to Pumps	Surface	100% of required area of each welded attachment	N/A	16	8	2	3	3	
	C3.40	Welded Attachments to Valves	Surface	100% of required area of each welded attachment	N/A	2	1	-	1	-	

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
C-F-1 Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping	C5.11	Circumferential Welds in Austenitic Stainless Steel or High Alloy Piping ≥ 3/8" Nominal Wall Thickness for Piping > NPS 4	Surface & Volumetric	7.5% but not less than 28 welds total	N/A	29	5	1	2	2	
	C5.21	Circumferential Welds in Austenitic Stainless Steel or High Alloy Piping > 1/5" Nominal Wall Thickness for Piping ≥ NPS 2 and ≤ NPS 4	Surface & Volumetric	7.5% but not less than 28 welds total	N/A	250	36	12	12	12	
	C5.30	Socket Welds	Surface	7.5% but not less than 28 welds total	N/A	65	10	3	3	4	
	C5.41	Pipe Branch Connections of Branch Piping NPS ≥ 2, Circumferential Weld	Surface	7.5% but not less than 28 welds total	N/A	5	1	-	1	-	
	CX.XX	Welds in Austenitic Stainless Steel or High Alloy Piping < 3/8" Nominal Wall Thickness for Piping > NPS 4 (XX)	*	7.5% but not less than 28 welds total	N/A	379	0	-	-	-	

* Thin wall piping welds not required to be inspected but are included in the total weld count to which the 7.5% sampling rate is applied.

Unit 2 Class 2 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
C-F-2 Pressure Retaining Welds in Carbon or Low Alloy Steel Piping	C5.51	Circumferential Welds in Carbon or Low Alloy Steel Piping < 3/8" Nominal Wall Thickness for Piping > NPS 4	Volumetric & Surface	7.5% but not less than 28 welds total	N/A	74	15	5	5	5	
	C5.61	Circumferential Welds in Carbon or Low Alloy Steel Piping > 1/5" Nominal Wall Thickness for Piping ≥ NPS 2 and ≤ NPS 4	Volumetric & Surface	7.5% but not less than 28 welds total	N/A	43	8	2	3	3	
	C5.81	Circumferential Welds - Pipe Branch Connections of Branch Piping ≥ NPS 2	Surface	7.5% but not less than 28 welds total	N/A	4	2	-	1	1	

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
C-H* All Pressure Retaining Components	C7.10	Pressure Retaining Components - System Leakage Test	Visual, VT-2	-	-	-	-	-	-	-	N-522 N-533-1

* All items under Category C-H are examined each period per SP 2168.

Unit 2 Class 2 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
F-A Supports	F1.20a	Class 2 Piping Supports (One Direction Support)	Visual, VT-3	15% (of type a, b, and c)	N/A	118	18	6	6	6	
	F1.20b	Class 2 Piping Supports (Multi Directional Supports)	Visual, VT-3	15% (of type a, b, and c)	N/A	82	13	4	4	5	
	F1.20c	Class 2 Piping Supports (Spring Can Supports & Snubbers)	Visual, VT-3	15% (of type a, b, and c)	N/A	61	10	3	3	4	
	F1.40	Supports Other Than Piping Supports (Class 1, 2, 3 & MC)	Visual, VT-3	100% (one of multiple)	N/A	46	23	7	8	8	

Unit 2 Class 3 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
D-A Welded Attachments for Vessels, Piping, Pumps and Valves	D1.10	Welded Attachments - Vessels	Visual, VT-1	100% of required area of each welded attachment	N/A	8	4	1	1	2	
	D1.20	Welded Attachments - Piping	Visual, VT-1	100% of required area of each welded attachment	N/A	96	10	3	3	4	
	D1.30	Welded Attachments – Pumps	Visual, VT-1	100% of required area of each welded attachment	N/A	5	1	1	1	1	

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	
D-B* All Pressure Retaining Components Code Cases N-489-4 N-533-1	D2.10	Pressure Retaining Components – System Leakage Test	Visual, VT-2	IWD-5221	N/A	-	-	-	-	-	
	D2.20	Pressure Retaining Components – System Hydrostatic Test	Visual, VT-2	IWD-5222	N/A	-	-	-	-	-	

* All items under Category D-B are examined each period per SP 2168.

Unit 2 Class 3 Exams
Inservice Inspection Program Summary Table

Examination Category	Item Number	Description	Exam Method	Required Exams	Deferral to End	Total Number	Number Req.	Number 1st period	Number 2nd period	Number 3rd period	RR No./ Code Case
F-A Supports	F1.30a	Class 3 Piping Supports (One Direction Support)	Visual – VT-3	10% (of type a, b, and c)	N/A	207	21	7	7	7	
	F1.30b	Class 3 Piping Supports (Multi Directional Supports)	Visual – VT-3	10% (of type a, b, and c)	N/A	239	24	8	8	8	
	F1.30c	Class 3 Piping Supports (Spring Can Supports & Snubbers)	Visual – VT-3	10% (of type a, b, and c)	N/A	55	6	2	2	2	
	F1.40	Supports Other Than Piping (Class 1, 2, 3, and MC)	Visual – VT-3	100% (One of multiple)	N/A	19	10	3	3	4	

6.0 AUGMENTED AND OWNER ELECTED EXAMINATIONS

This section identifies augmented and owner elected inspection programs maintained within the ISI Program.

Augmented examinations are not required by ASME Section XI. However, due to the nature of the augmented requirements, these programs have been referenced within the ISI Program for tracking purposes. These augmented programs satisfy NRC requirements and other applicable site commitments.

Owner elected examinations are not required by ASME and are not regulatory commitments. These examinations have been determined to be good practice due to operating experience, engineering judgment, etc., and may be an internal site commitment.

Each of these Augmented or Owner elected inspections are scheduled within the ISI Program Plan master schedule of examinations.

Augmented and owner program revisions or deviations **SHALL** be governed by the referenced documents and without need to submit a revised program plan to the regulator.

6.1 Augmented Examinations

a. Reactor Coolant Pump Flywheels

Technical Specification Section 5.5.6 requires an inspection program that provides for the inspection of each reactor coolant pump flywheel per the recommendations of Regulatory Position C.4.b of Regulatory Guide 1.14, Revision 1, August 1975. In lieu of Position C.4.b(1) and C.4.b(2), a qualified in-place UT examination over the volume from the inner bore of the flywheel to the circle one-half of the outer radius or a surface examination (MT or PT) of exposed surfaces of the removed flywheels may be conducted at approximately 10 year intervals coinciding with the Inservice Inspection schedule as required by ASME Section IX.

This inspection program is administered under Prairie Island Procedure H38, "Reactor Coolant Pump Flywheel Inspection Program."

b. High Energy Fluid System Piping Welds

Welds in those portions of systems addressed in USNRC Branch Technical Position APCSB 3.1 paragraph B.2.c(4) will be examined during the interval in accordance with the requirements of Prairie Island USAR Appendix I, Section I.2.2, Page I.2-6, "Pre-Service and Inservice Inspection."

Pipe welds that are accessible which are not located within an encapsulation sleeve or impingement barrier and are in piping runs traversing the Auxiliary Building are subject to periodic inservice examination in accordance with ASME Section XI (edition currently invoked by the Prairie Island In-Service Inspection Program) requirements for Code Class 2 piping welds. The inaccessible welds are included in the total number of welds in determining the number of welds to be inspected in each inspection interval.

Based on the USAR, the selection of welds for examination would default to all the requirements (including selection and examination) of the 1998 Edition within the 2000 Addenda of Section XI (current code of record for the PI ISI Program). Per the Code, these welds would be treated as Code Category C-F-2 piping welds. The selection of Class 2 piping welds in the C-F-2 Category is based on the total population of non-exempt C-F-2 welds, whereby 7.5% of the total population with a minimum of 28 welds would have to be selected for examination. The examinations are then to be prorated on a system basis by line size to the degree practicable.

c. Heavy Load Lifting Devices

Heavy load lifting devices **SHALL** be examined in accordance with Plant Regulatory Commitments 1400 and 1401 on how the plant will administer the requirements of ANSI N14.6 and NUREG 0612. The devices subject to the requirement are:

1. Reactor Pressure Vessel Head Lift Fixture
2. Reactor Pressure Vessel Internals Lift Fixture
3. Reactor Coolant Pump Motor Lift Rigs
4. Cask Lifting Spreader
5. Turbine Rotor Spreader Assembly

A Safety Evaluation Report (SER) was received by Prairie Island from the NRC, March 27, 1984, detailing the commitments for heavy loads. The SER only required the examinations be performed over a 10-year period consistent with ASME guidelines.

d. Boric Acid Corrosion Control Program (BACC)

All borated fluid systems are within the scope of the BACC program. Even systems not classified as ASME Code or within the H31 program boundary are important if leakage from them could impinge on and result in degradation to systems, structures, or components important to safety or reliability. Boric acid leaks can result in accelerated corrosion rates of carbon and low alloy steel components. This corrosion can lead to failures of components.

There are numerous documented industry events of failures as a result of boric acid corrosion. The NRC has issued several information notices and generic letters documenting these failures. The BACC program encompasses and implements the requirements of NRC Generic Letter 88-05, "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in PWR Plants." The BACC program also meets obligations promulgated by NRC Order EA-03-009 for examinations of the Reactor Pressure Vessel Closure Head.

When components are identified to exhibit leakage or evidence of leakage, they are evaluated and corrective action is taken as necessary.

6.2 Owner Elected Examinations

a. Safety Injection Weld Examination

Information Notice 97-19, "Safety Injection System Weld Flaw at Sequoyah Nuclear Power Plant Unit 2," discussed the potential cracking of a safety injection line detected at a Westinghouse plant. NSP-PI-OEA-1997074 assessed the applicability of IN 97-19 to Prairie Island. Through the review of the SI Accumulator discharge line configuration it was determined that the check valve nearest the RCS loop piping is in a susceptible location to experience intergranular stress corrosion cracking (IGSCC) in three out of four SI Accumulator lines. In addition, 11 Accumulator has a history of in-leakage, which can contribute to thermal fatigue cycling. To ensure integrity, the upstream welds on the check valves nearest the RCS loop will be examined volumetrically on a 10-year frequency. The heat-affected zone (HAZ) of the weld, in which the initiation of IGSCC would occur, will be included in the volume examined.

This owner elected examination may be used to fulfill the volumetric portion of the ISI exam requirements for credit.

b. Thermal Fatigue Cracking of Feedwater Piping

Information Notice 93-20, "Thermal Fatigue Cracking of Feedwater Piping to the Steam Generators" discusses the through wall cracking and other cracks found in the feedwater piping to steam generators due to thermal fatigue at the Sequoyah Nuclear Plant, Units 1 and 2 and the Diablo Canyon Nuclear Power Plant, Unit 1.

Prairie Island replaced the feedwater piping and a portion of the feedwater nozzle in all four steam generators during the dual unit outage in November 1992 under Modification 92Y185. This supports the findings documented in IN 93-20 and an updated nozzle fatigue report, NUTECH PI9-201-026, Revision 0, dated January 1993, "Fatigue Assessment of Replacement Steam Generator Feedwater Nozzle – Prairie Island (PI Analysis File Number PI.9201.0026) suggested that the region is still susceptible to thermal fatigue cracks.

A commitment was made to inspect the feedwater nozzle to pipe transition forging welds using ultrasonic examination at a frequency of one nozzle per refueling outage or both nozzles every other refueling outage.

c. Safety Injection Accumulator Nozzle Examination

During a Unit 2 refueling outage in 1988, a plant walk down revealed a leak on 22 Accumulator Tank originating from one of the lower level transmitter nozzles. A subsequent dye penetrant examination revealed a pinhole indication in the nozzle. Safety Evaluation Number 232 evaluated the nozzle leakage and repair. As a result of this evaluation ultrasonic and dye penetrant inspections will be performed on the socket weld nozzle counter bore area of 11, 12, 21 and 22 Accumulator Tank lower level transmitter nozzles on a 10-year interval. These nozzles are also inspected for leakage as a normal part of the ASME Section XI Pressure Testing Program. Subsequently, Information Notice 91-05, "Intergranular Stress Corrosion Cracking in Pressurized Water Reactor Safety Injection Accumulator Nozzles" was issued.

7.0 CODE CASES

Several Code Cases may be used during the current inspection interval. Approval for use of the applicable listed Code Cases was obtained via submitting specific written relief to the NRC or are acceptable as provided in Revision 13 of Regulatory Guide 1.147. Those currently being applied at PINGP or may be applied in the future are listed in Appendix A.

8.0 RELIEF REQUESTS

Many of the requirements of ASME Section XI Subsections IWA, B, C, D, and F cannot be practically implemented. 10CFR50.55a allows exception to the requirements of the ASME Section XI Code on a case-by-case basis with approval from the Director of the Office of Nuclear Reactor Regulation. The applicant for the exception must demonstrate that:

- The proposed alternatives would provide an acceptable level of quality and safety, or
- Compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Many relief requests have been previously discussed pertaining to the specific section of the Code they affect. All relief requests are listed in Appendix B. The specific written relief request, supporting documentation and applicable NRC approval letters including the Safety Evaluation Reports are maintained on file in Records Management.

9.0 DRAWINGS

During the development of the ISI Program Plan for Unit 1 and 2 several drawings and sketches were developed to aid the process and provide an easy means by which to locate individual components, items, welds and supports. The following is a list of those ISI Boundary Drawings and Sketches used in the preparation of the ISI Program Plan and schedule. These Drawings and Sketches are located in Technical Manual NX-62893-1.

UNIT 1 BOUNDARY ISI DRAWINGS

ISI DRAWING NUMBER	DESCRIPTION/SYSTEM
1	Reactor Coolant
2	Residual Heat Removal
3	Chemical Volume and Control
4	Chemical Volume and Control
5	Chemical Volume and Control
6	Safety Injection
7	Safety Injection
8	Waste Disposal
9	Main Steam
10	Feedwater
11	Containment Spray
12	Steam Generator Blowdown
13	Post LOCA Hydrogen Control
14	Cooling Water – Screen House
15	Cooling Water – Turbine Building
16	Cooling Water – Auxiliary Building
17	Cooling Water – Containment
18	Cooling Water – D2 Diesel Generator
19	Cooling Water – D1 Diesel Generator
20	Component Cooling Water
21	Caustic Addition
22	Auxiliary Feedwater
23	Auxiliary Steam

UNIT 2 BOUNDARY ISI DRAWINGS

ISI DRAWING NUMBER	DESCRIPTION/SYSTEM
1	Reactor Coolant
2	Residual Heat Removal
3	Chemical Volume and Control
4	Chemical Volume and Control
5	Chemical Volume and Control
6	Safety Injection
7	Safety Injection
8	Waste Disposal
9	Main Steam
10	Feedwater
11	Containment Spray
12	Steam Generator Blowdown
13	Post LOCA Hydrogen Control
14	Caustic Addition
15	Cooling Water – Screen House
16	Cooling Water – Turbine Building
17	Cooling Water – Auxiliary Building
18	Cooling Water – Containment
19	Auxiliary Steam
20	Auxiliary Feedwater
21	Component Cooling Water
22	D5 Combustion Air Intake and Exhaust
23	D6 Combustion Air Intake and Exhaust
24	D5 HT Water Cooling System
25	D5 LT Water Cooling System
26	D6 HT Water Cooling System
27	D6 LT Water Cooling System

UNIT 1 ISI SKETCHES	
ISI SKETCH NUMBER	COMPONENT/DESCRIPTION
ISI-1A	Loop B Charging Line 2″
ISI-1B	Loop B Charging Line 2″
ISI-1C	Loop B Charging Line 2″
ISI-1D	Loop B Charging Line 2″
ISI-1E	Loop B Charging Line 2″
ISI-1F	Loop B Charging Line 2″
ISI-2	#11 Accumulator Discharge
ISI-3A	Loop A RHR Takeoff 8″
ISI-3B	Loop A RHR Takeoff 8″
ISI-3C	Loop A RHR Takeoff 8″
ISI-5A	Spray to Pressurizer
ISI-5B	Spray to Pressurizer
ISI-5C	Spray to Pressurizer
ISI-5D	Spray to Pressurizer
ISI-6	Loop A 3″ RTD Return
ISI-7	2″ RTD Takeoff Cold Leg Loop A
ISI-8	2″ RTD Takeoff Hot Leg Loop A
ISI-9	2″ & 6″ SIS High Head Loop A Cold Leg
ISI-10	2″ Drain on Crossover Loop A
ISI-11A	2″ & 1 ½″ Seal Injection Loop A
ISI-11B	2″ & 1 ½″ Seal Injection Loop A
ISI-11C	2″ & 1 ½″ Seal Injection Loop A
ISI-11D	2″ & 1 ½″ Seal Injection Loop A
ISI-12A	Reactor Coolant Loop A
ISI-12B	Reactor Coolant Loop A
ISI-12C	Reactor Coolant Loop A
ISI-13A	Reactor Coolant Loop B
ISI-13B	Reactor Coolant Loop B
ISI-13C	Reactor Coolant Loop B
ISI-14	Reactor Coolant Pump # 11
ISI-14A	Reactor Coolant Pump # 11 Bolting
ISI-17	12″ Accumulator Discharge

UNIT 1 ISI SKETCHES	
ISI SKETCH NUMBER	COMPONENT/DESCRIPTION
ISI-18	10″ RHR Return Loop B
ISI-19A	8″ Takeoff Loop B
ISI-19B	8″ Takeoff Loop B
ISI-21	3″ RTD Return Loop B
ISI-22	2″ RTD Takeoff Cold Leg Loop B
ISI-23	2″ RTD Takeoff Cold Leg Loop B
ISI-24	6″ & 2″ SIS High Head Loop B
ISI-25	2″ Crossover Drain Loop B
ISI-26	2″ CVCS Letdown Loop B
ISI-27A	1 ½″ Seal Injection Loop B
ISI-27B	2″ Seal Injection Loop B
ISI-27C	2″ Seal Injection Loop B
ISI-27D	2″ Seal Injection Loop B
ISI-28	10″ Pressurizer Surge
ISI-29A	6″ Pressurizer Safety Line Loop A
ISI-29B	6″ Pressurizer Safety Line Loop B
ISI-30A	6″ & 4″ RV Safety Injection & Reactor Coolant Loop A
ISI-30B	6″ & 4″ RV Safety Injection & Reactor Coolant Loop B
ISI-31	3″ Pressurizer Relief Lines
ISI-32A	2″ Auxiliary Spray
ISI-32B	2″ Auxiliary Spray
ISI-33A	2″ Low Head RV Injection Loop A
ISI-33B	2″ Low Head RV Injection Loop B
ISI-34	Reactor Coolant Pump # 12
ISI-34A	Reactor Coolant Pump # 12 Bolting
ISI-37	Reactor Vessel Studs, Nuts & Washers
ISI-38	Reactor Vessel Conoseal Bolting
ISI-41	Pressurizer
ISI-42	Pressurizer Nozzles
ISI-43A	Steam Generator 11
ISI-43B	Steam Generator 12
ISI-43C	Steam Generator 11
ISI-43D	Steam Generator 12
ISI-44	Regenerative Heat Exchanger
ISI-46	RCS Draindown Line
ISI-47	PLO-Cap B
ISI-48	Reactor Vessel Shell Welds

UNIT 1 ISI SKETCHES	
ISI SKETCH NUMBER	COMPONENT/DESCRIPTION
ISI-49	Reactor Vessel Closure Head Weld
ISI-49A	Reactor Vessel Top Head
ISI-49B	Reactor Vessel Bottom Head
ISI-50	Reactor Vessel Nozzles
ISI-51A	Main Steam Loop A
ISI-51B	Main Steam Loop A
ISI-51C	Main Steam Loop A
ISI-52	Feedwater Loop A
ISI-52A	Auxiliary Feedwater Loop A
ISI-53A	RHR Pumps Suction
ISI-53B	RHR Pumps Suction
ISI-53C	RHR Pump A Suction
ISI-53D	RHR Pump B Suction
ISI-55A	RHR Pump A Discharge
ISI-55B	RHR Pump A Discharge
ISI-55C	RHR Pump B Discharge
ISI-55D	RHR Pump B Discharge
ISI-56	RHR Pumps A & B Suction
ISI-68A	Main Steam Loop B
ISI-68B	Main Steam Loop B
ISI-68C	Main Steam Loop B
ISI-69	Feedwater Loop B
ISI-69A	Auxiliary Feedwater Loop B
ISI-81A	Safety Injection Pumps Suction
ISI-81B	Safety Injection Pumps Suction
ISI-81C	Safety Injection Pumps Suction
ISI-83A	RHR Pump A Discharge Safety Injection Pump A Suction
ISI-83B	RHR Pump B Discharge Safety Injection Pump B Suction
ISI-83C	Safety Injection Pump # 11
ISI-83D	Safety Injection Pump # 12
ISI-89A	RHR Pump A Discharge
ISI-89B	RHR Pump B Discharge
ISI-90A	Containment Spray Pump # 11
ISI-90B	Containment Spray Pump # 12
ISI-91A	Alternate Containment Spray Pump # 11 Suction
ISI-91B	Alternate Containment Spray Pump # 12 Suction
ISI-91C	Containment Spray Pumps 11 & 12 Suction
ISI-91D	Containment Spray Pumps 11 & 12 Supply

UNIT 1 ISI SKETCHES	
ISI SKETCH NUMBER	COMPONENT/DESCRIPTION
ISI-93A	# 11 RHR Heat Exchanger
ISI-93B	# 12 RHR Heat Exchanger
ISI-96	Containment Spray Pumps Discharge
ISI-97A	Safety Injection Pump 12 Discharge
ISI-97B	Safety Injection Pump 12 Discharge
ISI-97C	Safety Injection Pump 12 Discharge
ISI-97D	Safety Injection Pump 12 Discharge
ISI-98A	Safety Injection Pump 11 Discharge
ISI-98B	Safety Injection Pump 11 Discharge
ISI-98C	Safety Injection Pump 11 Discharge
ISI-99A	Safety Injection Pump 12 Discharge
ISI-99B	Safety Injection Pump 12 Discharge
ISI-100A	Safety Injection Pump 11 Discharge
ISI-100B	Safety Injection Pump 11 Discharge
ISI-101	Safety Injection Test Return
ISI-102	Safety Injection Test Return
ISI-103	Safety Injection Test Return
ND-1-3-13	Cooling Water
ND-1-3-14	Cooling Water
ND-1-3-15	Cooling Water
ND-1-3-15A	Cooling Water
ND-1-3-15B	# 121 Cooling Water Pump
ND-1-3-15C	# 12 Cooling Water Pump
ND-1-3-16	Cooling Water
ND-1-3-17	Cooling Water
ND-1-3-18	Cooling Water
ND-1-3-20	Cooling Water
ND-1-3-21	Cooling Water
ND-1-3-23	Cooling Water
ND-1-3-24	Cooling Water
ND-1-3-25	Cooling Water
ND-1-3-46	Cooling Water
ND-1-3-47	Cooling Water
ND-1-3-48	Cooling Water
ND-1-3-49	Cooling Water
ND-1-3-50	Cooling Water
ND-1-3-52	Cooling Water
ND-1-3-64	Cooling Water
ND-1-3-65	Cooling Water
ND-1-3-68	Cooling Water
ND-1-3-90	Cooling Water
ND-1-3-91	Cooling Water
ND-1-3-92	Cooling Water

UNIT 1 ISI SKETCHES	
ISI SKETCH NUMBER	COMPONENT/DESCRIPTION
ND-1-3-93	Cooling Water
ND-1-3-94	Cooling Water
ND-1-3-95	Cooling Water
ND-1-3-178	Misc. Relief Valve Vents
ND-1-3-216	Component Cooling
ND-1-3-216A	# 11 Component Cooling Heat Exchanger
ND-1-3-216B	# 11 Component Cooling Pump
ND-1-3-217	Component Cooling
ND-1-3-217A	# 12 Component Cooling Heat Exchanger
ND-1-3-217B	# 12 Component Cooling Pump
ND-1-3-218	Component Cooling
ND-1-3-218A	Component Cooling
ND-1-3-218B	Component Cooling
ND-1-3-218C	Component Cooling
ND-1-3-219	Component Cooling
ND-1-3-220	Component Cooling
ND-1-3-221	Component Cooling
ND-1-3-222	Component Cooling
ND-1-3-223	Component Cooling
ND-1-3-224	Component Cooling
ND-1-3-224A	Component Cooling
ND-1-3-225	Component Cooling
ND-1-3-225A	Component Cooling
ND-1-3-227	Component Cooling
ND-1-3-228	Component Cooling
ND-1-3-228A	Component Cooling
ND-1-3-244A	AFW / CW
ND-1-3-244B	AFW / CW
ND-1-3-254	Cooling Water
ND-1-3-258	Cooling Water
ND-1-3-270	Cooling Water

UNIT 2 ISI SKETCHES	
ISI SKETCH NUMBER	COMPONENT/DESCRIPTION
2-ISI-1A	Seal Injection Loop A
2-ISI-1B	Seal Injection Loop A
2-ISI-1C	Seal Injection Loop A
2-ISI-2	Crossover Drain Loop A
2-ISI-3	Cold Leg RTD Takeoff Loop A
2-ISI-4	Hot Leg RTD Takeoff Loop A
2-ISI-5	SIS High Head
2-ISI-6	RTD Return Loop A
2-ISI-7A	Spray to Pressurizer
2-ISI-7B	Spray Line to RCDT
2-ISI-7C	Spray to Pressurizer
2-ISI-7D	Spray to Pressurizer
2-ISI-7E	Spray to Pressurizer
2-ISI-7F	Spray to Pressurizer
2-ISI-9	PLO Cap A
2-ISI-10A	8″ RHR Takeoff Loop A Hot Leg
2-ISI-10B	8″ RHR Takeoff Loop A Hot Leg
2-ISI-10C	8″ RHR Takeoff Loop A Hot Leg
2-ISI-11	Loop A Accumulator Discharge
2-ISI-12A	Seal Injection Loop B
2-ISI-12B	Seal Injection Loop B
2-ISI-12C	Seal Injection Loop B
2-ISI-13A	2″ Cold Leg Charging Loop B
2-ISI-13B	2″ Cold Leg Charging Loop B
2-ISI-13C	2″ Cold Leg Charging Loop B
2-ISI-13D	2″ Cold Leg Charging Loop B
2-ISI-13E	2″ Cold Leg Charging Loop B
2-ISI-14	Cold Leg RTD Takeoff Loop B
2-ISI-15	Hot Leg RTD Takeoff Loop B
2-ISI-16	2″ Crossover Drain & Letdown
2-ISI-17	RTD Return Loop B
2-ISI-19	RCS To Draindown Tank

UNIT 2 ISI SKETCHES	
ISI SKETCH NUMBER	COMPONENT/DESCRIPTION
2-ISI-20A	8" RHR Hot Leg Takeoff Loop B
2-ISI-20B	8" RHR Hot Leg Takeoff Loop B
2-ISI-20C	8" RHR Hot Leg Takeoff Loop B
2-ISI-21	10" RHR Return Loop B
2-ISI-22A	Accumulator Discharge Loop B
2-ISI-22B	Accumulator Discharge Loop B
2-ISI-23	SIS High Head Loop B
2-ISI-24	2" Auxiliary Spray
2-ISI-25	2" Reactor Vessel SIS Loop A
2-ISI-26	2" Reactor Vessel SIS Loop B
2-ISI-27	Pressurizer Relief
2-ISI-28	4" & 6" Reactor Vessel SIS Loop B
2-ISI-29	4" & 6" Reactor Vessel SIS Loop A
2-ISI-30A	Pressurizer Safety Loop A
2-ISI-30B	Pressurizer Safety Loop B
2-ISI-31	Pressurizer Surge
2-ISI-32A	Reactor Coolant Loop A
2-ISI-32B	Reactor Coolant Loop A
2-ISI-32C	Reactor Coolant Loop A
2-ISI-33A	Reactor Coolant Loop B
2-ISI-33B	Reactor Coolant Loop B
2-ISI-33C	Reactor Coolant Loop B
2-ISI-34	Regenerative Heat Exchanger
2-ISI-35	Pressurizer Nozzles
2-ISI-36	Pressurizer
2-ISI-37A	Steam Generator 21
2-ISI-37B	Steam Generator 22
2-ISI-37C	Steam Generator 21
2-ISI-37D	Steam Generator 22
2-ISI-38	Reactor Vessel Conoseal Bolting
2-ISI-39	Reactor Vessel Studs, Nuts & Washers
2-ISI-40	Reactor Vessel Nozzles
2-ISI-41	Reactor Vessel Head Weld
2-ISI-41A	Reactor Vessel Top Head
2-ISI-41B	Reactor Vessel Bottom Head
2-ISI-42	Reactor Vessel Shell Welds

UNIT 2 ISI SKETCHES	
ISI SKETCH NUMBER	COMPONENT/DESCRIPTION
2-ISI-43A	Reactor Coolant Pump 21
2-ISI-43B	Reactor Coolant Pump 22
2-ISI-43C	RCP 21 & 22 Bolting
2-ISI-46A	Main Steam Loop A
2-ISI-46B	Main Steam Loop A
2-ISI-47A	Main Steam Loop B
2-ISI-47B	Main Steam Loop B
2-ISI-48	Feedwater Loop A
2-ISI-48A	Aux Feedwater Loop A
2-ISI-49	Feedwater Loop B
2-ISI-49A	Aux Feedwater Loop B
2-ISI-50	RHR Pumps Suction
2-ISI-51	RHR Pump B Suction
2-ISI-51A	RHR Pump B Suction
2-ISI-52	RHR Pump A Suction
2-ISI-52A	RHR Pump A Suction
2-ISI-54	RHR Pump B Discharge
2-ISI-54A	RHR Pumps Discharge
2-ISI-55	RHR Pump B Discharge
2-ISI-56	RHR Pump A Discharge
2-ISI-57	RHR Pump A Discharge
2-ISI-60A	Safety Injection Pump A
2-ISI-60B	Safety Injection Pump B
2-ISI-62	Safety Injection Pump 22 Suction
2-ISI-63A	Safety Injection Pump 21/22 Suction
2-ISI-63B	Safety Injection Pump 21/22 Suction
2-ISI-63C	Safety Injection Pump 21/22 Suction
2-ISI-64	Safety Injection Pump 21 Suction
2-ISI-69A	Residual Heat Exchanger 21
2-ISI-69B	Residual Heat Exchanger 22
2-ISI-70	Reactor Vessel Safety Injection
2-ISI-72	Reactor Vessel Safety Injection
2-ISI-90A	Safety Injection Pump 21 Discharge
2-ISI-90B	Safety Injection Pump 21 Discharge
2-ISI-90C	Safety Injection Pump 21 Discharge
2-ISI-91	Safety Injection Pump 21 Discharge
2-ISI-92	Safety Injection Pump 21 Discharge
2-ISI-93A	Safety Injection Pump 22 Discharge
2-ISI-93B	Safety Injection Pump 22 Discharge
2-ISI-93C	Safety Injection Pump 22 Discharge

UNIT 2 ISI SKETCHES	
ISI SKETCH NUMBER	COMPONENT/DESCRIPTION
2-ISI-94A	Safety Injection Pump 22 Discharge
2-ISI-94B	Safety Injection Pump 22 Discharge
2-ISI-95A	Safety Injection Pump 22 Discharge
2-ISI-95B	Safety Injection Pump 22 Discharge
2-ISI-96	Safety Injection Test Line
2-ISI-97	Safety Injection Test Line
2-ISI-98	Containment Spray Pump 22 Suction
2-ISI-98A	Containment Spray Pumps Suction
2-ISI-98B	Containment Spray Pumps Supply
2-ISI-99	Containment Spray Pump 21 Suction
2-ISI-99A	Containment Spray Pump 21
2-ISI-99B	Containment Spray Pump 22
2-ISI-100	Containment Spray Pumps Discharge
ND-2-3-1	Cooling Water
ND-2-3-2	Cooling Water
ND-2-3-3	Cooling Water
ND-2-3-4	Cooling Water
ND-2-3-5	Cooling Water
ND-2-3-9	Cooling Water
ND-2-3-10	Cooling Water
ND-2-3-10A	Cooling Water
ND-2-3-11	Cooling Water
ND-2-3-11A	Cooling Water
ND-2-3-11B	Cooling Water
ND-2-3-12	Cooling Water
ND-2-3-12A	Cooling Water
ND-2-3-12B	Cooling Water
ND-2-3-74	Cooling Water
ND-2-3-74A	22 Cooling Water Pump
ND-2-3-75	Component Cooling
ND-2-3-75A	Component Cooling
ND-2-3-75B	Component Cooling
ND-2-3-75C	Component Cooling
ND-2-3-76	Component Cooling
ND-2-3-78	Component Cooling
ND-2-3-78A	Component Cooling
ND-2-3-78B	Component Cooling
ND-2-3-79	Component Cooling
ND-2-3-80	Component Cooling

UNIT 2 ISI SKETCHES	
ISI SKETCH NUMBER	COMPONENT/DESCRIPTION
ND-2-3-81	Component Cooling
ND-2-3-81A	21 Component Cooling Heat Exchanger
ND-2-3-81B	22 Component Cooling Heat Exchanger
ND-2-3-81C	21 Component Cooling Pump
ND-2-3-81D	22 Component Cooling Pump
ND-2-3-82	Component Cooling
ND-2-3-83	Component Cooling
ND-2-3-84	Component Cooling
ND-2-3-85	Component Cooling
ND-2-3-88	Component Cooling
ND-2-3-109	MS Exhaust from AFW Turbine
ND-2-3-118	Cooling Water
ND-2-3-131	Cooling Water
ND-2-3-144A	AFW / CW
ND-2-3-144B	AFW / CW
ND-2-3-146A	Cooling Water
ND-2-3-146B	Cooling Water
ND-2-3-300	Diesel Gen. #5 Water Cooling HT
ND-2-3-301	Diesel Gen. #5 Water Cooling HT
ND-2-3-302	Diesel Gen. #5 Water Cooling HT
ND-2-3-303	Diesel Gen. #5 Water Cooling HT
ND-2-3-304	Diesel Gen. #5 Water Cooling HT
ND-2-3-305	Diesel Gen. #5 Water Cooling HT
ND-2-3-306	Diesel Gen. #5 Water Cooling HT
ND-2-3-307	Diesel Gen. #5 Water Cooling HT
ND-2-3-308	Diesel Gen. #5 Water Cooling HT
ND-2-3-309	Diesel Gen. #5 Water Cooling HT
ND-2-3-310	Diesel Gen. #5 Water Cooling LT
ND-2-3-311	Diesel Gen. #5 Water Cooling LT
ND-2-3-312	Diesel Gen. #5 Water Cooling LT
ND-2-3-313	Diesel Gen. #5 Water Cooling LT
ND-2-3-314	Diesel Gen. #5 Water Cooling LT
ND-2-3-315	Diesel Gen. #5 Water Cooling LT
ND-2-3-316	Diesel Gen. #5 Water Cooling LT
ND-2-3-317	Diesel Gen. #5 Water Cooling LT
ND-2-3-318	Diesel Gen. #5 Water Cooling LT
ND-2-3-319	Diesel Gen. #6 Water Cooling HT

UNIT 2 ISI SKETCHES	
ISI SKETCH NUMBER	COMPONENT/DESCRIPTION
ND-2-3-320	Diesel Gen. #6 Water Cooling HT
ND-2-3-321	Diesel Gen. #6 Water Cooling HT
ND-2-3-322	Diesel Gen. #6 Water Cooling HT
ND-2-3-323	Diesel Gen. #6 Water Cooling HT
ND-2-3-324	Diesel Gen. #6 Water Cooling HT
ND-2-3-325	Diesel Gen. #6 Water Cooling HT
ND-2-3-326	Diesel Gen. #6 Water Cooling HT
ND-2-3-327	Diesel Gen. #6 Water Cooling HT
ND-2-3-328	Diesel Gen. #6 Water Cooling HT
ND-2-3-329	Diesel Gen. #6 Water Cooling LT
ND-2-3-330	Diesel Gen. #6 Water Cooling LT
ND-2-3-331	Diesel Gen. #6 Water Cooling LT
ND-2-3-332	Diesel Gen. #6 Water Cooling LT
ND-2-3-333	Diesel Gen. #6 Water Cooling LT
ND-2-3-334	Diesel Gen. #6 Water Cooling LT
ND-2-3-335	Diesel Gen. #6 Water Cooling LT
ND-2-3-336	Diesel Gen. #6 Water Cooling LT
ND-2-3-337	Diesel Gen. #5 Air Intake
ND-2-3-338	Diesel Gen. #5 Air Intake
ND-2-3-339	Diesel Gen. #6 Air Intake
ND-2-3-340	Diesel Gen. #6 Air Intake
ND-2-3-341	Diesel Gen. #5 Exhaust Gas
ND-2-3-342	Diesel Gen. #5 Exhaust Gas
ND-2-3-343	Diesel Gen. #5 Exhaust Gas
ND-2-3-344	Diesel Gen. #5 Exhaust Gas
ND-2-3-345	Diesel Gen. #6 Exhaust Gas
ND-2-3-346	Diesel Gen. #6 Exhaust Gas
ND-2-3-347	Diesel Gen. #6 Exhaust Gas
ND-2-3-348	Diesel Gen. #6 Exhaust Gas

10.0 CALIBRATION BLOCKS

The following table identifies the calibration blocks that are used for the ultrasonic examination of components for PI Units 1 and 2 for the 4th Interval.

Block No.	Material	Pipe Diameter	Schedule	Wall "t"
P-3A	A312 TP 304	2"	160	.355"
P-4A	A376 TP 316	3"	160	.440"
P-5A	A376 TP 316	4"	120	.443"
P-6A	A376 TP 316	6"	160	.726"
P-7A	A106-B	6"	80	.466"
P-8A	A376 TP 316	8"	140	.825"
P-10	A376 TP 316	10"	140	.985"
P-11	A376 TP 316	12"	160	1.300"
P-12	A376 TP 316	14"	160	1.382"
P-14A	A376 TP 316	29" ID	NA	2.37"
P-14B	A376 TP 304	29" ID	NA	2.37"
P-15	A351 CF8A	26.75" ID	NA	2.37"
M-18	A312 TP 304	3"	160	.430"
M-21	A106-B	8"	100	.604"
P-21	A106-B	16"	80	1.475"
P-22	A312 TP 304	10"	40	.358"
P-23	SA515-70	Plate	NA	1.045"
P-24	SA515-70	Plate	NA	1.534"
P-25A	SA533-B CL1	Plate	NA	5.295" + clad
P-26	SA533-A CL2	Plate	NA	3.500"
P-32	A312 TP 304	12"	40	.355"
P-36	SA106 Gr. C	16"	100	1.031" / .580"
P-42	SA508 CL2A	Drop out	NA	3.5"
P-43	SA508 CL1	17"	NA	1.031"
P-50	SA540 B-24	Stud	NA	62"
P-51	SA240 TP 304	Plate	NA	.524"
P-54	A312 TP 316	4"	160	.531"
P-55	SA351 CF8A	31" ID	NA	2.907"
P-56	SA216 WCC	NA	NA	NA
P-57	SA216 WCC	NA	NA	NA
P-58	SA216 WCC	NA	NA	NA
P-59	A 182 F316	9.187" OD	NA	2.0"
P-60	A 182 F316	11.562" OD	NA	2.343"

Block No.	Material	Pipe Diameter	Schedule	Wall "t"
P-61	A182 F316	14.125" OD	NA	2.697"
P-62	A182 F316	15.937" OD	NA	2.910"
P-63	SA540-B CL4	Bolt	NA	31.5"
P-64	SA216 WCC	NA	NA	NA
P-65	SA508 CL2	NA	NA	NA
P-66	SA312 TP 304/304KL	10"	80	.500"
P-RV-1	SA 508 CL 3	Plate	NA	14" + clad
P-RV-2	SA 508 CL 2	Plate	NA	7" + clad
P-RV-3	SA 508 CL 2	Plate	NA	9" + clad
P-RV-4A	SA508 CL2	Plate	NA	5.5" + clad
GV/PI – PSI 1	SA 508 Gr. 3 CL2	Plate	NA	5.0" + clad
GV/PI – PSI 2	SA 508 Gr. 3 CL2	Plate	NA	3.0"
GV/PI – PSI 3	SA - 182 F 316 LN	NA	NA	5.0"
P-7534	A 516-70	ALT ASME	Step Block	.5" - 2.0"
P-7535	304SS	ALT ASME	Step Block	.5" - 2.0"
P-7536	316SS	ALT ASME	Step Block	.5" - 2.0"

11.0 ISI ADMINISTRATIVE AND NDE EXAMINATION PROCEDURES

5AWI 14.6.0	ASME Section XI Inservice Inspection and Pressure Testing
SWI NDE-PROC-1	Preparation of ISI Nondestructive Examination Procedures
SWI NDE-CS-1	Control of UT Calibration Standards
SWI NDE-DWG-1	Inservice Inspection Drawing Control
SWI NDE-FE-1	Inservice Inspection Flaws Evaluation and Disposition
SWI NDE-IC-1	Ultrasonic Instrument Calibration Verification
SWI NDE-LTS-1	Limitations to NDE
SWI NDE-NDE-1	Equipment, Personnel and Material Reporting
SWI NDE-PM-1	Permanent Marking of ISI Welds
SWI NDE-ET-1	Bobbin Coil Data Analysis
SWI NDE-ET-2	Eddy Current Data Management
SWI NDE-ET-3	Rotating Coil Data Analysis
SWI NDE-ET-4	Independent QDA
SWI NDE-ET-5	Site Specific Performance Demonstration
SWI NDE-MT-1	Dry Powder Magnetic Particle Examination
SWI NDE-MT-2	Wet Magnetic Particle Examination
SWI NDE-PT-1	Solvent Removable, Visible Dye Penetrant Examination
SWI NDE-UT-1	Ultrasonic Examination of Ferritic Steel Pipe and Fitting Welds
SWI NDE-UT-1A	Ultrasonic Examination of Ferritic Steel Piping Welds to Appendix VIII
SWI NDE-UT-2	Ultrasonic Examination of Dissimilar Metal Piping Welds to Appendix VIII
SWI NDE-UT-3	Ultrasonic Examination of Ferritic Vessels
SWI NDE-UT-3A	Ultrasonic Examination of Reactor Vessel Welds
SWI NDE-UT-4	Ultrasonic Examination of Bolts and Studs to Appendix VIII
SWI NDE-UT-5	Ultrasonic Examination of Steam Generator Primary and Main Steam Nozzle Inner Radii
SWI NDE-UT-6	Ultrasonic Examination of Reactor Coolant Pump Shafts
SWI NDE-UT-7	Ultrasonic Examination of Studs, Pins, Shafts & Bolts
SWI NDE-UT-9	Ultrasonic Detection of Pitting
SWI NDE-UT-10	Ultrasonic Thickness Measurement
SWI NDE-UT-11	Ultrasonic Examination of Cast Stainless Main Coolant Pipe Welds
SWI NDE-UT-12	Ultrasonic Examination of Reactor Coolant Pump Flywheels
SWI NDE-UT-16	UT Examination of Welds in Austenitic and High Nickel Alloy Materials
SWI NDE-UT-16A	Ultrasonic Examination of Austenitic Piping Welds to Appendix VIII
SWI NDE-UT-17	Ultrasonic Through Wall Sizing in Piping Welds to Appendix VIII
SWI NDE-UT-20	Ultrasonic Acoustic Characterization
SWI NDE-VT-1.0	Visual Examination
SWI NDE-VT-1.1	Visual Examination (VT-1) of Class MC Components
SWI NDE-VT-2.0	Visual Examination of Components and Their Supports
SWI NDE-VT-2.1	Visual Examination of Class MC Components (VT-3)
SWI NDE-VT-3.0	Visual Examination of Pump and Valve Internal Surfaces
SWI NDE-VT-5.0	Visual Examination of Reactor Vessel Interior

12.0 RECORDS

An ISI Summary Report including Form NIS-1 is required to be filed with the regulatory and jurisdictional authorities within 90 calendar days following refueling outage completion. This is considered to be closure of the generator output breaker. Items to be attached to the ISI Summary Report **SHALL** include:

- Interval, period and refueling outage number (when applicable)
- A complete list of examined items and components and component supports during the cycle;
- An abstract of examination results;
- Extent of conditions noted;
- A description of the type and estimated extent of degradation, and the conditions that led to the degradation;
- An evaluation of each area, and the result of the evaluation, and;
- A description of necessary corrective actions;
- The number of additional examinations performed and the results if any;
- Form NIS-1, Owner's Report for Inservice Inspection.
- Form NIS-2, Owner's Report for Repair/Replacement Activities.
- A coversheet providing the following:
    1. Date of document completion,
    2. Name and address of owner,
    3. Name and address of plant,
    4. Name or number designation of the unit,
    5. Commercial service date for the unit.

Appendix A Prairie Island Code Cases

Code Case Number	Code Case Title	Approved By
N-307-2	Revised Ultrasonic Examination Volume for Class 1 Bolting, Table IWB-2500-1, Examination Category B-G-1, When the Examinations are Conducted from the End of the Bolt or Stud or from the Center-Drilled Hole, ASME Section XI, Division 1	Reg. Guide 1.147, Rev. 13
N-460	Alternative Examination Coverage for Class 1 and 2 Welds, Section XI, Division 1	Reg. Guide 1.147, Rev. 13
N-498-4	Alternate Requirements for 10-Year System Hydrostatic Testing for Class I, 2 and 3 Systems, Section XI, Division 1	Conditionally Acceptable per Reg. Guide 1.147, Rev. 13
N-504-2	Alternative Rules for Repair of Class 1, 2, and 3 Austenitic Stainless Steel Piping, Section XI, Division 1	Reg. Guide 1.147, Rev. 13
N-513	Evaluation Criteria for Temporary Acceptance of Flaws in Class 3 Piping, Section XI, Division 1	Conditionally Acceptable per Reg. Guide 1.147, Rev. 13
N-521	Alternative Rules for Deferral of Inspections of Nozzle-to-Vessel Welds, Inside Radius Sections, and Nozzle-to-Safe End Welds of a Pressurized Water Reactor (PWR) Vessel, Section XI, Division I.	Reg. Guide 1.47, Rev. 13
N-522	Pressure Testing of Containment Penetration Piping, Section XI, Division 1	Reg. Guide 1.147, Rev. 13
N-526	Alternative Examination Requirements For Successive Inspections of Class 1 and 2 Vessels, Section XI, Division 1	Reg. Guide 1.147, Rev. 13
N-533-1	Alternative Requirements for VT-2 Visual Examination of Class 1, 2, and 3 Insulated Pressure Retaining Bolting, Section XI, Division 1	Conditionally Acceptable per Reg. Guide 1.147, Rev. 13
N-566-1	Corrective Action for Leakage Identified at Bolted Connections, Section XI, Division 1	Reg. Guide 1.147, Rev. 13
N-586	Additional Examination Requirements for Class 1, 2, and 3 Piping, Components, and Supports, Section XI, Division 1	Conditionally Acceptable per Reg. Guide 1.147, Rev. 13
N-624	Successive Inspections, Section XI, Division 1	Reg. Guide 1.147, Rev. 13
N-648-1	Alternative Requirements for Nozzle Inner Radius Examination of Class 1 Reactor Vessel Nozzles, Section XI, Division 1	Conditionally Acceptable per Reg. Guide 1.147, Rev. 13

Appendix B Prairie Island Relief Requests

This Appendix contains relief requests written pursuant to the requirements 10CFR50.55a for situations applicable when ASME Section XI Code requirements cannot be met.

The following NRC guidance was employed to determine the correct 10CFR50.55a paragraph cited for Prairie Island relief requests.

10CFR50.55a(a)(3)(i): Cited in relief requests when alternatives to the Section XI requirements, which provide an acceptable level of quality and safety, are proposed. Examples are relief requests that propose alternative NDE methods and/or examination frequency.

10CFR50.55a(a)(3)(ii): Cited in relief requests when compliance with the Section XI requirements is deemed to be a hardship or unusual difficulty without a compensating increase in the level of quality and safety. Examples of hardship and/or unusual difficulty include, but are not limited to, excessive radiation exposure, disassembly of components solely to provide access for examinations, and development of sophisticated tooling that would result in only minimal increases in examination coverage.

10CFR50.55a(g)(5)(iii): Cited in relief requests when conformance with Section XI requirements is deemed impractical. Examples of impractical requirements are situations where the component would have to be redesigned or replaced to enable the required inspection to be performed.

Appendix B Prairie Island Relief Requests

The following relief requests contained in the following table are subject to change throughout the inspection interval.

UNIT 1 ISI PROGRAM RELIEF REQUEST INDEX

Relief Request	Summary	Revision	Status
1-RR 4-1	Appendix VIII, Supplement 4	0	Submitted
1-RR 4-2	Alternative Examination Requirements for the Regenerative Heat Exchangers	0	Submitted
1-RR 4-3	VT-1 Examination of Bolting	0	Submitted
1-RR 4-4	Reactor Vessel Head Leak-off Line	0	Submitted

UNIT 2 ISI PROGRAM RELIEF REQUEST INDEX

Relief Request	Summary	Revision	Status
2-RR 4-1	Appendix VIII, Supplement 4	0	Submitted
2-RR 4-2	Alternative Examination Requirements for the Regenerative Heat Exchangers	0	Submitted
2-RR 4-3	VT-1 Examination of Bolting	0	Submitted
2-RR 4-4	Reactor Vessel Head Leak-off Line	0	Submitted

Appendix B Prairie Island Relief Requests

Prairie Island Unit 1 – Relief Request Number: 1-RR-4-1 (Rev. 0)
Prairie Island Unit 2 – Relief Request Number: 2-RR-4-1 (Rev. 0)

Appendix VIII, Supplement 4

SYSTEM/COMPONENT(S) FOR WHICH RELIEF REQUEST WILL BE USED:

Code Class:	Class 1
Reference:	ASME, Section XI, 1998 Edition with 2000 Addenda, Appendix VIII, Supplement 4.
Examination Category:	B-A
Item Number:	B1.11, B1.12 and B1.21
Description:	Reactor Vessel Head Longitudinal and Circumferential Shell welds subject to Appendix VIII, Supplement 4, Subparagraph 3.2 (a) and 3.2(c).
Component Numbers:	All

CODE REQUIREMENT:

Appendix VIII, Supplement 4, Subparagraph 3.2(c), of the 1998 Edition with 2000 Addenda of Section XI requires that the UT performance demonstration results be plotted on a two-dimensional plot with the measured depth plotted along the ordinate axis and the true depth plotted along the abscissa axis. For qualification, the plot must satisfy the following statistical parameters: (1) slope of the linear regression line is not less than 0.7; (2) the mean deviation of flaw depth is less than 0.25 inches; and (3) correlation coefficient is not less than 0.70.

PROPOSED ALTERNATIVE:

Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested to use the root mean square (RMS) value of 10 CFR 50.55a(b)(2)(xv)(C)(1) which modifies the depth sizing criterion of Appendix VIII, Supplement 4, Subparagraph 3.2(a), in lieu of Subparagraph 3.2(c). As discussed below and demonstrated by the Performance Demonstration Initiative (DPI), this will provide an acceptable level of quality and safety.

Appendix B Prairie Island Relief Requests

Prairie Island Unit 1 – Relief Request Number: 1-RR-4-1 (Rev. 0)
Prairie Island Unit 2 – Relief Request Number: 2-RR-4-1 (Rev. 0)

Appendix VIII, Supplement 4

BASIS FOR RELIEF REQUEST:

Prairie Island proposes eliminating the use of Supplement 4, Subparagraph 3.2(c), which imposes three statistical parameters for depth sizing. The first parameter, 3.2(c)(1), pertains to the slope of a linear regression line. The linear regression line is the difference between actual versus true value plotted along a through-wall thickness. For Supplement 4 performance demonstrations, a linear regression line of the data is not applicable because the performance demonstrations are performed on test specimens with flaws located in the inner 15 percent through-wall. The differences between actual versus true value produce a tight grouping of results that resemble a shot gun pattern. The slope of a regression line from such data is extremely sensitive to small variations, thus, making the parameter of Subparagraph 3.2(c)(1) a poor and inappropriate acceptance criterion. The second parameter, 3.2(c)(2), pertains to the mean deviation of flaw depth. The value used in the code is too lax with respect to evaluating flaw depths within the inner 15 percent of wall thickness. Therefore, Prairie Island proposes to use the more appropriate criterion of 0.15 inch RMS of 10 CFR 50.55a(b)(2)(xv)(C)(1), which modifies Subparagraph 3.2(a), as the acceptance criterion. The third parameter, 3.2(c)(3), pertains to a correlation coefficient. The value of the correlation coefficient in Subparagraph 3.2(c)(3) is inappropriate for this application since it is based on the linear regression from Subparagraph 3.2(c)(1).

PDI was aware of the inappropriateness of Subparagraph 3.2(c) early in the development of their program. They brought the issue before the appropriate ASME committee, which formalized eliminating the use of Supplement 4, Subparagraph 3.2(c) in Code Case N-622. NRC staff representatives participated in the discussions and consensus process of the code case. Based on the above, the NRC staff believes that the use of the Subparagraph 3.2(c) requirements in this context is inappropriate and that the proposed alternative to use the RMS value of 10 CFR 50.55a(b)(2)(xv)(C)(1), which modifies the criterion of Appendix VIII, Supplement 4, Subparagraph 3.2(a), in lieu of Subparagraph 3.2(c) will provide an acceptable level of quality and safety.

IMPLEMENTATION SCHEDULE:

The proposed alternative is requested for the 4th 10 Year Interval of the Inservice Inspection Program for Prairie Island Unit 1 and Unit 2.

REFERENCE:

NRC staff's letter to Prairie Island dated, April 24, 2003, Approval to use Relief Request No. 10 for Unit 1 and Relief Request No. 11 for Unit 2 [TAC Nos. MB7820 and MB7821]

Appendix B Prairie Island Relief Requests

Prairie Island Unit 1 – Relief Request Number: 1-RR-4-2 (Rev. 0)
Prairie Island Unit 2 – Relief Request Number: 2-RR-4-2 (Rev. 0)

Alternative Examination Requirements for the Regenerative Heat Exchangers

SYSTEM/COMPONENT(S) FOR WHICH RELIEF REQUEST WILL BE USED:

Code Class:	Class 1
Reference:	ASME, Section XI, 1998 Edition with 2000 Addenda
Examination Category:	B-B and B-D
Item Number:	B2.60 and B3.160
Description:	Inspection of Regenerative Heat Exchanger Tubesheet-to-Head Welds and Nozzle Inner Radius Sections
Component Numbers:	See Table 1

CODE REQUIREMENTS:

The 1998 Edition with 2000 Addenda of the ASME Boiler and Pressure Vessel Code Section XI, Table IWB-2500-1, Category B-B, Item Number B2.60 requires a volumetric examination be performed on the Regenerative Heat Exchanger circumferential head to tubesheet-to-shell weld. Category B-D, Item Number B3.160 requires volumetric examination of the nozzle inside radius sections.

PROPOSED ALTERNATIVE:

Pursuant to 10 CFR 50.55a(a)(3)(ii), relief is requested to perform VT-2 visual examinations in lieu of the required volumetric examinations. As discussed below, this alternative will provide an acceptable level of quality and safety. The regenerative heat exchanger will receive a system leakage test prior to each unit startup after a refueling outage. During this system leakage test, the insulation will be removed from the affected areas and the components will receive a visual (VT-2) examination. The corresponding piping and component supports will continue to be inspected per the requirements of Section XI, as this relief does not affect them.

Appendix B Prairie Island Relief Requests

Prairie Island Unit 1 – Relief Request Number: 1-RR-4-2 (Rev. 0)
Prairie Island Unit 2 – Relief Request Number: 2-RR-4-2 (Rev. 0)

Alternative Examination Requirements for the Regenerative Heat Exchangers

BASIS FOR RELIEF REQUEST:

Inservice inspection (ISI) of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components is performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code (ASME Code) and applicable addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if the licensee demonstrated that (i) the proposed alternatives would provide an acceptable level of quality and safety or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure test conducted during the first 10-year inspection interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month (10-year) interval, subject to the limitations and modifications listed therein. The Code of record for the 4th ten-year interval for Prairie Island Nuclear Generating Plant is the 1998 edition with 2000 Addenda of Section XI.

The regenerative heat exchanger provides preheat for the normal charging water flowing into the reactor coolant system (RCS). Preheat is derived from normal letdown water coming from the RCS. The heat exchanger is actually three heat exchangers or sub-vessels of similar design and function. The Class 2, shell side of each heat exchanger has an outside shell diameter of 6.75 inches and is fabricated from SA312-304 austenitic stainless. The Class 1 primary head portion of the vessel is comprised of a hemispherical head fabricated from SA351-CF8 cast austenitic stainless and the forged tubesheet section of the vessel is fabricated from SA182-304 austenitic stainless and has integral penetrations adapted for connecting the 2 inch inlet and outlet process pipe by way of socket welding.

Appendix B Prairie Island Relief Requests

Prairie Island Unit 1 – Relief Request Number: 1-RR-4-2 (Rev. 0)
Prairie Island Unit 2 – Relief Request Number: 2-RR-4-2 (Rev. 0)

Alternative Examination Requirements for the Regenerative Heat Exchangers

Ultrasonic examination (UT) of the head-to-tubesheet weld is limited to a single sided examination from head side of the weld due to obstruction from the piping connection of the forged tubesheet. The UT examination is further hindered from the head side of the weld for obtaining meaningful ultrasonic data because of the hemispherical head material being cast austenitic stainless steel. UT sound beam attenuation and propagation properties in cast stainless steel are extremely difficult. It is recognized by the ASME Code Committee and the industry Performance Demonstration Initiative (PDI) that such examinations are difficult. ASME Section XI, Appendix VIII, Supplement 9 has been in "course of preparation" for several years, hence, there are no qualified examination procedures or personnel to conduct the required examinations.

UT of the nozzle inner radius sections of the forged tubesheet cannot be performed with reasonable assurance of obtaining satisfactory results because of geometric limitations of the nozzle section.

Reactor Coolant System (RCS) leakage is closely monitored by the site in accordance with Prairie Island Technical Specifications (TS). The TS require that the RCS unidentified leakage rate be limited to one gallon per minute (gpm). In the event that the pressure boundary of the regenerative heat exchanger was breached with a thru wall leak, the leakage would be quickly detected.

In support of the proposed alternative, a similar Code Case is going through the ASME Code Committee. Over the course of two years, Westinghouse has conducted a survey of the regenerative heat exchanger service histories with respect to inspection costs, man-rem exposures, and safety being the major considerations in order to validate whether the current inspections required by the Code were warranted. No Westinghouse designed regenerative heat exchanger has exhibited leakage. Westinghouse also reviewed several relief requests and inspection reports to identify if there were any crack like indications found. None were reported. Westinghouse has also performed a series of weld joint fracture evaluations and finite element models. In all cases, the critical flaw depth exceeded the wall thickness. This leads to the deduction that there is no need to determine the flaw depth by volumetric examination.

The regenerative heat exchanger is a carefully designed and constructed component to ASME Code rules. The welds regions and nozzle inner radii of these components have not been designed for volumetric examination, and as such these examinations are time consuming and are dose intensive. These heat exchangers do not have a severe duty cycle, and service experience of the Westinghouse design has been good. Considering the low safety significance of these heat exchangers and large flaw tolerance, continuation of the volumetric and surface examinations results in an undo hardship without a commensurate increase in the level of quality and safety.

Appendix B Prairie Island Relief Requests

Prairie Island Unit 1 – Relief Request Number: 1-RR-4-2 (Rev. 0)
Prairie Island Unit 2 – Relief Request Number: 2-RR-4-2 (Rev. 0)

Alternative Examination Requirements for the Regenerative Heat Exchangers

Previously, by letter dated November 15, 1995, Northern States Power (the licensee at the time) submitted Request for Relief No. 5 from the requirements of the ASME Code, Section XI, 1989 Edition, Table IWB-2500-1, Category B-B and B-D, regarding the inspection of the regenerative heat exchanger tubesheet-to-shell welds and the nozzle inside radius sections. The Nuclear Regulatory Commission (NRC) staff reviewed and evaluated the licensee's request for relief pursuant to 10 CFR 50.55a(g)(6)(i) [TAC No. M90187] and granted approval of a proposed alternative.

IMPLEMENTATION SCHEDULE:

The proposed alternative is requested the 4th ten-year interval of the Inservice Inspection Program for Prairie Island Unit 1 and Unit 2.

REFERENCE:

By letter dated January 17, 2003, the NRC Staff authorized similar relief for Indian Point Nuclear Generating Unit No. 2, Docket No. 50-247 (Relief Request RR-60 [TAC No. MB5834]).

Appendix B Prairie Island Relief Requests

Prairie Island Unit 1 – Relief Request Number: 1-RR-4-2 (Rev. 0)
Prairie Island Unit 2 – Relief Request Number: 2-RR-4-2 (Rev. 0)

Alternative Examination Requirements for the Regenerative Heat Exchangers

Table 1, Regenerative Heat Exchanger Tubesheet to Head Welds and Nozzle Inner Radius Sections

Unit No.	ISI Summary No.	Code Item No.	Component Identification	Component Description
1	301077	B2.60	W-1	Tubesheet to Head Weld
1	301078	B2.60	W-2	Tubesheet to Head Weld
1	301079	B2.60	W-3	Tubesheet to Head Weld
1	303030	B3.160	N-1 IR	Nozzle Inner Radius
1	303031	B3.160	N-2 IR	Nozzle Inner Radius
1	303032	B3.160	N-3 IR	Nozzle Inner Radius
1	303033	B3.160	N-4 IR	Nozzle Inner Radius
1	303035	B3.160	N-5 IR	Nozzle Inner Radius
1	303037	B3.160	N-6 IR	Nozzle Inner Radius
2	501482	B2.60	W-1	Tubesheet to Head Weld
2	501536	B2.60	W-2	Tubesheet to Head Weld
2	501594	B2.60	W-3	Tubesheet to Head Weld
2	505024	B3.160	N-1 IR	Nozzle Inner Radius
2	505025	B3.160	N-2 IR	Nozzle Inner Radius
2	505026	B3.160	N-3 IR	Nozzle Inner Radius
2	505027	B3.160	N-4 IR	Nozzle Inner Radius
2	505028	B3.160	N-5 IR	Nozzle Inner Radius
2	505029	B3.160	N-6 IR	Nozzle Inner Radius

Appendix B Prairie Island Relief Requests

Prairie Island Unit 1 – Relief Request Number: 1-RR-4-3 (Rev. 0)
Prairie Island Unit 2 – Relief Request Number: 2-RR-4-3 (Rev. 0)

VT-1 Examination of Bolting

SYSTEM/COMPONENT(S) FOR WHICH RELIEF REQUEST WILL BE USED:

Code Class:	Class 1, 2, and 3
Reference:	ASME, Section XI, 1998 Edition with 2000 Addenda
Examination Category:	B-P,
Item Number:	B15.10, B15.20, B15.30, B15.40, B15.50, B15.60, B15.70
Description:	Pressure Retaining Bolting at Bolted Connections
Component Numbers:	All

CODE REQUIREMENTS:

ASME B&PV Code, Section XI, 1998 Edition with 2000 Addenda, Subparagraph IWA-5250 (a)(2), requires a VT-3 examination of one bolt closest to the source of leakage.

PROPOSED ALTERNATIVE:

Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested to perform a VT-1, visual examination in lieu of the required VT-3, visual examination in conjunction with ASME Section XI Code Case N-566-1. As discussed below, this will provide an acceptable level of quality and safety.

BASIS FOR RELIEF REQUEST:

Prairie Island requests relief from the ASME B&PV Code, Section XI, 1998 Edition with 2000 Addenda, Subparagraph IWA-5250 (a)(2), 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. In addition PINGP will use Code Case N-566-1 which establishes criteria for an engineering evaluation of the bolting condition as an alternative to removal and visual examination of all bolting

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, Table IWB-2500, Code Categories B-G-1 and B-G-2 require a VT-1 visual examination for Class 1 pressure retaining bolting. Guidance for performing VT-1 visual examinations of bolting are already incorporated within PINGP examination procedures. VT-1 visual examinations are considered more stringent than those associated with the VT-3 visual examination.

Appendix B Prairie Island Relief Requests

Prairie Island Unit 1 – Relief Request Number: 1-RR-4-3 (Rev. 0)
Prairie Island Unit 2 – Relief Request Number: 2-RR-4-3 (Rev. 0)

VT-1 Examination of Bolting

IMPLEMENTATION SCHEDULE:

The proposed alternative is requested for the 4th 10 Year Interval of the Inservice Inspection Program for Prairie Island Unit 1 and Unit 2.

REFERENCE:

By letter dated August 13, 2003, the NRC Staff previously authorized similar relief to Prairie Island Nuclear Generating Station, Docket Nos. 50-282 and 306 (Relief Request RR-16 and RR-17 [TAC Nos. MB7976 and MB7977]) for the 3rd ten-year inspection interval. An NRC followup letter dated April 28, 2004 was also issued to clarify the use of Code Case N-566-1 in concert with the approved relief requests under the same TAC Nos.

Appendix B Prairie Island Relief Requests

Prairie Island Unit 1 – Relief Request Number: 1-RR-4-4 (Rev. 0)
Prairie Island Unit 2 – Relief Request Number: 2-RR-4-4 (Rev. 0)

Reactor Vessel Head Leak-off Line

SYSTEM/COMPONENT(S) FOR WHICH RELIEF REQUEST WILL BE USED:

Code Class:	Class 1
Reference:	ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition 2000 Addenda, Table IWB-2500-1.
Examination Category:	B-P
Item Number:	B15.50
Description:	NPS 1 inch Reactor Vessel flange leak-off connections from Reactor Vessel flange to 3/8" reducers.
Component Numbers:	Unit 1: Line Nos. 1-RC-9A and 9B Unit 2: Line Nos. 1-2RC-9A and 9B

CODE REQUIREMENT:

ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition 2000 Addenda, Table IWB-2500-1, Category B-P, Item No. B15.50 requires periodic VT-2 visual examination of Class 1 piping during the conduct of a system pressure test.

This relief request involves Code requirements that mandate performance of a VT-2 visual examination during either the system pressure test or hydrostatic pressure test. Specifically, the requirement in Paragraph IWB-5221(a) states a system leakage test shall be conducted at a pressure not less than the pressure corresponding to 100% rated reactor power i.e. Reactor Coolant System Pressure of 2235 psig.

PROPOSED ALTERNATIVE:

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from the provisions of Table IWB-2500-1, Category B-P, Item No. B15.50 for performing the VT-2 visual examination using reactor coolant as a pressurizing medium at a test pressure of 2235 psig.

The required VT-2 visual examinations for the reactor vessel flange leak-off detection lines will be conducted during the regularly scheduled Class 1 system pressure test that is performed following each refueling outage. The reactor vessel flange leak-off lines will not be pressurized, during the VT-2 visual examinations, to RCS pressure (2235 psig) using reactor coolant as a pressuring medium. However, the examination will be conducted subsequent to pressurization of the reactor vessel flange leak-off lines with borated water during refueling operations. During refueling operations, the reactor vessel flange leak-off lines are pressurized due to the static head in the reactor cavity to approximately 10 psig. Since borated water leaves a crystalline residue, the proposed VT-2 visual examination provides reasonable assurance that through-wall leakage in the reactor vessel flange leak-off lines will be detected and corrected.

Appendix B Prairie Island Relief Requests

Prairie Island Unit 1 – Relief Request Number: 1-RR-4-4 (Rev. 0)
Prairie Island Unit 2 – Relief Request Number: 2-RR-4-4 (Rev. 0)

Reactor Vessel Head Leak-off Line

BASIS FOR RELIEF REQUEST:

The Reactor Pressure Vessel Head flange leakage detection lines are separated from the reactor pressure boundary by one passive membrane, a silver plated O-ring located on the vessel flange. A second O-ring is located on the opposite side of the tap in the vessel flange. This line is required during plant operation in order to indicate failure of the inner flange seal O-ring. Failure of the inner O-ring is the only condition under which these lines would be pressurized.

The configuration of this system precludes manual testing while the vessel head is removed because the odd configuration of the vessel tap, combined with the small size of the tap and the high test pressure requirement (2235 psig minimum), prevents the tap in the flange from being temporarily plugged. The hole opening in the flange is nominally only 0.815 inch in diameter and is smooth walled making a high pressure temporary seal very difficult. Failure of this seal could possibly cause ejection of the device used for plugging into the vessel.

A pneumatic test performed with the head installed is not practical due to the configuration of the top head. The top head of the vessel contains two grooves that hold the O-rings. The O-rings are held in place by a series of retainer clips. The retainer clips are contained in a recessed cavity in the top head. If a pressure test was performed from the leak-off line side with the head on, the inner O-ring would be pressurized in a direction opposite to what it would see in normal operation. This test pressure would result in a net inward force on the O-ring that would tend to push it into the recessed cavity that houses the retainer clips. The O-ring material is a thin silver plating and could very likely be damaged by this deformation into the recessed areas on the top head.

In addition to the problems associated with the O-ring design that make this testing impractical, it is also questionable whether a pneumatic test is appropriate for this line. Although the line will initially contain steam if the inner O-ring leaks, the system actually detects leakage rate by measuring the level of condensate in a collection chamber. This would make the system medium water at the level switch. Finally, the use of a pneumatic test performed at a minimum of 2335 psig would represent an unnecessary risk in safety for the inspectors and test engineers in the unlikely event of a test failure, due to the large amount of stored energy contained in air pressurized to 2235 psig. System leakage testing of these lines is impractical because the line will only be pressurized in the event of a failure of the inner O-ring. It is impractical to induce failure of the inner O-ring in order to perform a test

IMPLEMENTATION SCHEDULE

Relief is requested for the 4th 10 year interval of the In-service Inspection Program for Prairie Island Units 1 and Unit 2.