Preservice Inspection Program Plan

Watts Bar Nuclear Plant Unit 2

Tennessee Valley Authority
1101 Market Street
Chattanooga, TN 37402-2801

Watts Bar Nuclear Plant
P.O. Box 2000
Spring City, TN 37381

Docket Number – 50-391
Construction Permit No. CPPR-92, Issued January 23, 1973
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Responsible Organization: Inspection Services Organization

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Revision Log

Revision Number	Effective Date	Pages Affected	Description of Revision
0	7-25-08	All	Intial Issue
1	10-23-08	19, 20, 21 & 53-56	Incorporate 10CFR50.55a requirements for Components Containing Alloy 600/82/182. Editorial corrections as marked.
2	12-01-09	7	Insert MOU statement
		11	Changed the word Weld to Component
		Table Summary	Added numbers to Total Population and Required Examination
		62	Added TP-2 and TP-3 to table
		66	Added TP-2 statement
		67	Added TP-3 statement
		Section 11	Added Drawing number reference
		Section 12	Added Terms
		Various	Editorial correction
3	6-1-10	3	Update Index
		7	Remove 3.4.1.1.2. Mechanical Clamping devices
		8	Section 3.4.1.4, define snubber exam and testing Code of Record. Add section 3.4.1.7 to address shop/field exams.
		11	Added section 3.8.5 to address IEP-100 and ISOPM-S02-TOC
		13, 14	Remove 10CFR50.55a(b)(2)(xi) requirement to use 1989 Edition IWB-1220 exemptions. Also, revise 3.15.6 to reflect IWB-1220 exemptions from 2001A03 Code.
		17	Update 3.18.3 to define snubber exam and testing Code of Record.
		17-18	Minor editorial changes
		20	Added reference to 10CFR40.55a(g)(6)(ii)(E) to 3.19.3
		21-24	Added Calibration Block section and table
		32	Added totals for Exam Cat B-G-2
		33	Revised totals for Exam Cat B-J
		45	Added AFWS system to Table for Exam Cat C-F-2
		56-58	Revised Augmented commitment Section 8.0 to reflect TVA responses to NRC.
		71-73	Updated drawing lists
4	10-13-10	8	Add reference to NEDP-16, PER CAP action 247419-001.
		58	Revised commitment table listing for RV head penetrations

5	7-27-11	8	Add periodic notification to ANII of examination record signature status.
		13	Add reference to IEP-500 for surface conditioning of DM welds.
		20-21	Correct paragraph letters for "f" and "g".
		22	Add Code Cases N-686-1, N-695, and N-696
		23	Correct typographical errors
		36	Update weld totals for Examination Category B-J
		46	Update weld totals for Examination Category C-F-1
		48	Update weld totals for Examination Category C-F-2
		50	Add systems and component totals for Examination Category C-G
		57	Add support totals for ERCW system
		60	Add MRP-146 examination requirements and PER 375365 reference.
		62	Updated Relief Request status table
		67-86	Added relief requests WBN-2/PSI-1 and WBN-2/PSI-2
		95-99	Updated drawing list
6	2-15-12	5	Added information from RR on ASME XI 2001/2003
		6	Corrected FSAR reference numbers
		9	Removed 10CFR50.55a(b)(2)(iii) reference
		14-15	Added paragraphs to outline summary and final reports
		22	Added revision number to Code Case N-722
		23	Revised per 10CFR50.55a change
		60	Removed Note, pertaining to updated requirements in 10CFR50.55a
		62	Editioral correction to table
7	10-28-12	55	Added Class 1 support counts for RCS and RHRS. Deleted duplicate RHR system from table.
		56	Added Class 2 support counts for AFWS, CSS, MSS, RHRS, and CCS.
		57	Added Class 3 support counts for AFWS, CCS, ERCWS, FPCS, and HPFPS. Included total count by type. Corrected table title.
8	5-31-13	5	Changed page numbers in Table of Contents.
		6	Changed 'reference' to 'referenced' in two places and removed a comma after 4.6.iv.
		7	In paragraph 2.3, changed wording to match paragraph 1.0 to address PER 690704.
		9	Changed 'NGDC PP-15' to 'NC PP-15'.
		10	Changed 'MOU' to 'MOU-006'.
		15-16	In paragraph 3.14, changed 'NGDC' to 'NC'. In paragraph 3.14.1, added items (NIS-1, NIS-2, Stm Gen tubes, Pressure Tests) to agree with NC PP-15, 3.1.5.N and IWA-6230.
		24	In paragraph 3.20.3, corrected wording to match 10CFR50.55a(g)(5)(iv).
		34-35	In Exam Category B-G-1, added threaded bushings to four

			(4) RPV Stud Holes. Modified Note 2 and added Note 8 to address bushings.
		37	Changed 'safely' to 'safety'.
		47	Changed count from 286 to 303 for CSS total population.
		58	Changed counts to reflect current configurations.
		60	Changed date from September 20 to September 29 for referenced Letter No 2 from TVA to NRC.
		62	Changed 'releif' to 'relief'.
		88	Changed 'there of' to 'thereof'.
		92	Changed footnote by replacing 'NGDC' with 'Nuclear Construction' and changing 'MOU-6' to 'MOU-006'.
		94-99	Added drawing numbers, titles, and Code Classes.
9	7-31-2014	all	Changed 'NGDC' to 'NC' in header throughout document.
		various	Typo and spacing corrections to improve readability.
		6	New page numbers in Table Of Contents.
		8	Deleted paragraph describing the use of 'TBD' for the incomplete count of components and examinations. In paragraph 2.2, reworded for clarity.
		10, 11	Deleted paragraph describing MOU-006 and it's use as Technical Position 3. Deleted 3.4.1.1.1 thru 3.4.1.1.5 concerning Repair/Replacment. Moved 3.4.1.7 to 3.4
		16	In 3.14.1, added 'or OAR-1' and 'or NIS-2A' for reporting.
		23	Deleted 3.18.9 thru 3.18.12 - info is already contained in 3.18.2 and 3.18.2.1. In 3.19, added Code Case N-532-4 for OAR-1 and NIS-2A.
		24	Reworded 3.20 for clarity. In 3.20.1, corrected misquote of 10CFR50.55a(a)(3).
		25	Reworded 3.21 for clarity. In 3.22, added PSI coordinator responsibilities - Reference PER 834036.
		25, 6	Added 3.23 to address M&TE and PSI coordinator responsibilities. Changed Table of Contents to match. Reference PER 834036.
		29	Reworded footnote for clarification.
		35	Corrected weld count for category B-G-1.
		36	Changed Note 4 to 'N/A to U-2 PSI". Deleted 'TBD = To Be Determined'. (Category B-G-2 .)
		37	In Note 1(d), changed '25%' to '100% for PSI'. In Note 2, changed '10%' to '100%'. (Category B-J).
		38	Added components and weld counts to two columns. Deleted 'TBD' and 'TBD = To Be Determined'.
		39	Changed '28' to '0' in Required Exam column. Deleted 'TBD = To Be Determined'.
		43, 45	Added weld counts to two columns. Deleted 'TBD' and 'TBD = To Be Determined'.
		44, 46	Added components and weld counts to two columns. Deleted 'TBD' and 'TBD = To Be Determined'. Added Note 7, on page 44, to address AFW and BIT nozzle exemptions.

		47, 48	Added components and weld counts to two columns. Deleted 'TBD' and 'TBD = To Be Determined'. Added Note 7, on page 48, to address CSS and RHRS exemptions.
		49	Added weld counts to 'Total Population' column.
		50	Typo correction and deleted 'TBD = To Be Determined'.
		51	Deleted 'TBD = To Be Determined'.
		53	Added weld counts to two columns. Deleted 'TBD' and 'TBD = To Be Determined'.
		54	Reworded for clarity.
		55 - 60	Added support counts and deleted all references to 'TBD'.
		62	Added paragraph III.B to address Augmented Exam of the 4 RCP Motor Flywheels.
		63	Added paragraph IV.A, B, & C to address Augmented Exam of the RPV and PZR nozzle welds per the Alloy 600 Program and ASME Code Case N-770-1.
		64	Added 'or' and '(Note 2)' to Exam Method column. Added Note 2 to describe exams allowed by NRC EA 03-009.
		88, 92, 95	Deleted Technical Position 3 which encompassed the use of MOU-006.
		90	In 2nd and 4th paragraph, changed 'NGDC' to 'NC'.
		95-98	Corrected and added Drawing references ISI-2068-MRP-01 & -02, ISI-2068-W-07, ISI-2068A-E-13 & -14, ISI-2068C-E-03, -04, &-05, ISI-2072-W-01 thru -10, & ISI-2072A-E-01.
		101	Added definition for 'NC'. Deleted definition for 'REV'.
10	6-22-2016	6	Repagination of TOC
		8	Added "TI-50B" and "WBN-2 PSI" for clarification. Deleted "red lined' FSAR. Corrected 10CFR reference.
		11	Deleted NC-PP-15, added 2-TRI-0-10.2 and NPG-SPP-09.1
		12	Added reference to Snubbers and Relief Request WBN-2 /PSI-4.
		13	Added definition for HPSI.
		22	Added reference to Snubbers and Relief Request WBN-2 /PSI-4. Added 2-PAT-1.8
		24	Change "N-532-4" to "N-532-5" per latest revision of Reg Guide 1.147 (Rev 17). Added "Rev 17".
		25	Added Code Case N-770-1 and added notes to N-722-1 and N-729-1. Added paragraph (F) for 10CFR50.55a. Updated 3.20.1 to 10CFR50.55a(z)(1)
		30	Added 4 calibration blocks, "SQ-40", "SQ-57", "SQ-59", and "SQ-76".
		39, 40, 47, 49, 51, 52, 55, 57- 62	Corrected counts based on final PSI exams.
		57	Added Note 6 to explain how a Code exemption is applied.
		61-62	Added "(OTHER THAN PIPING)" to two tables for clarity.

		63-69	Added table to cross reference ISI support numbers to snubber UNIDs.
		69	Deleted two Unit 1 Snubbers from the table
		71	Added database info for RCP Motor Flywheel exams in 8.0.III.
		73	Added Upper Head injection Auxiliary Head Adapter (UPIAH) welds.
		74	Updated Index of Relief Requests.
		74-97	Deleted Relief Requests WBN-2/PDI-4, PSI-1, PSI-2.
		80	Updated Flow Diagram number to include "0-" and "2-"
		81-87	Added ISI drawings.
		88	Added Class "3" for shell side of RHR HX supports.
		89	Added terms "A-E" and "EVT-1" with descriptions.
		90	Added term "MSIP" with description.
		91	Changed "VE" to "V-E". Typo correction.
		93-100	Added Attachments 1 and 2 to address transition from MRP-139 Rev 1 and NRC B2004-01 to ASME Code Case N-770-1.
11	6-30-2016	34, 41, 45, 47, 49, 51, 57, 59, 60, 61, 62	Final counts of examinations.
		40	Reinstated Note 5 for 10% sample of welded attachments.
		61	Spread out table vertically to make it more readable.
		62	Added a line for 4 SG Upper Lateral Supports, as F1.42B.
		74	Changed Rev 10 to Rev 11

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1.0 SUMMARY

As the owner Tennessee Valley Authority (TVA) had established the original Preservice Inspection (PSI) program at Watts Bar Nuclear Plant (WBN) Unit 2 to perform and document the inspection activities in accordance with Technical Instruction (TI) 50B, ASME Section XI Preservice Inspection Program. The latest working revision of TI-50B, Revision 11 dated September 29, 1989 was placed on "Administrative Hold" and on September 04, 1997 Revision 12 was issued to "Cancel" the document with that being the status of the original PSI program. This document (TI-50B) will be referenced to establish the present document (WBN-2 PSI) as needed.

In a letter dated January 29, 2008, Tennessee Valley Authority (TVA) to U.S. Nuclear Regulatory Commission (NRC) and In the Matter of Docket Number 50-391 Tennessee Valley Authority, "WATTS BAR NUCLEAR PLANT (WBN) – UNIT 2 – REGULATORY FRAMEWORK FOR THE COMPLETION OF CONSTRUCTION AND LICENSING ACTIVITIES FOR UNIT 2", it states in Enclosure 1, "TVA Responses to NRC's Request of Information Needed for Licensing Review Reconstitution", item 4.b.iv is a commitment to provide a revised Preservice Inspection Program.

Based on FSAR Sections 5.2.8, 5.4.4.4 and 6.6, components subject to examination and/or test are components containing water, steam or radioactive waste shall be examined and tested in accordance with ASME Section XI as required by 10CFR50.55a(g), except where specific written relief has been requested. FSAR Section 5.2.8 is for TVA Class A (ASME Code Class 1) and Section 6.6 for TVA Class B (ASME Code Class 2) and C and D (ASME Code Class 3) components.

This document is being prepared to re-establish the requirements for the PSI Program Plan at WBN-2, as stated in the previous paragraph. This program plan follows the inspection requirements of 10CFR50.55a(g)(2) which requires that components, including component supports, that are classified as ASME Code Class 1 and 2 must be designed and be provided with access to enable the performance of inservice examination of such components and supports and must meet the preservice examination requirements set forth in Editions and Addenda of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code or optional Code Cases listed in NRC Regulatory Guide 1.147 that are incorporated by reference in 10CFR50.55a(a)(3)(ii), in effect six month before the date of issuance of the construction permit.

TVA requested and was granted approval to use an alternative ASME Section XI Code year and addenda for the construction completion project at WBN Unit 2. The alternate ASME Code for Preservice Examination (PSI) activities is based on the ASME Section XI Edition and Addenda approved at the time construction was resumed on WBN Unit 2. Based on the initial construction permit date for WBN Unit 2 of January 23, 1973 for Construction Permit No. CPPR-92, 10 CFR 50.55a(g)(2) would require the PSI code of record to have been based on the ASME Section XI Code in effect six months prior to the date of issue of the Construction Permit. The applicable Code would have been the 1971 Edition through Winter 1971 Addenda of ASME Section XI. Since 10 CFR 50.55a(g)(2) also allows the use of subsequent Code Editions/Addenda which are incorporated by reference in 10 CFR 50.55a(b)(2), the 2001 Edition, through 2003 Addenda was identified as the applicable Code of Record based on the date associated with resumption of construction activities. Reference the Relief Request Section 9.0 RR "WBN-2/PSI-2" for detail information and basis.

The examination categories and requirements for Class 1 components will be in accordance with subsection IWB of ASME Section XI. The examination categories and requirements for Class 2 and 3 components will be in accordance with subsections IWC and IWD of ASME Section XI to the extent practicable. (Watts Bar design was established prior to the publication of subsection IWC and IWD of Section XI; however, accessible Class 2 and 3 components will be examined in accordance with the guidelines of IWC and IWD of Section XI, as stated in FSAR Sections 5.2.8 and 6.6.

Other inspection requirements and/or commitments made by WBN Unit 2 in the regulatory framework letter maybe incorporated or reference in this document as augmented inspection activities. Augmented inspection requirements or commitments, on ASME class components, may be included or referenced in this program plan for mutual effort toward achieving the intent of the inspection activities.

2.0 CODE APPLICABILITY

2.1 The rules of ASME Section XI are a mandatory program of examinations, testing and inspections for evidence of adequate safety to manage deterioration and aging effects.

2.2 TVA as the owner has the responsibilities to develop a PSI Program Plan to establish a baseline of examinations to demonstrate conformance to the requirements of ASME Section XI for Inservice Inspection activities throughout the life of the plant. These responsibilities include, but are not limited to provision of access in the design and arrangement of the plant to conduct the examination and test, development of plans and schedules, including detailed examination and testing procedures for filing with the enforcement and regulatory authorities having jurisdiction at the site, conduct of the program for examination and tests, and recording of the results of the examination and tests, evaluation of the examination and test results, including corrective actions required and the actions taken.

2.3 As stated above, the edition of ASME Section XI is normally established based on the referenced code edition and addenda of 10CFR 50.55a, that is in effect six month before the date of issuance of the initial construction permit. The applicable Code would have been the 1971 Edition through Winter 1971 Addenda of ASME Section XI. Since 10 CFR 50.55a(g)(2) also allows the use of subsequent Code Editions/Addenda which are incorporated by reference in 10 CFR 50.55a(b)(2), the 2001 Edition, through 2003 Addenda was identified as the applicable Code of Record based on the date associated with resumption of construction activities. 10CFR50.55a Codes and Standards, dated February 27, 2008, specifically 10CFR50.55a (b)(2), references Section XI through 2003 Addenda. Therefore, the 2001 Edition through the 2003 Addenda of Section XI, Division 1, Inservice Inspection of Nuclear Power Plant Components is incorporated by reference and will be used to develop this program plan and provide the requirements for examination, testing and inspection of completed components and systems, subject to the listed limitations and modifications referenced throughout this document. Reference the Relief Request Section 9.0 RR "WBN-2/PSI-2" for additional detail information and basis.

2.4 Subsequent editions and addenda of ASME Section XI which are incorporated by reference in 10CFR50.55a may be used, subject to documentation as describe in Regulatory Issue Summary 2004-12 and the applicable related requirements, limitations and modifications.

2.5 The Authorized Nuclear Inservice Inspector(s) (ANII) are assigned to review, verify and certify that the responsibilities and the mandatory requirements of ASME Section XI as written in this document are met.

2.5.1 The Inspector shall review the initial program plan, prior to the start of preservice inspections as well as revisions to the program plan. Also, the Inspector shall submit a report to the program owner documenting the review of the initial program plan and each revision thereafter. The review shall cover the features that are affected by the requirements of Section XI and this document, as applicable. Shop and field preservice examinations are exempt from prior review.

2.5.2 The Inspector shall verify that the required examinations of this document, have been performed and the results recorded. Also, the Inspector shall verify that the nondestructive examination methods used follow the techniques specified and that the examinations are performed in accordance with written qualified procedures and by personnel qualified in accordance with the requirements of ASME Section XI. In addition, the Inspector has the prerogative to require re-qualification of any examiner or procedure when they have reason to believe the requirements are not met.

2.5.3 The Inspector shall perform any additional investigations necessary to verify that all applicable requirements of this program plan have been met.

2.5.4 The Inspector shall certify the examination records after verifying that the requirements of this program plan have been met and that the records are correct. A periodic status of examination record review should be communicated with the ANII in order to prevent a large backlog of un-reviewed examination records.

2.5.5 WBN-2 shall arrange for the Inspector to have access to all parts of the plant as necessary to make the required inspections and that the Inspector shall be notified and kept informed in advance when the components will be ready for inspection.

2.6 Application of this Code and Code of Record begins when the requirements of the Construction Code have been satisfied.

3.0 DESCRIPTION

3.1 SCOPE

This PSI Program Plan identifies the areas subject to inspection, responsibilities, provisions for accessibility and inspectability, examination methods and procedures, frequency of inspections, record keeping and report requirements, evaluation of inspection results and subsequent disposition for results of evaluations.

3.2 JURISDICTION

The jurisdiction of this PSI Program Plan covers the systems that have met all the requirements of the Construction Code, commencing when the construction code requirements have been met, irrespective of physical location. When portions of systems are completed at different time's jurisdiction of this division shall cover only those portions for which all of the construction requirements have been met. Prior to installation, an item that has met all requirements of the construction code may be corrected using the rules of either the construction code or this division, as determined by WBN-2.

3.3 RESPONSIBILITY

The responsibilities of maintaining this PSI Program Plan are the same as for the ISI Program Plan in 2-TRI-0-10.1, "ASME Section XI ISI/NDE Program" and NPG-SPP-09.1, "ASME Code and Augmented Programs".

3.4 APPLICATION

Components identified in this program plan for examination include items such as the reactor vessel, reactor pressure vessel internals (including the core support structure), steam generators, pressurizer, piping systems (including their valves, pumps and heat exchangers) and all respective supports to the components. Shop and field examinations may be credited for preservice examination of Class 1 or 2 components in Subsections IWB or IWC provided the requirements of IWB-2200(b) or IWC-2200(b), respectively, are met.

3.4.1 The following items are part of the Section XI Preservice Inspection requirements, but are not included in this document:

3.4.1.1 The Repair/Replacement (R/R) Program Plan is utilized to perform the required activities for ASME Section XI components, and is in accordance with TVA and Watts Bar Procedures NPG-SPP-09.1.3, TI-100.014 and NC PP-15, and R/R work order packages.

3.4.1.2 The requirements of Examination Category B-P, C-H and D-B, All Pressure Retaining Components for System Leakage Tests, are not required prior to initial plant startup. A System Pressure Test Program Plan and Schedule will be developed as required to perform the examination for systems and components as outlined in ASME Section XI, Articles IWA-5000, IWB-5000, IWC-5000 and IWD-5000 for all Class 1, 2, and 3 components, with the limitations and modifications as outlined in 10CFR50.55a for the inservice interval requirements.

3.4.1.3 The IWB requirements of Steam Generator Tubing of Examination Category B-Q, regarding the extent and frequency of the examination, is governed by Technical Specification and documented in the Steam Generator Tubing Program Plan and Schedule. NEDP-16, "Steam Generator Program," provides the requirements for implementation of the preservice inspection of steam generator tubing.

3.4.1.4 The IWF-5000 requirements for preservice examination and testing of snubbers will be performed using Subsection ISTD of the ASME/ANSI OM Code 2001 Edition through 2003 OMb Addenda, as permitted by 10CFR50.55a(b)(3)(v). Examinations shall be performed using the VT-3 visual examination method described in IWA-2213, as amended by Relief Request WNB-2/PSI-4 (refer to Section 9.0). Refer to 2-SI-0-912, "Snubber Visual Examination (Hydraulic and Mechanical)", for a listing of snubbers. Section 7.0 of this procedure has a listing of PSI snubbers with a cross reference to the snubber UNIDs. The ISI drawings, by system, show snubber field locations.

3.4.1.5 The IWE requirements for Class MC and Metallic Liners of Class CC components are documented in the IWE Program Plan and Schedule. The requirements will be utilized to perform the required examination as addressed by Subsection IWE, with limitations and modifications outlined in 10CFR50.55a(b)(2)(ix) and subparagraphs (A), (B), and (F) through (I).

3.4.1.6 The IWL requirements for Class CC Concrete Components is defined at WBN-2 as a concrete structural slab that is covered by a liner and a concrete floor making it inaccessible for examination and therefore exempt from examination in accordance with IWL-1220. The remaining Shield Building wall is a reinforced concrete structure similar in shape to the steel containment vessel but is not referred to as a concrete containment under pressure. However, the concrete structural slab (containment floor) is subject to the repair/replacement requirements of Article IWL of ASME Section XI.

3.5 CLASSIFICATION AND BOUNDARIES

3.5.1 A list of flow diagrams pertaining to the systems boundaries indicating the TVA Class A, B, C and D or ASME Class 1, 2 and 3 systems, structures and components required to be examined is included in Section 11.

3.5.2 A list of weld and support location drawings based on the flow diagram boundaries and utilized for component identification and location within those boundaries is also included in Section 11.

3.5.3 The rules of IWB shall be applied to those components that are classified ASME Class 1 or TVA Class A.

3.5.4 The rules of IWC shall be applied to those components that are classified ASME Class 2 or TVA Class B.

3.5.5 The rules of IWD shall be applied to those components that are classified ASME Class 3 or TVA Class C or D.

3.5.6 The requirements of IWF shall be applied to component supports classified ASME Class 1, 2 and 3 or TVA Class A, B, C and D as describe above.

3.5.7 Optional construction of a component within a system boundary to a classification higher than the minimum class established in the component Design Specification shall not affect the overall system classification by which the applicable rules are determined.

3.5.8 Where all components within the system boundary or isolable portions of the system boundary are classified to a higher class than required by the group classification criteria, the rules of the higher classification may be applied, provided the rules of the higher classification apply in their entirety.

3.5.9 The portion of piping that penetrates a containment vessel, which is required by Section III to be designed to Class 1 or Class 2 rules for piping and which may differ from the classification of the balance of the piping system, need not affect the overall system classification.

3.5.10 If a system safety criteria permits a system to be nonnuclear safety class and Watts Bar optionally classifies and constructs that system, or portion thereof, to Class 2 or Class 3 requirements, the application of the rules is at the option of Watts Bar.

3.5.11 The High Pressure Safety Injection (HPSI) System, as described in ASME Section XI, IWC-1221(b), consists of the Refueling Water Storage Tank (RWST), piping from the RWST to the CVCS and SIS Pumps (including the pumps), piping from the CVCS and SIS Pumps to the RCS, and CVCS piping that provides RCP Seal Injection to the RCP Seals.

3.6 ACCESSIBILITY

Provisions for accessibility shall include the following considerations:

3.6.1 Design considerations other than access provisions may be needed for specific components to render preservice/inservice inspections practical, such as surface finish of components subject to crud or corrosion product buildup, material selection to minimize activation in service and shielding from irradiation effects.

3.6.2 Access for the Inspector, examination personnel, and equipment necessary to conduct the examinations shall be provided.

3.6.3 Sufficient space for removal and storage of structural members, shielding and insulation shall be provided.

3.6.4 Installation and support of handling machinery where required to facilitate removal, disassembly and storage of equipment, components and other materials shall be provided.

3.6.5 Performance of examinations alternative to those specified in the event structural defects or indications are revealed that may require such alternative examinations, when necessary.

3.6.6 Necessary operations associated with repair/replacement activities shall be performed.

3.7 REFERENCED STANDARDS AND SPECIFICATIONS

When standards and specifications are referenced, their revision date or indicator shall be as listed in ASME Section XI, 2001 Edition through 2003 Addenda, specifically Table IWA-1600-1.

3.8 EXAMINATION METHODS

ASME Section XI identifies three types of examinations to perform inspections as visual, surface and volumetric. The actual examination method is defined and the techniques used are described in the legend below:

Visual (VT), an examination method used to evaluate an item by observation.

VT - 1 Detection of Surface Conditions
VT - 2 Evidence of Leakage
VT - 3 General Mechanical and Structural Conditions

Surface (Sur), an examination method used to detect the presence of discontinuities on the surface of the material.

PT - Liquid Penetrant
MT - Magnetic Particle
ET - Eddy Current

Note: 10CFR50.55a(b)(2)(xxii), prohibits the use of an ultrasonic examination method for surface examination as allowed by IWA-2220.

Volumetric (Vol), an examination method used to detect the presence of discontinuities throughout the volume of material.

UT - Ultrasonic
RT – Radiography

3.8.1 The examination method or methods to be used on a component are specified in the summary tables in Section 4.0, 5.0, 6.0 and 7.0 for ASME Class 1, 2 and 3 components and/or parts.

3.8.2 When preparation of a surface for nondestructive examination is required, the preparation shall be by a mechanical method. Such surfaces shall be blended into the surrounding area as may be required to perform the examination. The wall thickness shall not be reduced below the minimum thickness required by design. For surface conditioning of dissimilar metal welds the applicable provisions of IEP-500 shall be applied.

3.8.3 All the above nondestructive examinations will be performed using specific techniques and procedures that are identified in ASME Section XI, or alternative examinations that are demonstrated to be equivalent or superior to those identified. The provision for substitution of these alternative examination

methods, combination of methods, or newly developed techniques as outlined in IWA-2240 will utilize the 1997 Addenda of Section XI as stated in 10CFR50.55a(b)(2)(xix).

3.8.4 The extent of exam and examination requirements for volume or area coverage, as required in the summary tables of this document for each component, shall be documented on the applicable examination record and shall identify both the cause and percentage of reduced examination coverage. Reference to Code Case N-460 when the entire examination volume or area cannot be examined due to interference by another component or part geometry.

3.8.5 Nondestructive examination (NDE) procedures are controlled in accordance with IEP-100, "Administration of Nondestructive Examination (NDE) Procedures." A listing of NDE procedures is provided in ISOPM-S02-TOC, "ISO Program Manuals NDE Procedures Table of Contents." These procedures are controlled and available electronically in the Business Support Library (BSL).

3.9 NONDESTRUCTIVE EXAMINATION PERSONNEL

Personnel performing nondestructive examinations to this program plan shall be qualified and certified using a written practice prepared in accordance with ASME Section XI, as modified by 10CFR50.55a(b)(2)(xiv), (xv), (xvi), (xviii) and (xxiv). The written practice shall control the personnel requirement for nondestructive examination for this document and is outlined with the additional provisions of 10CFR50.55a regarding personnel qualification and certification as noted below.

3.9.1 10CFR50.55a(b)(2)(xiv), Appendix VIII personnel qualification.

3.9.2 10CFR50.55a(b)(2)(xv), Appendix VIII specimen set and qualification requirements.

3.9.3 10CFR50.55a(b)(2)(xvi), Appendix VIII single side ferritic vessel and piping and stainless steel piping examination.

3.9.4 10CFR50.55a(b)(2)(xviii), Certification of NDE personnel.

3.9.5 10CFR50.55a(b)(2)(xxiv), Incorporation of the Performance Demonstration Initiative and Addition of Ultrasonic Examination Criteria.

3.10 INSPECTION INTERVAL

The Preservice Inspection Program is prepared in accordance with Program B of ASME Section XI to establish the baseline inspections for future inspection intervals.

3.11 COMPONENT REFERENCE SYSTEM

A component reference system, such as TVA Procedure N-GP-8 Weld Reference System, shall be established during the preservice examinations and will continue to be used during the Inservice Inspection process. This applies to all components inspected in the Class 1, 2 and 3 systems, including piping, vessel and other components, where practical. The

drawings used for PSI are based on the classification of the boundaries outlined on the WBN Unit 2 Flow Diagrams to establish the basis for the interrelationship with TVA classification of components and ASME Section XI inspection activities as described in Technical Position TP-1, listed in this document. The identification of the components required to be inspected by PSI shall be the same as or similar to the identification recorded for the code data report and/or shop construction records. For the purpose of traceability of field and shop weld components on the PSI/ISI weld and support location drawing, the referenced isometric and the numbering of the welds on the isometric shall be used wherever possible.

3.12 PROGRAM PLAN AND SCHEDULES

The program plan summary tables contained in Sections 4.0, 5.0, 6.0 and 7.0 are by examination category as outlined for ASME Section XI components.

3.12.1 For each examination category, the summary tables identify the item number, component or part, compliance to the Watts Bar Unit-2, examination method, examination figure, extent of exam, acceptance standard, total population and required examinations for each category item, total examination in the category and notes pertaining to the items. It should be noted that the total population and required examinations may change during the preservice examination period due to changes, modifications and actual walkdowns of the systems but will be document for the summary report for the initial inservice inspection activities.

3.12.2 The program schedule, which is directly related to the summary tables of the program plan, will list the specific identification number of components or parts (welds, bolts, studs or other items) with their, code category and item numbers, method of exam, area to be examined as a minimum and any other essential information.

3.12.3 During the PSI activities a list shall be maintained of the components examined and as a minimum the component or part number, the report number, acceptance and/or evaluation process, percentage of examination volume or area complete, with an explanation of 90% or less coverage, if applicable and reported to the program owner.

3.13 EVALUATION OF RECORDED CONDITIONS

Evaluation shall be made of flaws detected during the examinations as required by ASME Section XI, Articles IWB-3000 for Class 1 components, IWC-3000 for Class 2 components, and IWD-3000 for Class 3 components and IWF-3000 for component supports. Flaws detected shall be sized by bounding rectangle or square the flaw for the purpose of description and dimensioning as described in Section XI, IWA-3300, Flaw Characterization, or IWA-3400, Linear Flaws. All flaws shall be evaluated, after they have been characterized, by comparing the results with the acceptance standard specified in the summary tables.

3.14 RECORDS AND REPORTS

Examination records and reports shall be filed and maintained in a manner that will allow access for future reference. The record keeping and reporting requirements in this program meets the requirements of IWA-6000 of Section XI. These activities are requirements in addition to being implemented by Watts Bar procedures for, Record Control.

Nuclear Construction (NC) Project Procedure (PP), specifically NC PP-15 requires that the PSI program owner provide instructions for the PSI Summary Report and Site Final Report the following shall be submitted as a minimum.

3.14.1 Prepare and submit the PSI Summary Report to U2 Site Licensing for processing and submittal to the NRC. The PSI Summary Report shall be submitted to the NRC prior to the date that WBN 2 is placed into commercial service. The summary report shall contain the following information:

Owner's Report for Preservice Inspections, Form NIS-1 or OAR-1
Owner's Report for Repair/Replacement Activities, Form NIS-2 or NIS-2A
Steam Generator Tubing Inservice Inspections
Components Examined
Examination Category and Item Number
Code Cases, as applicable
Examination Method
Total number of components
Number of components required to be examined
Relief Requests written to date
Pressure Test reports (if applicable)

Cover sheet providing the following information:

Date of document completion
Name and address of Owner
Name and address of generating plant
Name or number designation of the unit
Commercial Service Date for the unit

3.14.2 Prepare the Site Final Report, which includes all pertinent PSI data such as Personnel Certifications, Examination Data Sheets, and the PSI Summary Report. Submit the Site Final Report to Management Services for lifetime retention as a QA record. If possible, the report should be (but is not required to be) issued by Fuel Load to ensure documentation is captured before construction personnel depart. The Site Final Report shall contain, but not be limited to, the following

The PSI Summary Report
Summary of PSI examinations on ASME Class 3
Non-Regulatory Augmented Examinations
Summary of Personnel Certifications

3.15 IWB REQUIREMENTS AND EXEMPTIONS

3.15.1 Subsection IWB provides the rules and requirements for Class 1 pressure retaining components and their integral attachments.

3.15.2 Preservice examinations required to be performed and completed in the Class 1 systems are extended to include essentially 100% of the pressure retaining welds in all non-exempt components prior to initial plant startup, except examination category B-P, the VT-3 requirements for the internal surfaces of categories B-L-2 and B-M-2 and category B-O shall be extended to include only the welds in the outer peripheral of the control rod housings.

3.15.3 Component requirements shall be examined as specified listed in the Summary Tables in Section 4.0 of this document. 10CFR50.55a provides the following requirements in lieu of and in addition to the requirements contained within this document:

3.15.3.1 10CFR50.55a(b)(2)(xxi) requires inclusion of Items B3.120 and B3.140 examination requirements of the 1998 Edition be addressed.

3.15.4 Shop and field examinations may serve in lieu of on-site preservice examination provided the following:

3.15.4.1 In the case of the vessels only, the examination are performed after the hydrostatic test required by Section III.

3.15.4.2 Such examinations are conducted under conditions and with equipment and techniques equivalent to those that are expected to be employed for subsequent inservice examinations.

3.15.4.3 The shop and field examination records are or can be documented and identified in a form consistent with those required for records management.

3.15.5 Evaluation of Examination Results shall be in accordance with the Acceptance Standard requirements listed in the Summary Tables of Section 4.0 for IWB Class 1 components.

3.15.6 The following components or parts of components are exempt from the volumetric and surface examination requirements as noted in IWB-1220 of the PSI Code of Record:

3.15.6.1 Piping of NPS 1 and smaller, except for steam generator tubing;

3.15.6.2 Components and their connections in piping of NPS 1 and smaller;

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

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

Note: Piping is defined as having a cumulative inlet and cumulative outlet pipe cross-sectional area neither of which exceeds the nominal outside diameter cross-sectional area of the designated size.

3.16 IWC REQUIREMENTS AND EXEMPTIONS

3.16.1 Subsection IWC provides the rules and requirements for Class 2 pressure retaining components and their integral attachments.

3.16.2 The preservice inspection requirements shall apply to those Class 2 components initially selected for examination (except category C-H) and not exempt or excluded from inservice examination, shall be performed and completed prior to initial plant startup.

3.16.3 Components shall be examined as specified in the Summary Tables for IWC listed in Section 5.0 of this document.

3.16.4 Shop and field examinations may serve in lieu of on-site preservice examination provided the following:

3.16.4.1 In the case of the vessels only, the examination are performed after the hydrostatic test required by Section III.

3.16.4.2 Such examinations are conducted under conditions and with equipment and techniques equivalent to those that are expected to be employed for subsequent inservice examinations.

3.16.4.3 The shop and field examination records are or can be documented and identified in a form consistent with those required for records management.

3.16.5 The following Class 2 components or parts of components are exempt from the volumetric and surface examination requirements.

3.16.5.1 Class 2 components within RHR, ECC and CHR systems or portions of systems.

(a) For systems, except the High Pressure Safety Injection;

(1) Class 2 piping NPS 4 and smaller;

(2) Class 2 vessels, pumps and valves and their connections in piping NPS 4 and smaller;

(b) Class 2 High Pressure Safety Injection portion;

(1) Class 2 piping NPS 1 ½ and smaller;

(2) Class 2 vessels, pumps, and valves and their connections in piping NPS 1 ½ and smaller

(c) Class 2 vessels piping, pumps, valves, other components connections of any size in statically pressurized, passive (i.e. no pumps) portions (i.e., Safety Injection Tanks (SITs) and associated discharge piping);

(d) Class 2 piping and other components of any size beyond the last shutoff valve in opened ended portions of systems that do not contain water during normal plant operating conditions.

3.16.5.2 Class 2 components within systems or portions of systems other than RHR, ECC and CHR systems.

(a) For Class 2 systems, except for the Auxiliary Feedwater System.

(1) Class 2 piping NPS 4 and smaller;

(2) Class 2 vessels, pumps and valves and their connections in piping NPS 4 and smaller;

(b) Class 2 Auxiliary Feedwater Systems.

(1) Class 2 piping NPS 1 ½ and smaller;

(2) Class 2 vessels, pumps, and valves and their connections in piping NPS 1 ½ and smaller

(c) Class 2 vessels piping, pumps, valves, other components connections of any size in 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 (93^{0}C).

(d) Class 2 piping and other components of any size beyond the last shutoff valve in opened portions of systems that do not contain water during normal plant operating conditions.

3.16.5.3 Class 2 components that are inaccessible due to being encased in concrete, buried underground, located inside a penetration, or encapsulated by guard pipe.

3.16.6 Evaluation of examination results shall be in accordance with the acceptance standard requirements listed in the Summary tables of Section 5.0 for IWC Class 2 components.

Note: Piping is defined as having a cumulative inlet and cumulative outlet pipe cross-sectional area neither of which exceeds the nominal outside diameter cross-sectional area of the designated size.

3.17 IWD REQUIREMENTS AND EXEMPTIONS

3.17.1 Subsection IWD provides the rules and requirements for Class 3 pressure retaining components and their integral attachments.

3.17.2 The preservice inspection requirements, with the exception of category D-B, shall be performed and documented completely once prior to initial plant startup and shall apply to pressure retaining components and their integral attachments on Class 3 systems in support of the following functions:

(a) reactor shutdown
(b) emergency core cooling
(c) containment heat removal
(d) atmosphere cleanup
(e) reactor residual heat removal
(f) residual heat removal from spent fuel storage pool

3.17.3 Components required to be examined are specified in the Summary Tables for IWD listed in Section 6.0 of this document.

3.17.4 The following Class 3 components or parts of components are exempted from the VT-1 visual examination requirements.

(a) piping NPS 4 and smaller

(b) vessels, pumps, and valves and their connections in piping NPS 4 and smaller

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

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

3.17.5 Evaluation of examination results shall be in accordance with the acceptance standard requirements listed in the Summary tables of Section 6.0 for IWD Class 3 components.

Note: Piping is defined as having a cumulative inlet and cumulative outlet pipe cross-sectional area neither of which exceeds the nominal outside diameter cross-sectional area of the designated size.

3.18 IWF REQUIREMENTS AND EXEMPTIONS

3.18.1 The requirements for examination of Class 1, 2, 3 and MC component supports of nonexempt components are outlined within this section. The examination requirements shall apply to piping supports and supports for vessels, pumps and valves.

Note: There are no MC supports based on the design as being a free standing steel containment.

3.18.2 An initial preservice examination is to be performed on all component supports, not exempted by this document, once prior to startup. Component supports within systems that operate at a temperature greater than 200°F during normal operations shall be performed during or following initial system heatup and cooldown.

3.18.2.1 Component supports that have been adjusted in accordance with the acceptance standard for component support or corrected by repair/replacement shall be reexamined unless determine unnecessary by the evaluations.

3.18.3 The preservice visual examination and functional testing requirements of Snubbers will use Subsection ISTD of the ASME/ANSI OM 2001 Edition through OMb 2003 Code as allowed by 10CFR50.55a(b)(3)(v). Examination of snubbers shall be performed using the VT-3 visual examination method described in IWA-2213, as amended by Relief Request WNB-2/PSI-4 (refer to Section 9.0). ISTD-4120 states that if the period between the preservice examination and initial system preoperational test exceeds 6 months, reexamination shall be performed in accordance with ISTD-4110(a), ISTD-4110(d), and ISTD-4110(e). This reexamination may be accomplished in conjunction with ISTD-4130.

Integral and non-integral attachments for snubbers, including lugs, pins, bolting and clamps, shall be examined in accordance with the requirements of this document.

Thermal movement verification of snubbers will be in accordance with procedure 2-PTI-999-02, "Thermal Expansion" and 2-PAT-1.8, "Thermal Expansion of Piping Systems".

3.18.4 Supports exempt from the examination requirements are those connected to piping and other items exempted from volumetric, surface, VT-1 or VT-3 visual examination. In addition, portions of supports that are inaccessible by being encased in concrete, buried underground, or encapsulated by guard pipe are also exempt from the examination requirements.

3.18.5 The support examination boundaries for both integral and non-integral supports are as follows.

(a) The boundary of an integral support connected to a pressure retaining component is the distance from the pressure retaining component as indicated for Class 1, 2 and 3.

(b) The boundary of an integral support connected to a building structure is the surface of the building structure.

(c) The boundary of a non-integral support connected to a pressure retaining component is the contact surface between the component and the support.

(d) The boundary of a non-integral support connected to a building structure is the surface of the building structure.

(e) Where the mechanical connection of a non-integral support is buried within the component insulation, the support boundary may extend from the surface of the component insulation, provided the support either carries the weight of the component or serves as a structural restraint in compression.

(f) The examination boundary of an intervening element shall include the attachment portion, which includes welds, bolting, pins, clamps, etc. of the intervening element to pressure retaining components, integral and non-integral attachments of pressure retaining components, and integral and non-integral supports. The examination boundary does not include the attachment of the intervening element to the building structure.

(g) All integral and non-integral connections within the boundary governed by IWF rules and requirements are included.

3.18.6 Examination of component supports shall include:

(a) mechanical connections to pressure retaining components and building structure. For pipe-clamp-type supports, the mechanical connection to the pressure boundary includes the bolting, pins, and their interface to the clamp, but does not include the component-to-clamp interface.

(b) weld connections to building structure

(c) weld and mechanical connections at intermediate joints in multi-connected integral and nonintegral supports

(d) clearances of guides and stops, alignment of supports, and assembly of support items

(e) hot or cold settings of spring supports and constant load supports

(f) accessible sliding surfaces

3.18.7 The methods of examination shall comply with those listed in Section 7.0 for IWF Summary Tables. Alternative methods of examination meeting the requirements of IWA-2240 may be used.

Examinations that detect conditions that require evaluation may be supplemented by other examination methods and techniques to determine the character of the flaw (that is, size, shape, and orientation). Visual examinations that detect surface flaws that exceed the acceptance criteria may be supplemented by either surface or volumetric examinations.

3.18.8 Evaluation of examination results shall be in accordance with the Acceptance Standard requirements listed in the Summary Table of Section 7.0 for IWF Class 1, 2 and 3 component supports.

3.19 CODE CASES

3.19.1 The following Code Cases are accepted for use in Regulatory Guide 1.147, Rev 17, and shall be utilized where applicable:

N-460 Alternative Examination Coverage for Class 1 and 2 welds. To be used on all IWB-2500, Class 1 and IWC-2500, Class 2 welds, Section XI, Division 1.

N-532-5 Repair/Replacement Activity Documentation Requirements and Inservice Inspection Summary Report Preparation and Submission, Section XI, Division 1.

N-686-1 Alternative Requirements for Visual Examinations, VT-1, VT-2, and VT-3, Section XI, Division 1

N-695 Qualification Requirements for Dissimilar Metal Piping Welds, Section XI Division 1

N-696 Qualification Requirements for Appendix VIII Piping Examinations Conducted from the Inside Surface, Section XI, Division 1

3.19.2 The following Code Case is conditionally accepted for use in Regulatory Guide 1.147 and shall be utilized where applicable:

N-648-1 Alternative Requirements for Inner Radius Examinations of Class 1 Reactor Vessel Nozzles.

Conditional use states that, in place of a UT examination, licensees may perform a visual examination with enhanced magnification that

Calibration Block ID	Size (Dia.)	Schedule or Thickness	Material
WB-01	6.00"	Sch 160 (0.715")	SA-376 TP304
WB-02	8.00"	Sch 140 (0.942")	SA-376 TP304
WB-03	12.00"	Sch 140 (1.158")	SA-376 TP316
WB-04	16.00"	Sch 80 (0.754")	SA-333 Gr6
WB-05	32.00"	1.410"	SA-516 Gr70
WB-06	2.00"	Sch 160 (0.346")	TP304
WB-07	8.00"	Sch 120 (0.758")	TP304
WB-08	12.00"	Sch 80 (0.767")	SA-376 TP316
WB-09	8.00"	Sch 40 (0.307")	A-312 TP316
WB-10	14.00"	Sch 160 (1.352")	A-312 TP304
WB-11	3.00"	Sch 160 (0.450")	TP304-H
WB-12	2.50"	Sch 160 (0.396")	SA-376 TP304
WB-13	4.00"	Sch 120 (0.450")	A-312 TP304
WB-14	FLAT (12.00" x 4.00")	1.482"	SA-516 Gr70
WB-15	FLAT (12.00" x 4.00")	1.028"	SA-376 TP304
WB-16	12.00"	Sch 160 (1.322")	SA-376 TP304
WB-17	5.00"	Sch 160 (0.585")	SA-403 WP316
WB-18	18.00"	Sch 80 (0.938")	SA-333
WB-19	6.00"	Sch XXH (0.782")	A106 GrB
WB-20	1.50"	Sch 160 (0.312")	SA-376 TP304
WB-21	10.00"	1.493"	SA-106 Gr B
WB-22	NOT USED		
WB-23	1.375" DIA x 17.00" LTH STUD	N/A	SA-193 GrB7
WB-24	1.250" DIA x 5.00" LTH STUD	N/A	SA-193 GrB7
WB-25	1.675" DIA x 10.50" LTH STUD	N/A	SA-193 GrB7
WB-26	4.50" DIA x 30.50" LTH STUD	N/A	SA-193 GrB7
WB-27	2.00" DIA x 8.00" LTH STUD	N/A	SA-193 GrB7
WB-28	NOT USED		
WB-29	8.00"	1.206"	SA-376 TP304
WB-30	5.00"	0.918"	SA-376 TP304
WB-31	1.125" DIA x 7.50" LTH STUD	N/A	AISI 4140
WB-32	1.250" DIA x 10.00" LTH STUD	N/A	AISI 4140
WB-33	10.00"	Sch 140 (1.006")	TP304
WB-34	14.00"	Sch 140 (1.247")	TP304
WB-35	NOT USED		

Calibration Block ID	Size (Dia.)	Schedule or Thickness	Material
WB-36	1.50" DIA x 10.75" LTH STUD	N/A	AISI 4140
WB-37	6.00"	Sch 80 (0.433")	SA-53 GrB
WB-38	8.00"	Sch 80 (0.484")	SA-106 GrB
WB-39	24.00" LTH x 6.00" WTH)	4.016"	SA-533 GrA
WB-40	4.00"	Sch 160 (0.516")	A-312 TP304
WB- 41	12.00"	Sch 40 (0.363")	A-312 TP304
WB-42	18.00"	Sch 30 (0.431")	SA-403 TP304
WB-43	18.00"	Sch 40 (0.641")	SA-240 TP304
WB-44	FLAT 8.00" LTH x 5.00" WTH	2.150"	SA-240 TP304
WB-45	2.00" DIA x 9.00" LTH STUD	N/A	SA193 GrB7
WB-46	14.00"	Sch 40 (0.470")	SA-358 TP304
WB-47	Vessel 22.375" LTH x 6.01" WTH (OLD ID WAT-01)	5.805"	A-508 Cl2
WB-48	Vessel 33.875" LTH x 6.01" WTH (OLD ID WAT-02)	8.625"	A-508 Cl2
WB-49	Vessel 43.31" LTH x 8.08" WTH (OLD ID WAT-03)	11.187"	A-508 Cl2
WB-50	Vessel 32.75" LTH x 11.18" WTH	10.25"	A-508 Cl2
WB-51	Vessel 27.53" LTH x 6.00" WTH (OLD ID WAT-05)	7.125"	A-508 Cl2
WB-52	4.00"	0.656"	Tri-metallic (CRDM)
WB-53	10.00"	3.000"	A-508 Cl2
WB-54	12.00"	Sch 160 (1.212")	SA-351 Gr CF8
WB-55	Pressurizer 15.00" LTH x 6.125" WTH	3.300"	SA-533 GrA Cl2
WB-56	Pressurizer 20.00" LTH x 6.250" WTH	4.000"	SA-533 GrA Cl2
WB-57	Stm Gen 25.125" LTH x 7.000" WTH	5.000"	SA-216 GrWCC
WB-58	Pressurizer 17.937" LTH x 6.750" WTH	3.062"	SA-533 GrA Cl2
WB-59	31.00" (ID)	2.400"	SA351 CF8A
WB-60	31.00" (ID)	3.000"	SA351 CF8A
WB-61	2.00"	Sch 80 (0.225")	SA-376 TP304
WB-62	3.00"	Sch 40 (0.265")	SA-376 TP304
WB-63	3.00"	Sch 80 (0.297")	SA-376 TP304
WB-64	4.00"	Sch 40 (0.268")	SA-376 TP304
WB-65	4.00"	Sch 80 (0.343")	SA-376 TP304

Calibration Block ID	Size (Dia.)	Schedule or Thickness	Material
WB-66	14.00"	Sch 30 (0.370")	A-358 TP304
WB-67	16.00"	Sch 30 (0.395")	A-358 TP304
WB-68	20.00"	Sch 20 (0.375")	A-358 TP304
WB-69	24.00"	Sch 20 (0.375")	A-358 TP304
WB-70	6" DIA STUD	N/A	AISI 4340
WB-71	6.57" OD / 5.00" ID	0.787"	SB-166 TP600
WB-72	6.57" OD / 5.00" ID	0.786"	SA-479 TP304L / SA-182
WB-73	4.00" OD / 2.75" ID	0.625"	SB-166 TP600
WB-74	4.00" OD / 2.75" ID	0.625"	SA-182 TPA91 / SA-479 TPA91
WB-75	4.5" dia. RCP stud	N/A	A540 (E4340H)
WB-76	6.75" dia. RPV stud	N/A	SA-540
WB-77	INNER RADIUS CAL BLOCK - FLAT	N/A	SA-240 TP304
WB-78 thru -81	Alternate cal block	N/A	A-516 Gr70
WBN-82 thru -85	Alternate cal block	N/A	A-240 TP304
WB-86	4" Pipe Sch 80	.337"	SA-335 GrP22
WB-87	2" Pipe Sch 160	.344"	SA-335 GrP22
WB-95 & -96	Alternate cal block	N/A	A-516 Gr70
WB-97 & -98	Alternate cal block	N/A	TP304
SQ-40	Flat (12" x 6")	3.0"	SA-533 Type A Cl-2
SQ-57	Flat (24-5/16" x 6")	4.0"	SA-533 Gr A
SQ-59	Flat (16" x 14")	8.0"	SA-216 Gr WCC
SQ-76	Flat (14" x 14")	8.0"	SA-508 Cl-2

SECTION 4.0

IWB SUMMARY TABLES

For

ASME CLASS 1

CATEGORIES

B-A	Pressure Retaining Welds in Reactor Vessel
B-B	Pressure Retaining Welds in Vessels Other Than Reactor Vessels
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 and 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 – (NA reference 3.15.2)
B-M-1	Pressure Retaining Welds in Valve Bodies
B-M-2	Valve Bodies – (NA reference 3.15.2)
B-N-1	Interior of Reactor Vessel
B-N-2	Welded Core Support Structures and Interior Attachments to Reactor Vessels
B-N-3	Removable Core Support Structures
B-O	Pressure Retaining Welds in Control Rod Housings

ASME Section XI items that do not apply to Watts Bar Unit 2 within this Program Plan will be identified with, "NA to Unit-2". This statement documents that the item does not apply and will not be referenced further within the program plan, schedule or summary reports.

Examination Category B-A, Pressure Retaining Welds in Reactor Vessel
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent of Exam	Acceptance Standard	Total Population	Required Examination
B1.10	Shell Welds							
B1.11	Circumferential	Applicable	Vol.	IWB-2500-1	All Welds (2)	IWB-3510	4	4
B1.12	Longitudinal	NA to UNIT-2	-	-	-	-		
B1.20	Head Welds							
B1.21	Circumferential	Applicable	Vol.	IWB-2500-3	Accessible length of weld	IWB-3510	2	2
B1.22	Meridional	Applicable	Vol.	IWB-2500-3	Accessible length of all welds	IWB-3510	6	6
B1.30	Shell to Flange	Applicable	Vol.	IWB-2500-4	Weld (2)	IWB-3510	1	1
B1.40	Head to Flange	Applicable	Vol. & Suf.	IWB-2500-5	Weld (2)	IWB-3510	1	1
B1.50	Repair Welds (1)							
B1.51	Beltline region	NA to UNIT-2	-	-	-	-		
Totals	**Examination Category B-A**						**14**	**14**

NOTES:
(1) NA to Unit-2
(2) Includes essentially 100% of the weld length.
(3) NA to Unit-2 Preservice activities
(4) NA to Unit-2 Preservice activities
(5) NA to Unit-2 Preservice activities

Examination Category B-B, Pressure Retaining Welds in Vessels Other Than Reactor Vessels
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent of Exam	Acceptance Standard	Total Population	Required Examination
	Pressurizer							
B2.10	Shell to Head							
B2.11	Circumferential	Applicable	Vol.	IWB-2500-1	Both Welds (4)	IWB-3510	2	2
B2.12	Longitudinal	Applicable	Vol.	IWB-2500-2	1ft of all weld (2)	IWB-3510	2	2
B2.20	Head Welds							
B2.21	Circumferential	NA to UNIT-2	-	-	-	-		
B2.22	Meridional	NA to UNIT-2	-	-	-	-		
	Steam Generators (Primary side)							
B2.30	Head Welds							
B2.31	Circumferential	NA to UNIT-2	-	-	-	-		
B2.32	Meridional	NA to UNIT-2	-	-	-	-		
B2.40	Tubesheet to Head Weld	Applicable	Vol.	IWB-2500-6	Weld (4)	IWB-3510	4	4
	Heat Exchanger (Primary side) - Head							
B2.50	Head Welds							
B2.51	Circumferential	NA to UNIT-2	-	-	-	-	-	-
B2.52	Meridional	NA to UNIT-2	-	-	-	-	-	-
	Heat Exchanger (Primary side) - Shell							
B2.60	Tubesheet to Head Welds	NA to UNIT-2	-	-	-	-	-	-
B2.70	Longitudinal Welds	NA to UNIT-2	-	-	-	-	-	-
B2.80	Tubesheet to Shell Welds	NA to UNIT-2	-	-	-	-	-	-
Totals	**Examination Category B-B**						**8**	**8**

NOTES:
(1) NA to Unit-2 Preservice activities
(2) The weld selected for examination is that weld intersecting the circumferential weld.
(3) NA to Unit-2 Preservice activities
(4) Includes essentially 100% of the weld length

Examination Category B-D, Full Penetration Welded Nozzles in Vessels
Inspection Program B

Item No. (8)	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent of Exam	Acceptance Standard	Total Population	Required Examination
	Reactor Vessel							
B3.90	Nozzle to Vessel Welds	Applicable	Vol.	IWB-2500-7 (a) through (c)	All Nozzles (1)	IWB-3512	12	12
B3.100	Nozzle Inside Radius Section	Applicable	EVT-1 (9)	(4)	All Nozzles (1)	IWB-3512	12	12
	Pressurizer							
B3.110	Nozzle to Vessel Welds	Applicable	Vol.	IWB-2500-7 (a) through (c)	All Nozzles (1)	IWB-3512	6	6
B3.120 (6)	Nozzle Inside Radius Section	Applicable	Vol. (7)	(4)	All Nozzles (1)	IWB-3512	6	6
	Steam Generators (Primary side)							
B3.130	Nozzle to Vessel Welds	NA to UNIT-2	-		-	-		
B3.140 (6)	Nozzle Inside Radius Section	Applicable	Vol. (7)	(4)	All Nozzles (1)	IWB-3512	8	8
	Heat Exchanger (Primary side) - Head							
B3.150	Nozzle to Vessel Welds	NA to UNIT-2	-	-	-	-		
B3.160	Nozzle Inside Radius Section	NA to UNIT-2	-	-	-	-		
Totals	**Examination Category B-D**						**44**	**44**

NOTES:
(1) Includes nozzles with full penetration welds to vessel shell (or head) and integrally cast nozzles, but excludes manways and handholes either welded to or integrally cast in vessel.
(2) NA to Unit-2 Preservice activities
(3) NA to Unit-2 Preservice activities
(4) The examination volumes shall apply to the applicable Figure shown in Figs. IWB-2500-7(a) through (d).
(5) NA to Unit-2 Preservice activities
(6) 10CRF50.55a(b)(2)(xxi)(A) Table IWB-2500-1 Items B3.120 and B3.140 (Inspection Program B) in the 1998 Edition must be applied when using the 2001 Edition, 2003 Addenda.
(7) A visual examination with enhanced magnification that has a resolution sensitivity to detect a 1-mil width wire or crack, utilizing the allowable flaw length criteria in Table IWB-3512-1, may be performed in place of an ultrasonic examination, reference 10CFR50.55a(b)(2)(xxi)(A).
(8) Category Items B3.10 – B3.80 are based on Inspection Program A and do not apply to Unit-2.
(9) Code Case N-648-1, with conditional approval. see paragraph 3.19.2 for details of exam area and other information.

Examination Category B-F, Pressure Retaining Dissimilar Metal Welds in Vessel Nozzles
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent of Exam	Acceptance Standard	Total Population	Required Examination
	Reactor Vessel							
B5.10	NPS 4 or Larger-Nozzle-to-Safe End Butt Welds	Applicable	Vol. & Sur	IWB-2500-8	All Welds	IWB-3514	8	8
B5.20	Less Than NPS 4-Nozzle-to-Safe End Butt Welds	NA to UNIT-2	-	-	-	-		
B5.30	Nozzle-to-Safe End Socket Welds	NA to UNIT-2	-	-	-	-		
	Pressurizer							
B5.40	NPS 4 or Larger-Nozzle-to-Safe End Butt Welds	Applicable	Vol. & Sur	IWB-2500-8	All Welds	IWB-3514	6	6
B5.50	Less Than NPS 4-Nozzle-to-Safe End Butt Welds	NA to UNIT-2	-	-	-	-		
B5.60	Nozzle-to-Safe End Socket Welds	NA to UNIT-2	-	-	-	-		
	Steam Generators							
B5.70	NPS 4 or Larger-Nozzle-to-Safe End Butt Welds	Applicable	Vol. & Sur	IWB-2500-8	All Welds	IWB-3514	8	8
B5.80	Less Than NPS 4-Nozzle-to-Safe End Butt Welds	NA to UNIT-2	-	-	-	-		
B5.90	Nozzle-to-Safe End Socket Welds	NA to UNIT-2	-	-	-	-		
	Heat Exchangers							
B5.100	NPS 4 or Larger-Nozzle-to-Safe End Butt Welds	NA to UNIT-2	-	-	-	-		
B5.110	Less Than NPS 4-Nozzle-to-Safe End Butt Welds	NA to UNIT-2	-	-	-	-		
B5.120	Nozzle-to-Safe End Socket Welds	NA to UNIT-2	-	-	-	-		
Totals	**Examination Category B-F**						22	22

Note:
(1) NA to Unit-2 Preservice activities
(2) NA to Unit-2 Preservice activities

Examination Category B-G-1, Pressure Retaining Bolting, Greater than 2 in. in Diameter
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent of Exam	Acceptance Standard	Total Population	Required Examination
	Reactor Vessel							
B6.10	Closure Head Nuts	Applicable	VT-1	Surfaces	All Nuts	IWB-3517	54	54
B6.20	Closure Studs (1)(7)	Applicable	Vol.	IWB-2500-12	All Studs	IWB-3515	54	54
B6.40	Threads in Flange (2)(6)	Applicable	Vol.	IWB-2500-12	All Flange Stud Holes	IWB-3515	54	54
B6.50	Closure Washers, Bushings (2)(8)	Applicable	VT-1	Surfaces	All Washers	IWB-3517	54	54
		Applicable	VT-1	Surfaces	All Bushings	IWB-3517	4	4
	Pressurizer							
B6.60	Bolts and Studs	NA to UNIT-2	-	-	-	-	-	-
B6.70	Flange Surface, when connection disassembled	NA to UNIT-2	-	-	-	-	-	-
B6.80	Nuts, Bushings, and Washers	NA to UNIT-2	-	-	-	-	-	-
	Steam Generators							
B6.90	Bolts and Studs	NA to UNIT-2	-	-	-	-	-	-
B6.100	Flange Surface, when connection disassembled	NA to UNIT-2	-	-	-	-	-	-
B6.110	Nuts, Bushings, and Washers	NA to UNIT-2	-	-	-	-	-	-
	Heat Exchangers							
B6.120	Bolts and Studs	NA to UNIT-2	-	-	-	-	-	-
B6.130	Flange Surface, when connection disassembled	NA to UNIT-2	-	-	-	-	-	-
B6.140	Nuts, Bushings, and Washers	NA to UNIT-2	-	-	-	-	-	-

Notes; at end of this section.

Examination Category B-G-1, Pressure Retaining Bolting, Greater than 2 in. in Diameter
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent of Exam	Acceptance Standard	Total Population	Required Examination
	Piping							
B6.150	Bolts and Studs	NA to UNIT-2	-	-	-	-	-	-
B6.160	Flange Surface, when connection disassembled	NA to UNIT-2	-	-	-	-	-	-
B6.170	Nuts, Bushings, and Washers	NA to UNIT-2	-	-	-	-	-	-
	Pumps							
B6.180	Bolts and Studs (1) (7)	Applicable	Vol.	IWB-2500-12	Studs	IWB-3515	96	96
B6.190	Flange Surface, when connection disassembled (2) (4) (6)	Applicable	VT-1	Surfaces	Flange Surfaces	IWB-3517	4	4
B6.200	Nuts, Bushings and Washers	NA to Unit-2	-	-	-	-		
	Valves							
B6.210	Bolts and Studs	NA to Unit-2	-	-	-	-	-	-
B6.220	Flange Surface, when connection disassembled	NA to Unit-2	-	-	-	-	-	-
B6.230	Nuts, Bushings, and Washers	NA to Unit-2	-	-	-	-	-	-
Totals	**Examination Category B-G-1**						**320**	**320**

NOTES:
(1) Bolting may be examined: (a) in place under tension; (b) when the connection is disassembled; (c) when the bolting is removed.
(2) Bushings and threads in base material of flanges are required to be examined only when the connections are disassembled. Bushings may be inspected in place.
(3) NA to Unit-2 Preservice activities
(4) Visual examination of bolted connections, VT-1 of the flange surface, nuts and washers, for pumps is required only when the component is examined under Examination Category B-L-2. This is for one pump in a group of pumps performing similar functions in a system and is required only when disassembly for maintenance, repair, or volumetric examination, as stated in B-L-2. (See note 2 in summary table for category B-L-2).
(5) NA to Unit-2 Preservice activities.
(6) Examination includes 1 in. annular surface of flange surrounding each stud hole or bushing.
(7) When bolts or studs are removed for examination, surface examination meeting the acceptance standards of IWB-3515 may be substituted for volumetric examination.
(8) Unit-2 has 4 bushings installed in RPV stud holes 14, 30, 35, and 39.

Examination Category B-G-2, Pressure Retaining Bolting, 2in. and Less in Diameter
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements or Fig. No.	Extent of Exam	Acceptance Standard	Total Population(5)	Required Examination
B7.10	Reactor Vessel Bolt, Studs, and Nuts	NA to Unit-2	-	-	-	-	-	-
B7.20	Pressurizer Bolt, Studs, and Nuts (1) (2)	Applicable	VT-1	Surface	All Studs, and Nuts	IWB-3517	1	1
B7.30	Steam Generators Bolt, Studs, and Nuts (1) (2)	Applicable	VT-1	Surface	All Studs, and Nuts	IWB-3517	8	8
B7.40	Heat Exchangers Bolt, Studs, and Nuts	NA to Unit-2	-	-	-	-		
B7.50	Piping Bolt, Studs, and Nuts (1)	Applicable	VT-1	Surface	All Bolt, Studs, and Nuts	IWB-3517	13	13
B7.60	Pumps Bolt, Studs, and Nuts (1) (2)	Applicable	VT-1	Surface	All Studs, and Nuts	IWB-3517	8	8
B7.70	Valves Bolt, Studs, and Nuts (1) (2)	Applicable	VT-1	Surface	All Studs, and Nuts	IWB-3517	29	29
B7.80 (4)	CRD Housing (only when disassembled) Bolt, Studs, and Nuts (1) (4)	NA to Unit-2 (PSI)	-	-	-	-		
Totals	**Examination Category B-G-2**						59	59

NOTES:
(1) Bolting is required to be examined only when a connection is disassembled or bolting is removed.
(2) For vessels, pumps, or valves, examination of bolting is required only when the component is examined under Examination Category B-B, B-L-2, or B-M-2. Examination of bolted connection is required only once during the interval. (See note 2 in summary table for category B-L-2 and B-M-2.)
(3) NA to Unit-2 Preservice activities
(4) NA to Unit-2 Preservice activities
(5) Total population represents "bolted connections".

Examination Category B-J, Pressure Retaining Welds in Piping
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent of Exam	Acceptance Standard	Total Population	Required Examination
B9.10	NPS 4 or Larger							
B9.11	Circumferential Welds	Applicable	Vol. & Sur	IWB-2500-8	Welds (1) (4) (5) (6) (7)	IWB-3514	**286**	**286**
B9.20	Less Than NPS 4							
B9.21	Circumferential Welds other than PWR High Pressure Safety Injection Systems	Applicable	Sur.	IWB-2500-8	Welds (1) (4) (5)	IWB-3514	**122**	**122**
B9.22	Circumferential Welds of PWR High Pressure Safety Injection System	Applicable	Vol.	IWB-2500-8	Welds (2) (4) (6) (7)	IWB-3514	**43**	**43**
B9.30	Branch Pipe Connection Welds							
B9.31	NPS 4 or Larger	Applicable	Vol. & Sur	IWB-2500-9, 10 & 11	Welds (1) (4) (5) (6) (7)	IWB-3514	**11**	**11**
B9.32	Less Than NPS 4	Applicable	Sur.	IWB-2500-9, 10 & 11	Welds (1) (4) (5)	IWB-3514	**28**	**28**
B9.40	Socket Welds	Applicable	Sur.	IWB-2500-8	Welds (1) & (4)	IWB-3514	**428**	**428**
Totals	**Examination Category B-J**						**918**	**918**

Notes:
(1) Examinations shall include the following:
(a) All terminal ends in each pipe or branch run connected to vessels.
(b) All terminal ends and joints in each pipe or branch run connected to other components where the stress levels exceed either of the following limits under loads associated with specific seismic events and operational conditions:
(1) primary plus secondary stress intensity range of 2.4Sm for ferritic steel and austenitic steel
(2) cumulative usage factor U of 0.4
(c) All dissimilar metal welds not covered under Category B-F.
(d) Additional piping welds so that the total number of circumferential butt welds (or branch connection or socket welds) selected for examination equals 100% for PSI of the circumferential butt welds (or branch connection or socket welds) in the reactor coolant piping system. This total does not include welds exempted by IWB-1220 or welds in Item No. B9.22. These additional welds may be located in one loop (one loop is defined for both PWR and BWR plants in the 1977 Edition).
(2) A 100% sample for PSI of PWR high pressure safety injection system circumferential welds in piping ≥ NPS 1 1/2 (DN 40) and < NPS 4 (DN100) shall be selected for examination. This sample shall be selected from locations determined by the Owner as most likely to be subject to thermal fatigue. Thermal fatigue may be caused by conditions such as valve leakage or turbulence effects.
(3) NA to Unit-2 Preservice activities
(4) Includes essentially 100% of weld length.
(5) For circumferential welds with intersecting longitudinal welds, surface examination of the longitudinal piping welds is required for those portions of the welds within the examination boundaries of intersecting Examination Category B-F and B-J circumferential welds.
(6) For circumferential welds with intersecting longitudinal welds, volumetric examination of the longitudinal piping welds is required for those portions of the welds within the examination boundaries of intersecting Examination Category B-F and B-J circumferential welds. The following requirements shall also be met:
(a) When longitudinal welds are specified and locations are known, examination requirements shall be met for both transverse and parallel flaws at the intersection of the welds and for that length of longitudinal weld within the circumferential weld examination volume.
(b) When longitudinal welds are specified but locations are unknown, or the existence of longitudinal welds is uncertain, the examination requirements shall be met for both transverse and parallel flaws within the entire examination volume of intersecting circumferential welds.
(7) For welds in carbon or low alloy steels, only those welds showing reportable preservice transverse indications need to be examined by the ultrasonic method for reflectors transverse to the weld length direction except that circumferential welds with intersecting longitudinal welds shall meet Note (5).

Examination Category B-K, Welded Attachments for Vessels, Piping, Pumps and Valves
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent of Exam	Acceptance Standard	Total Population	Required Examination
B10.10	Pressure Vessels Welded Attachments (1)	Applicable	Surface (7)	IWB-2500-13, 14 and 15	Each welded attachment (2)(6)	IWB-3516	**PZR 5**	**PZR 5**
B10.20	Piping Welded Attachments (1)	Applicable	Surface	IWB-2500-13, 14 and 15	Each welded attachment (2)(5)(6)	IWB-3516	**RCS 2** **SIS 1**	**RCS 1** **SIS 1**
B10.30	Pumps Welded Attachments (1)	NA to Unit-2	-	-	-	-		
B10.40	Valves Welded Attachments (1)	NA to Unit-2	-	-	-	-		
Totals	**Examination Category B-K**						8	7

NOTES:
(1) Weld buildup on nozzles that is in compression under normal conditions and provides only component support is excluded from examination. Examination is limited to those welded attachments that meet the following conditions:
(a) the attachment is on the outside surface of the pressure retaining component;
(b) the attachment provides component support as defined in NF-1110;
(c) the attachment weld joins the attachment either directly to the surface of the component or to an integrally cast or forged attachment to the component, and
(d) the attachment weld is full penetration fillet, or partial penetration, continuous or intermittent.
(2) The extent of the examination includes essentially 100% of the length of the attachment weld at each attachment subject to examination.
(3) NA to Unit-2 Preservice activities
(4) NA to Unit-2 Preservice activities
(5) For piping, pumps, and valves, a sample of 10% of the welded attachments associated with the component supports selected for examination under IWF-2510 shall be examined.
(6) Examination is required whenever component support member deformation, e.g., broken, bent, or pulled out parts, is identified during operation, refueling, maintenance, examination, or testing.
(7) For the configurations shown in Figs. IWB-2500-13 and IWB-2500-14, a surface examination from an accessible side of the attachment weld shall be performed. Alternatively, for the configuration shown in Fig. IWB-2500-14, a volumetric examination of volume A-B-C-D from an accessible side of the attachment weld may be performed in lieu of the surface examination of surfaces A-B or C-D.

Examination Category B-L-1, Pressure Retaining Welds in Pump Casings; B-M-1, Pressure Retaining Welds in Valve Bodies; B-L-2, Pump Casings; B-M-2, Valve Bodies
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent of Exam	Acceptance Standard	Total Population	Required Examination
	Pumps							
B12.10	Pump casing welds, B-L-1 (4)	Applicable	VT-1	IWB-2500-16	All welds	IWB-3518	4	4
B12.20	Pump casing, B-L-2	(2)	-	-	-	-	4	0
	Valves							
B12.30	Valves, less than NPS 4 valve body welds, B-M-1 (4)	NA to Unit-2	-	-	-	-	-	-
B12.40	Valves, NPS 4 or larger valve body welds, B-M-1 (4)	NA to Unit-2	-	-	-	-	-	-
B12.50	Valve body, exceeding NPS 4, B-M-2	(2)	-	-	-	-	29	0
Totals	**Examination Category B-L-1**						37	4

NOTES:
(1) NA to Unit-2 Preservice activities
(2) NA to Unit-2 Preservice activities, reference IWB-2200
(3) NA to Unit-2 Preservice activities
(4) Includes essentially 100% of weld length.

Examination Category B-N-1, Interior of Reactor Vessel;
B-N-2, Welded Core Support Structures and Interior Attachments to Reactor Vessels B-N-3, Removable Core Support Structures
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent & Frequency of Exam	Acceptance Standard	Total Population	Required Examination
	Reactor Vessel							
B13.10	Vessel Interior B-N-1 (1)	Applicable	VT-3	Accessible Areas	Each Inspection Period	IWB-3520.2	1	1
	Reactor Vessel (BWR)							
B13.20	Interior attachments within beltline region B-N-2	NA to Unit-2	-	-	-	-	-	-
B13.30	Interior attachments beyond the beltline region B-N-2	NA to Unit-2	-	-	-	-	-	-
B13.40	Core Support Structure B-N-2	NA to Unit-2	-	-	-	-	-	-
	Reactor Vessel (PWR)							
B13.50	Interior attachments within beltline region B-N-2	NA to Unit-2	-	-	-	-	-	-
B13.60	Interior attachments beyond the beltline region B-N-2	Applicable	VT-3	Accessible Welds	Welds	IWB-3520.2	6	6
B13.70	Core Support Structure B-N-3 (2)	Applicable	VT-3	Accessible Surfaces	Surfaces	IWB-3520.2	1	1
	Examination Category B-N-1						**1**	**1**
	Examination Category B-N-2						**6**	**6**
Totals	**Examination Category B-N-3**						**1**	**1**

NOTES:
(1) Areas to be examined shall include the spaces above and below the reactor core that are made accessible for examination by removal of components during normal refueling outages.
(2) The structure shall be removed from the reactor vessel for examination.
(3) NA to Unit-2 Preservice activities

Examination Category B-O, Pressure Retaining Welds in Control Rod Housings
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent of Exam	Acceptance Standard	Total Population	Required Examination
B14.10	Reactor Vessel Welds in CRD Housing (1)	Applicable	Volumetric or Surface	IWB-2500-18	100% Peripheral CRD Housing	IWB-3523	**20**	**20**
Totals	**Examination Category B-O**						**20**	**20**

Note:
(1) 20 Peripheral components of the 78 Total CRD Housings.

SECTION 5.0

IWC SUMMARY TABLES

For

ASME CLASS 2

INDEX

ASME Section XI items that do not apply to Watts Bar Unit 2 within this Program Plan will be identified with, "NA to Unit-2", this documents the item does not apply and will not be referenced further within the program plan, schedule or summary reports.

Examination Category C-A, Pressure Retaining Welds in Pressure Vessels
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent and Frequency of Exam	Acceptance Standard	Total Population	Required Examination
C1.10	Shell Circumferential Welds (1) (3) (4)	Applicable	Volumetric (5)	IWC-2500-1	Welds at gross structural discontinuity (2)	IWC-3510	17	6
C1.20	Head Circumferential Welds (1) (3) (4)	Applicable	Volumetric (5)	IWC-2500-1	Welds at gross structural discontinuity (2)	IWC-3510	11	7
C1.30	Tubesheet-to-Shell Weld (1) (3) (4)	Applicable	Volumetric (5)	IWC-2500-2	Welds at gross structural discontinuity (2)	IWC-3510	4	1
Totals	**Examination Category C-A**						32	14

NOTES:
(1) Includes essentially 100% of the weld length.
(2) Gross structural discontinuity is defined in NB-3213.2. Examples are junctions between shells of different thicknesses, cylindrical shell-to-conical shell junctions, shell (or head)-to-flange welds, and head-to-shell welds.
(3) In the case of multiple vessels of similar design, size, and service (such as steam generators, heat exchangers), the required examinations may be limited to one vessel or distributed among the vessels.
(4) The vessel areas selected for the initial examination shall be reexamined in the same sequence over the service lifetime of the component, to the extent practical.
(5) For welds in vessels with nominal wall thickness of 0.2 in. or less, a surface examination may be applied in lieu of a volumetric examination. The examination shall include the weld and 0.5 in. on either side of the weld. The acceptance standard for the examination shall be those specified for piping in IWC-3514.

Examination Category C-B, Pressure Retaining Nozzle Welds in Vessels
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent and Frequency of Exam	Acceptance Standard	Total Population	Required Examination
C2.10	Nozzles in Vessels ≤ 1/2 in. nominal Thickness (1) (2) (3)(4)							
C2.11	Nozzle-to-Shell (nozzle-to-head) Weld	Applicable	Surface	IWC-2500-3	(6)	IWC-3511	0	0
C2.20	Nozzles Without Reinforcing Plate in Vessels > ½ in. Nominal Thickness (1) (2) (3) (4)							
C2.21	Nozzle-to Shell Weld (nozzle-to-head)	Applicable	Surface and Volumetric	IWC-2500-4 (a),(b)or(d)	(6)	IWC-3511	RHRHX 4 MS 4 AFW 4 MFW 4 BIT 2	2 1 1 1 2
C2.22	Nozzle Inside Radius Section	Applicable	Volumetric	IWC-2500-4 (a),(b)or(d)	(6)	IWC-3511	RHRHX 4 MS 4 (7) AFW 0 MFW 4 (7) BIT 0	2 1 0 1 0
C2.30	Nozzles With Reinforcing Plate in Vessels > ½ in. Nominal Thickness (1) (2) (3) (4)							
C2.31	Reinforcing Plate Welds to Nozzle and Vessel	Applicable	Surface	IWC-2500-4(c)	(6)	IWC-3511	CS 4	2
C2.32	Nozzle-to Shell Weld (nozzle-to-head) when inside of vessel is accessible	Applicable	Volumetric	IWC-2500-4(c)	(6)	IWC-3511	CS 4	2
C2.33	Nozzle-to Shell Weld (nozzle-to-head) when inside of vessel is inaccessible	Applicable	Visual, VT-2	(5)	(6)	No Leakage	0	0
Totals	**Examination Category C-B**						**38**	**15**

NOTES:
(1) Includes nozzles welded to or integrally cast in vessels that connect to piping runs (manways and handholes are excluded).
(2) Includes only those piping runs selected for examination under Examination Category C-F.
(3) The nozzles selected initially for examination shall be reexamined in the same sequence over the service lifetime of the component, to the extent practical.
(4) In the case of multiple vessels of similar design, size, and service (such as steam generators, heat exchangers), the required examinations may be limited to one vessel or distributed among the vessels.
(5) The telltale hole in the reinforcing plate shall be examined for evidence of leakage while vessel is undergoing the system leakage test as required by examination category C-H
(6) Nozzles at terminal ends (1) of piping run (2).
(7) AFW and BIT nozzles are < 12" NPS and are therefore exempt from Nozzle Inner Radius Section exams.

Examination Category C-C, Welded Attachments for Vessels, Piping, Pumps, and Valves
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent and Frequency of Exam	Acceptance Standard	Total Population	Required Examination
C3.10	Pressure Vessels (1) (3) Welded Attachments	Applicable	Surface	IWC-2500-5	(2)(4)(6)	IWC-3512	11	11
C3.20	Piping (1) (3) Welded Attachments	Applicable	Surface	IWC-2500-5	(2)(4)(6)	IWC-3512	121	13
C3.30	Pumps (1) (3) Welded Attachments	Applicable	Surface	IWC-2500-5	(2)(4)(6)	IWC-3512	4	2
C3.40	Valves Welded Attachments	NA to Unit 2*	-	-	-	-	0	0
Totals	**Examination Category C-C**						136	26

NOTES:
(1) Examination is limited to those welded attachments that meet the following conditions:
(a) the attachment is on the outside surface of the pressure retaining component;
(b) the attachment provides component support as defined in NF-1110;
(c) the attachment weld joins the attachment either directly to the surface of the component or to an integrally cast or forged attachment to the component; and
(d) the attachment weld is full penetration, fillet, or partial penetration, continuous, or intermittent.
(2) The extent of the examination includes essentially 100% of the length of the attachment weld at each attachment subject to examination.
(3) Selected samples of welded attachments shall be examined each inspection interval.
(4) For multiple vessels of similar design, function, and service, only one welded attachment of only one of the multiple vessels shall be selected for examination.
(5) For piping, pumps, and valves, a sample of 10% of the welded attachments associated with the component supports selected for examination under IWF-2510 shall be examined.
(6) Examination is required whenever component support member deformation, e.g., broken, bent, or pulled out parts, is identified during operation, refueling, maintenance, examination, or testing.

Examination Category C-D, Pressure Retaining Bolting Greater than 2 in. in Diameter
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent and Frequency of Exam	Acceptance Standard	Total Population	Required Examination
	Pressure Vessels (1) (2)							
C4.10	Bolts and Studs	Applicable	Volumetric (5)	IWC-2500-6	All bolts or studs at the bolted connection (4)	IWC-3513 (5)	**BIT 1 (16 bolts)**	**1**
	Piping (3)							
C4.20	Bolts and Studs	NA to Unit 2	-	-	-	-	**0**	**0**
	Pumps							
C4.30	Bolts and Studs	NA to Unit 2	-	-	-	-	**0**	**0**
	Valves							
C4.40	Bolts and Studs	NA to Unit 2	-	-	-	-	**0**	**0**
Total	**Examination Category C-D**						**1**	**1**

NOTES:
(1) The examination may be performed on bolting in place under load or upon disassembly of the connection.
(2) The examination of bolting for vessels, pumps, or valves may be conducted on one vessel, one pump, or one valve among a group of vessels, pumps, or valves that are similar in design, size, function, and service. In addition, when the component to be examined contains a group of bolted connections of similar design and size (such as flanged connections or manway covers), the examination may be conducted on one bolted connection among the group.
(3) The examination of flange bolting in piping systems may be limited to one bolted connection among a group of bolted connections that are similar in design, size, function, and service.
(4) The areas selected for the initial examination shall be reexamined in the same sequence over the service lifetime of the component, to the extent practical.
(5) When bolts or studs are removed for examination, surface examination meeting the acceptance standards of IWB-3515 may be substituted for volumetric examination.

Examination Category C-F-1, Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent and Frequency of Exam	Acceptance Standard	Total Population (2)	Required Examination (2)(3)
C5.10	Piping Welds ≥ 3/8 in. Nominal Wall Thickness for Piping > NPS 4				100% of each weld requiring exam (4)(5)(6)			
C5.11	Circumferential (Butt) Welds (> NPS 4)							
	(7) CSS	Applicable	Vol. & Sur.	IWC-2500-7		IWC-3514	**263**	**20**
	CVCS	Applicable	Vol. & Sur.	IWC-2500-7		IWC-3514	**63***	**0***
	(7) RHRS	Applicable	Vol. & Sur.	IWC-2500-7		IWC-3514	**282**	**21**
	SIS	Applicable	Vol. & Sur.	IWC-2500-7		IWC-3514	**296**	**24**
C5.20	Piping Welds > 1/5 in. nominal Wall Thickness for Piping ≥ 2 and ≤ NPS 4				100% of each weld requiring exam (4)(5)(6)			
C5.21	Circumferential (Butt) Welds (1) (High Pressure Safety Injection)							
	CVCS	Applicable	Vol. & Sur.	IWC-2500-7		IWC-3514	**201**	**16**
	SIS	Applicable	Vol. & Sur.	IWC-2500-7		IWC-3514	**284**	**22**
C5.30	Socket Welds				100% of each weld requiring exam (4)(5)(6)			
	CVCS	Applicable	Sur.	IWC-2500-7		IWC-3514	**289**	**23**
	SIS	Applicable	Sur.	IWC-2500-7		IWC-3514	**253**	**19**
C5.40	Pipe Branch Connections of Branch Piping ≥ NPS 2				100% of each weld requiring exam (4)(5)			
C5.41	Circumferential (Butt) Weld							
	CVCS	Applicable	Sur.	IWC-2500-9,10,11,12&13		IWC-3514	**3**	**1**
	SIS	Applicable	Sur.			IWC-3514	**8**	**1**
Total	**Examination Category C-F-1**						**1942**	**147**

*Piping wall less than 0.375"

Examination Category C-F-1, Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping
Inspection Program B

NOTES:

(1) Requirements for examination of welds in piping ≤ NPS 4 (DN 100) apply to PWR high pressure safety injection and auxiliary feedwater systems in accordance with the exemption criteria of IWC-1220.

(2) The welds selected for examination shall include 7.5%, but not less than 28 welds, of all dissimilar metal, austenitic stainless steel or high alloy welds not exempted by IWC-1220. (Some welds not exempted by IWC-1220 are not required to be nondestructively examined per Examination Category C-F-1. These welds, however, shall be included in the total weld count to which the 7.5% sampling rate is applied.) The examinations shall be distributed as follows:

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

(b) within a system, the examinations shall be distributed among terminal ends, dissimilar metal welds, and structural discontinuities [See Note (3)] prorated, to the degree practicable, on the number of nonexempt terminal ends, dissimilar metal welds, and structural discontinuities in that system; and

(c) within each system, examinations shall be distributed between line sizes prorated to the degree practicable.

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

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

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

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

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

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

(7) The examination exemption in IWC-1221(d) is applied to Containment Spray and RHR Spray Systems beginning at the surface of the water/air interface in the riser piping and continuing up to the open-ended spray nozzles.

Examination Category C-F-2, Pressure Retaining Welds in Carbon or Low Alloy Steel Piping
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent and Frequency of Exam	Acceptance Standard	Total Population (2)	Required Examination (2)(3)
C5.50 C5.51	Piping Welds ≥ 3/8 in. Nominal Wall Thickness for Piping > NPS 4 Circumferential Welds (1)				100% of each weld requiring exam (4)(5)(6)(7)			
	AFWS	Applicable	Vol. & Sur.	IWC-2500-7		IWC-3514	**20**	**2**
	FWS	Applicable	Vol. & Sur.	IWC-2500-7		IWC-3514	**267**	**20**
	MSS	Applicable	Vol. & Sur.	IWC-2500-7		IWC-3514	**141**	**11**
C5.60 C5.61	Piping Welds > 1/5 in. nominal Wall Thickness for Piping ≥ 2 and ≤ NPS 4 Circumferential Welds (1) AFWS	Applicable	Vol. & Sur.	IWC-2500-7	100% of each weld requiring exam (5)(6)(7)	IWC-3514	**176**	**13**
C5.70	Socket Welds	NA to Unit 2	-	-	-	-	-	-
C5.80 C5.81	Pipe Branch Connections of Branch Piping ≥ NPS 2 Circumferential Weld (1)(4)	NA to Unit 2	-	-	-	-	-	-
Total	**Examination Category C-F-2**						**604**	**46**

Examination Category C-F-2, Pressure Retaining Welds in Carbon or Low Alloy Steel Piping
Inspection Program B

NOTES:

(1) Requirements for examination of welds in piping ≤ NPS 4 (DN 100) apply to PWR high pressure safety injection and auxiliary Feedwater systems in accordance with the exemption criteria of IWC-1220.

(2) The welds selected for examination shall include 7.5%, but not less than 28 welds, of all carbon and low alloy steel welds not exempted by IWC-1220. (Some welds not exempted by IWC-1220 are not required to be nondestructively examined per Examination Category C-F-2. These welds, however, shall be included in the total weld count to which the 7.5% sampling rate is applied.) The examinations shall be distributed as follows:

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

(b) within a system, the examinations shall be distributed among terminal ends and structural discontinuities [see Note (3)] prorated, to the degree practicable, on the number of nonexempt terminal ends and structural discontinuities in that system; and

(c) within each system, examinations shall be distributed between line sizes prorated to the degree practicable.

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

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

(5) Only those welds showing reportable preservice transverse indications need to be examined by the ultrasonic method for reflectors transverse to the weld length direction, except that circumferential welds with intersecting longitudinal weld shall meet Note (7).

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

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

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

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

Examination Category C-G, Pressure Retaining Welds in Pumps and Valves
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent and Frequency of Exam	Acceptance Standard	Total Population	Required Examination
	Pumps							
C6.10	Pumps Casing Welds	NA to Unit 2	-	-	-	-	-	-
	Valves (1)(2)(3)							
C6.20	Valve Body Welds							
	AFWS	Applicable	Surface	IWC-2500-8	(4)	IWC-3515	**8**	**1**
	MSS	Applicable	Surface	IWC-2500-8	(4)	IWC-3515	**20**	**1**
Total	**Examination Category C-G**						**28**	**2**

NOTES:
(1) In case of multiple pumps or valves of similar design, size, function, and service in a system, required weld examinations may be limited to all the welds in one pump or one valve in the same group or distributed among any of the pumps or valves of that same group.
(2) The examination may be performed from either the inside or outside surface of the component.
(3) The pumps and valves initially selected for examination shall be reexamined in the same sequence over the service lifetime of the component, to the extent practical.
(4) 100% welds in all components in each piping run examined under Examination Category C-F, each inspection interval.

SECTION 6.0

IWD SUMMARY TABLES

for

ASME CLASS 3

INDEX

CATEGORY D-A, Welded Attachments for Vessels, Piping, Pumps and Valves

ASME Section XI items that do not apply to Watts Bar Unit 2 within this Program Plan will be identified with, "NA to Unit-2", this documents the item does not apply and will not be referenced further within the program plan, schedule or summary reports.

Examination Category D-A, Welded Attachments for Vessels, Piping, Pumps and Valves
Inspection Program B

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent and Frequency of Exam	Acceptance Standard	Total Population	Required Examination
	Pressure Vessels (1)							
D1.10	Welded Attachments	Applicable	VT-1	IWD-2500-1	(2) (4) (5)	IWD-3000	4	4
	Piping (1)							
D1.20	Welded Attachments	Applicable	VT-1	IWD-2500-1	(2) (4) (5)	IWD-3000	34	34
	Pumps (1)							
D1.30	Welded Attachments	NA to Unit-2	-	-	-	-		
	Valves (1)							
D1.40	Welded Attachments	NA to Unit-2	-	-	-	-		
Total	**Examination Category D-A**						**38**	**38**

NOTES:
(1) Examination is limited to those welded attachments that meet the following conditions:
(a) the attachment is on the outside surface of the pressure retaining component;
(b) the attachment provides component support as defined in NF-1110;
(c) the attachment weld joins the attachment either directly to the surface of the component or to an integrally cast or forged attachment to the component; and
(d) the attachment weld is full penetration, fillet, or partial penetration, continuous, or intermittent.
(2) The extent of the examination includes essentially 100% of the length of the attachment weld at each attachment subject to examination.
(3) N/A to WBN-2 Preservice Examination
(4) Examination is required whenever component support member deformation, e.g., broken, bent, or pulled out parts, is identified during operation, refueling, maintenance, examination, or testing.
(5) 100% of required area of each welded attachment, each inspection interval or each occurrence identified in note (4).

SECTION 7.0

IWF SUMMARY TABLE

For

ASME CLASS 1, 2, 3 & MC

INDEX

CATEGORY F-A, Supports

ASME Section XI items that do not apply to Watts Bar Unit 2 within this Program Plan will be identified with, "NA to Unit-2", this documents the item does not apply and will not be referenced further within the program plan, schedule or summary reports.

Examination Category F-A, Supports
Inspection Program B

Item No.	Support Types Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent of Exam	Acceptance Standard	Total Population	Required Examination
F1.10	Class 1 Piping Supports (1) (2)	Applicable	VT-3	IWF-1300-1	(5)	IWF-3410	**265**	**265**
F1.20	Class 2 Piping Supports (1) (2) (6)	Applicable	VT-3	IWF-1300-1	(5)	IWF-3410	**1180**	**1180**
F1.30	Class 3 Piping Supports (1) (2)	Applicable	VT-3	IWF-1300-1	(5)	IWF-3410	**314**	**314**
F1.40	Supports Other Than Piping supports (1) Class 1, 2 and 3	Applicable	VT-3	IWF-1300-1	(5)	IWF-3410	**38**	**38**
F1.40	MC Supports	NA to Unit-2	-	-	-	-	-	-
Total	**Examination Category F-A**						1797	1797

NOTES:
(1) Item numbers shall be categorized to identify support types by component support function (e.g., A = supports such as one directional rod hangers; B = supports such as multi-directional restraints; and C = supports that allow thermal movement, such as springs). Reference tables below for each type. This is established for future activities.

(2) The totals shall be comprised of supports from each system (such as Main Steam, Feedwater, or RHR), proportional to the total number of non-exempt supports of each type and function within each system. Reference tables below for each system. This is established for future activities.

(3) N/A to WBN-2 Preservice Inspection.

(4) N/A to WBN-2 Preservice Inspection.

(5) 100% of all supports not exempted.

(6) The examination exemption in IWC-1221(d) and IWF-1230 is applied to Containment Spray and RHR Spray Systems beginning at the surface of the water/air interface in the riser piping and continuing up to the open-ended spray nozzles.

CLASS 1 NON-EXEMPT PIPING SUPPORT DISTRIBUTION BY TYPE

Examination Category	Item Number	Type & Description	Exam Method	Total Number
F-A, Supports Class 1 Piping	F1.10A	Type A Supports (one directional restraints)	Visual, VT-3	81
	F1.10B	Type B Supports (multidirectional restraints)	Visual, VT-3	91
	F1.10C	Type C Supports (thermal movement, i.e. variable or constant springs)	Visual, VT-3	29
	F1.10D	Type D Supports (Snubber Types)	Visual, VT-3	64
			Totals	265

CLASS 1 NON-EXEMPT PIPING SUPPORT DISTRIBUTION BY SYSTEM & TYPE

Sys	Type A			Type B			Type C			Type D			Totals	
	Total	%	Req.	Total	%	Req.	Total	%	Req.	Total	%	Req.		
CVCS	26	100	26	18	100	18	3	100	3	13	100	13	60	60
RCS	11	100	11	8	100	8	9	100	9	17	100	17	45	45
RHRS	3	100	3	4	100	4	6	100	6	10	100	10	23	23
SIS	41	100	41	61	100	61	11	100	11	24	100	24	137	137
Totals	81		81	91		91	29		29	64		64	265	265

CLASS 2 NON-EXEMPT PIPING SUPPORT DISTRIBUTION BY TYPE

Examination Category	Item Number	Type & Description	Exam Method	Total Number
F-A, Supports Class 2 Piping	F1.20A	Type A Supports (one directional restraints)	Visual, VT-3	542
	F1.20B	Type B Supports (multidirectional restraints)	Visual, VT-3	428
	F1.20C	Type C Supports (thermal movement, i.e. variable or constant springs)	Visual, VT-3	73
	F1.20D	Type D Supports (Snubber Types)	Visual, VT-3	136
			Totals	1179

CLASS 2 NON-EXEMPT PIPING SUPPORT DISTRIBUTION BY SYSTEM & TYPE

Sys	Type A			Type B			Type C			Type D			Totals	
	Total	%	Req.	Total	%	Req.	Total	%	Req.	Total	%	Req.		
AFWS	82	100	82	67	100	67	11	100	11	32	100	32	192	192
CSS	80	100	80	51	100	51	10	100	10	14	100	14	155	155
CVCS	132	100	132	146	100	146	8	100	8	7	100	7	293	293
FWS	21	100	21	5	100	5	0	100	0	10	100	10	36	36
MSS	13	100	13	1	100	1	13	100	13	28	100	28	55	55
RHRS	76	100	76	20	100	20	14	100	14	17	100	17	127	127
SIS	137	100	137	138	100	138	17	100	17	28	100	28	320	320
CCS	1	100	1	0	100	0	0	100	0	0	100	0	1	1
Totals	542		542	428		428	73		73	136		136	1179	1179

CLASS 3 NON-EXEMPT PIPING SUPPORT DISTRIBUTION BY TYPE

Examination Category	Item Number	Type & Description	Exam Method	Total Number
F-A, Supports Class 3 Piping	F1.30A	Type A Supports (one directional restraints)	Visual, VT-3	162
	F1.30B	Type B Supports (multidirectional restraints)	Visual, VT-3	132
	F1.30C	Type C Supports (thermal movement, i.e. variable or constant springs)	Visual, VT-3	19
	F1.30D	Type D Supports (Snubber Types)	Visual, VT-3	2
			Totals	315

CLASS 3 NON-EXEMPT PIPING SUPPORT DISTRIBUTION BY SYSTEM & TYPE

Sys	Type A			Type B			Type C			Type D			Totals	
	Total	%	Req.	Total	%	Req.	Total	%	Req.	Total	%	Req.		
AFWS	27	100	27	9	100	9	4	100	4	0	100	0	40	40
CCS	59	100	59	39	100	39	7	100	7	1	100	1	106	106
ERCWS	76	100	76	84	100	84	8	100	8	1	100	1	169	169
FPCS	0	100	0	0	100	0	0	100	0	0	100	0	0	0
HPFPS	0	100	0	0	100	0	0	100	0	0	100	0	0	0
Totals	162		162	132		132	19		19	2		2	315	315

CLASS 1, 2 & 3 NON-EXEMPT SUPPORTS (OTHER THAN PIPING) DISTRIBUTION BY TYPE

Examination Category	Item Number	Type & Description	Exam Method	Total Number
F-A, Supports Class 1, 2 & 3 Components	F1.40A	Type A Supports (one directional restraints)	Visual, VT-3	0
	F1.41B (Class 1)	Type B Supports (multidirectional restraints)	Visual, VT-3	12
	F1.42B (Class 2)	[Includes 4 Class 2 SG Upper Lateral Supports]		19
	F1.43B (Class 3)			7
	F1.40C	Type C Supports (thermal movement, i.e. variable or constant springs)	Visual, VT-3	0
	F1.42D (Class 2)	Type D Supports (Snubber Types) 4 SG Upper Lateral Supports have 5 Hydraulic Snubbers each	Visual, VT-3	4
			Totals	42

CLASS 1, 2 & 3 NON-EXEMPT SUPPORTS (OTHER THAN PIPING) DISTRIBUTION BY SYSTEM & TYPE

System	Code Class	Code Item No.	Type A			Type B			Type C			Type D			Totals	
			Total	%	Req.	Total	%	Req.	Total	%	Req.	Total	%	Req.		
PZR	1	F1.41B	0	100	0	2	100	2	0	100	0	0	100	0	2	2
RPV	1	F1.41B	0	100	0	1	100	1	0	100	0	0	100	0	1	1
RPVH	1	F1.41B	0	100	0	1	100	1	0	100	0	0	100	0	1	1
RCP	1	F1.41B	0	100	0	4	100	4	0	100	0	0	100	0	4	4
SG	1	F1.41B	0	100	0	4	100	4	0	100	0	0	100	0	4	4
SG	2	F1.42B	0	100	0	4	100	4	0	100	0	0	100	0	4	4
SG	2	F1.42D	0	100	0	0	100	0	0	100	0	4	100	4	4	4
CS	2	F1.42B	0	100	0	4	100	4	0	100	0	0	100	0	4	4
CVCS	2	F1.42B	0	100	0	4	100	4	0	100	0	0	100	0	4	4
RHRS	2	F1.42B	0	100	0	4	100	4	0	100	0	0	100	0	4	4
SIS	2	F1.42B	0	100	0	3	100	3	0	100	0	0	100	0	3	3
AFWS	3	F1.43B	0	100	0	3	100	3	0	100	0	0	100	0	3	3
CS/CCS	3	F1.43B	0	100	0	2	100	2	0	100	0	0	100	0	2	2
CVCS/CCS	3	F1.43B	0	100	0	0	100	0	0	100	0	0	100	0	0	0
RHRS/CCS	3	F1.43B	0	100	0	2	100	2	0	100	0	0	100	0	2	2
Totals			0	100	0	38	100	38	0	100	0	4	100	4	42	42

PSI Piping Support Identifier To Snubber Identifier Cross Reference
ASME Code Class 1

System	Support Number	Category	Item Number	Snubber Number
CVCS	2-47A406-14-067	F-A	F1.10D	2-SNUB-062-0126.
CVCS	2-47A406-14-084	F-A	F1.10D	2-SNUB-062-0528.
CVCS	2-47A406-14-085	F-A	F1.10D	2-SNUB-062-0527.
CVCS	2-47A406-14-086	F-A	F1.10D	2-SNUB-062-0526.
CVCS	2-47A406-14-087	F-A	F1.10D	2-SNUB-062-0525. On valve operator FCV-62-69.
CVCS	2-62A-101	F-A	F1.10D	2-SNUB-062-0120.
CVCS	2-62A-291	F-A	F1.10D	2-SNUB-062-0123.
CVCS	2-62A-294	F-A	F1.10D	2-SNUB-062-0505.
CVCS	2-62A-319	F-A	F1.10D	2-SNUB-062-0529. On valve operator FCV-62-84.
CVCS	2-62A-366	F-A	F1.10D	2-SNUB-062-0418.
CVCS	2-62A-563	F-A	F1.10D	2-SNUB-062-0417.
CVCS	2-68-042	F-A	F1.10D	2-SNUB-068-0324.
CVCS	2-68-044	F-A	F1.10D	2-SNUB-068-0323.
RCS	2-47A465-1-108	F-A	F1.10D	2-SNUB-068-0465.
RCS	2-68-020	F-A	F1.10D	2-SNUB-068-0316.
RCS	2-68-021	F-A	F1.10D	2-SNUB-068-0315.
RCS	2-68-023	F-A	F1.10D	2-SNUB-068-0313-B & -T. On valve operator PCV-68-340B. Dual snubbers.
RCS	2-68-024	F-A	F1.10D	2-SNUB-068-0314. On valve operator PCV-68-340B.
RCS	2-68-030	F-A	F1.10D	2-SNUB-068-0311.
RCS	2-68-031	F-A	F1.10D	2-SNUB-068-0317.
RCS	2-68-032	F-A	F1.10D	2-SNUB-068-0318. On valve operator PCV-68-340D.
RCS	2-68-033	F-A	F1.10D	2-SNUB-068-0319. On valve operator PCV-68-340D.
RCS	2-68-034	F-A	F1.10D	2-SNUB-068-0469.
RCS	2-68-036	F-A	F1.10D	2-SNUB-068-0320-E.
RCS	2-68-093	F-A	F1.10D	2-SNUB-068-0328.
RCS	2-68-096	F-A	F1.10D	2-SNUB-068-0329.
RCS	2-68-365H	F-A	F1.10D	2-SNUB-062-0124.
RCS	2-68-412	F-A	F1.10D	2-SNUB-068-0464-N & -S. Dual snubbers.
RCS	2-68-415	F-A	F1.10D	2-SNUB-068-0340-N & -S. Dual snubbers.
RCS	2-68-427	F-A	F1.10D	2-SNUB-068-0344.
RHRS	2-47A432-3-14	F-A	F1.10D	2-SNUB-063-0496.

PSI Piping-Support-Identifier-To-Snubber-Identifier Cross Reference
ASME Code Class 1

System	Support Number	Category	Item Number	Snubber Number
RHRS	2-47A432-3-15	F-A	F1.10D	2-SNUB-063-0497.
RHRS	2-47A432-3-16	F-A	F1.10D	2-SNUB-063-0498.
RHRS	2-63-365	F-A	F1.10D	2-SNUB-063-0289.
RHRS	2-74-008	F-A	F1.10D	2-SNUB-074-0378.
RHRS	2-74-010	F-A	F1.10D	2-SNUB-074-0501.
RHRS	2-74-011	F-A	F1.10D	2-SNUB-074-0379.
RHRS	47A432-3-04	F-A	F1.10D	2-SNUB-074-0382.
RHRS	47A432-3-06	F-A	F1.10D	2-SNUB-063-0291-V.
RHRS	47A432-3-08	F-A	F1.10D	2-SNUB-063-0292.
SIS	2-47A435-12-093	F-A	F1.10D	2-SNUB-063-0441.
SIS	2-47A435-13-117	F-A	F1.10D	2-SNUB-063-0499.
SIS	2-47A435-13-118	F-A	F1.10D	2-SNUB-063-0500.
SIS	2-47A435-14-107	F-A	F1.10D	2-SNUB-063-0488.
SIS	2-47A435-14-109	F-A	F1.10D	2-SNUB-063-0502.
SIS	2-63-001	F-A	F1.10D	2-SNUB-063-0209.
SIS	2-63-005	F-A	F1.10D	2-SNUB-063-0210.
SIS	2-63-008	F-A	F1.10D	2-SNUB-063-0211.
SIS	2-63-011	F-A	F1.10D	2-SNUB-063-0212.
SIS	2-63-038	F-A	F1.10D	2-SNUB-063-0226-E & -W. Dual snubbers.
SIS	2-63-072	F-A	F1.10D	2-SNUB-063-0253.
SIS	2-63-156	F-A	F1.10D	2-SNUB-063-0268.
SIS	2-63-161	F-A	F1.10D	2-SNUB-063-0269.
SIS	2-63-163	F-A	F1.10D	2-SNUB-063-0270.
SIS	2-63-164	F-A	F1.10D	2-SNUB-063-0271.
SIS	2-63-185	F-A	F1.10D	2-SNUB-063-0265.
SIS	2-63-453	F-A	F1.10D	2-SNUB-063-0228.
SIS	2-63-458	F-A	F1.10D	2-SNUB-063-0229.
SIS	2-63-459	F-A	F1.10D	2-SNUB-063-0230.
SIS	2-63-520	F-A	F1.10D	2-SNUB-063-0267.
SIS	2-63-526	F-A	F1.10D	2-SNUB-063-0266.
SIS	2-74-015	F-A	F1.10D	2-SNUB-074-0380.
SIS	2-74-017	F-A	F1.10D	2-SNUB-074-0381.

PSI Piping-Support-Identifier-To-Snubber-Identifier Cross Reference ASME Code Class 1

System	Support Number	Category	Item Number	Snubber Number
SIS	47A435-13-060	F-A	F1.10D	2-SNUB-063-0237.

PSI Piping-Support-Identifier-To-Snubber-Identifier Cross Reference ASME Code Class 2

System	Support Number	Category	Item Number	Snubber Number
AFWS	03B-2AFW-R155	F-A	F1.20D	2-SNUB-003-0072.
AFWS	03B-2AFW-R242	F-A	F1.20D	2-SNUB-003-0448.
AFWS	2-03A-369	F-A	F1.20D	2-SNUB-003-0067.
AFWS	2-03A-370	F-A	F1.20D	2-SNUB-003-0068.
AFWS	2-03A-374	F-A	F1.20D	2-SNUB-003-0070-T and -B. Dual Snubbers.
AFWS	2-03A-377W	F-A	F1.20D	2-SNUB-003-0071.
AFWS	2-03A-400	F-A	F1.20D	2-SNUB-003-0414.
AFWS	2-03A-401	F-A	F1.20D	2-SNUB-003-0075.
AFWS	2-03A-402	F-A	F1.20D	2-SNUB-003-0076.
AFWS	2-03A-404	F-A	F1.20D	2-SNUB-003-0077.
AFWS	2-03A-411	F-A	F1.20D	2-SNUB-003-0078.
AFWS	2-03A-415	F-A	F1.20D	2-SNUB-003-0415.
AFWS	2-03A-423	F-A	F1.20D	2-SNUB-003-0079.
AFWS	2-03A-426	F-A	F1.20D	2-SNUB-003-0080.
AFWS	2-03A-445	F-A	F1.20D	2-SNUB-003-0523.
AFWS	2-03A-449	F-A	F1.20D	2-SNUB-003-0050.
AFWS	2-03A-455	F-A	F1.20D	2-SNUB-003-0053.
AFWS	2-03A-468	F-A	F1.20D	2-SNUB-003-0054.
AFWS	2-03A-480	F-A	F1.20D	2-SNUB-003-0449.
AFWS	2-03A-482	F-A	F1.20D	2-SNUB-003-0450-B & -T. Dual snubbers.
AFWS	2-03A-483	F-A	F1.20D	2-SNUB-003-0451.
AFWS	2-03A-485	F-A	F1.20D	2-SNUB-003-0452-V.
AFWS	2-03A-497	F-A	F1.20D	2-SNUB-003-0453.
AFWS	2-03A-503	F-A	F1.20D	2-SNUB-003-0454.
AFWS	2-03B-035	F-A	F1.20D	2-SNUB-003-0048.
AFWS	2-03B-037	F-A	F1.20D	2-SNUB-003-0522.
AFWS	2-03B-039	F-A	F1.20D	2-SNUB-003-0049.

PSI Piping-Support-Identifier-To-Snubber-Identifier Cross Reference
ASME Code Class 2

System	Support Number	Category	Item Number	Snubber Number
AFWS	2-03B-071	F-A	F1.20D	2-SNUB-003-0073-B & -T. Dual snubbers.
AFWS	2-03B-082	F-A	F1.20D	2-SNUB-003-0074.
AFWS	2-47A401-08-029	F-A	F1.20D	2-SNUB-003-0524-B & -T. Dual snubbers.
AFWS	47A401-8-20	F-A	F1.20D	2-SNUB-003-0082-B & -T. Dual snubbers.
AFWS	47A401-8-21	F-A	F1.20D	2-SNUB-003-0455-E & -W. Dual snubbers.
AFWS	2-47A427-3-57	F-A	F1.20D	2-SNUB-003-0456-N & -S. Dual snubbers.
CSS	2-47A437-11-1H	F-A	F1.20D	2-SNUB-072-0517.
CSS	2-47A437-1-63	F-A	F1.20D	2-SNUB-072-0518.
CSS	2-47A437-2-36	F-A	F1.20D	2-SNUB-072-0516.
CSS	63-2SIS-R211	F-A	F1.20D	2-SNUB-063-0300.
CSS	63-2SIS-R214	F-A	F1.20D	2-SNUB-063-0299.
CSS	63-2SIS-R216	F-A	F1.20D	2-SNUB-063-0298.
CSS	63-2SIS-R240	F-A	F1.20D	2-SNUB-063-0303-N & -S. Dual snubbers.
CSS	63-2SIS-R242	F-A	F1.20D	2-SNUB-063-0302.
CSS	63-2SIS-R245	F-A	F1.20D	2-SNUB-063-0301.
CSS	72-2CS-R009	F-A	F1.20D	2-SNUB-063-0376.
CSS	72-2CS-R112	F-A	F1.20D	2-SNUB-063-0372.
CSS	72-2CS-R119	F-A	F1.20D	2-SNUB-063-0375.
CSS	72-2CS-R149	F-A	F1.20D	2-SNUB-063-0374.
CSS	74-2RHR-R155	F-A	F1.20D	2-SNUB-074-0396-N & -S. Dual snubbers.
CVCS	2-47A406-02-055	F-A	F1.20D	2-SNUB-062-0511.
CVCS	2-47A406-03-058	F-A	F1.20D	2-SNUB-062-0508.
CVCS	2-62A-110	F-A	F1.20D	2-SNUB-062-0122.
CVCS	62-2CVC-R050	F-A	F1.20D	2-SNUB-062-0207.
CVCS	62-2CVC-R061	F-A	F1.20D	2-SNUB-062-0509-B and -T. Dual snubbers.
CVCS	62-2CVC-R062	F-A	F1.20D	2-SNUB-062-0510-B and -T. Dual snubbers.
CVCS	62-2CVC-R209	F-A	F1.20D	2-SNUB-062-0208.
FWS	2-03A-205	F-A	F1.20D	2-SNUB-003-0031.
FWS	2-03A-244	F-A	F1.20D	2-SNUB-003-0034. Horizontal.
FWS	2-03A-248	F-A	F1.20D	2-SNUB-003-0035. Horizontal.
FWS	2-03A-285	F-A	F1.20D	2-SNUB-003-0038.
FWS	2-03A-289	F-A	F1.20D	2-SNUB-003-0039.

PSI Piping-Support-Identifier-To-Snubber-Identifier Cross Reference ASME Code Class 2

System	Support Number	Category	Item Number	Snubber Number
FWS	2-03A-320	F-A	F1.20D	2-SNUB-003-0040.
FWS	2-03A-321	F-A	F1.20D	2-SNUB-003-0041.
FWS	2-03A-323	F-A	F1.20D	2-SNUB-003-0042.
FWS	2-03A-328	F-A	F1.20D	2-SNUB-003-0043-N.
MSS	2-01A-301	F-A	F1.20D	2-SNUB-001-0408.
MSS	2-01A-303	F-A	F1.20D	2-SNUB-001-0001-N & -S. Dual snubbers.
MSS	2-01A-304	F-A	F1.20D	2-SNUB-001-0002-E & -W. Dual snubbers.
MSS	2-01A-307	F-A	F1.20D	2-SNUB-001-0003-N & -S. Dual snubbers.
MSS	2-01A-308	F-A	F1.20D	2-SNUB-001-0004.
MSS	2-01A-312	F-A	F1.20D	2-SNUB-001-0005.
MSS	2-01A-313	F-A	F1.20D	2-SNUB-001-0006.
MSS	2-01A-317	F-A	F1.20D	2-SNUB-001-0007.
MSS	2-01A-340	F-A	F1.20D	2-SNUB-001-0409.
MSS	2-01A-343	F-A	F1.20D	2-SNUB-001-0008-N & -S. Dual snubbers.
MSS	2-01A-348	F-A	F1.20D	2-SNUB-001-0011.
MSS	2-01A-349	F-A	F1.20D	2-SNUB-001-0009.
MSS	2-01A-350	F-A	F1.20D	2-SNUB-001-0010.
MSS	2-01A-355	F-A	F1.20D	2-SNUB-001-0012.
MSS	2-01A-380	F-A	F1.20D	2-SNUB-001-0013.
MSS	2-01A-381	F-A	F1.20D	2-SNUB-001-0410.
MSS	2-01A-383	F-A	F1.20D	2-SNUB-001-0014-N & -S. Dual snubbers.
MSS	2-01A-387	F-A	F1.20D	2-SNUB-001-0411.
MSS	2-01A-389L	F-A	F1.20D	2-SNUB-001-0015-N & -S. Dual snubbers.
MSS	2-01A-391	F-A	F1.20D	2-SNUB-001-0016.
MSS	2-01A-392	F-A	F1.20D	2-SNUB-001-0017.
MSS	2-01A-397	F-A	F1.20D	2-SNUB-001-0018.
MSS	2-01A-423	F-A	F1.20D	2-SNUB-001-0019-N & -S. Dual snubbers.
MSS	2-01A-424	F-A	F1.20D	2-SNUB-001-0412.
MSS	2-01A-428	F-A	F1.20D	2-SNUB-001-0020.
MSS	2-01A-429	F-A	F1.20D	2-SNUB-001-0021-N & -S. Dual snubbers.
MSS	2-01A-435	F-A	F1.20D	2-SNUB-001-0023.
MSS	2-01A-439	F-A	F1.20D	2-SNUB-001-0024.

PSI Piping Support Identifier To Snubber Identifier Cross Reference
ASME Code Class 2

System	Support Number	Category	Item Number	Snubber Number
RHRS	2-47A432-3-13	F-A	F1.20D	2-SNUB-063-0495.
RHRS	2-47A432-6-17	F-A	F1.20D	2-SNUB-063-0492.
RHRS	2-47A437-1-62	F-A	F1.20D	2-SNUB-063-0468.
RHRS	2-63-592	F-A	F1.20D	2-SNUB-063-0290.
RHRS	47A432-1-08	F-A	F1.20D	2-SNUB-063-0308-B & -T. Dual snubbers.
RHRS	47A432-2-02	F-A	F1.20D	2-SNUB-063-0309.
RHRS	63-2SIS-R142	F-A	F1.20D	2-SNUB-063-0306-N & -S. Dual snubbers.
RHRS	63-2SIS-R155	F-A	F1.20D	2-SNUB-063-0305.
RHRS	63-2SIS-R168	F-A	F1.20D	2-SNUB-063-0418-N & -S. Dual snubbers.
RHRS	63-2SIS-R170	F-A	F1.20D	2-SNUB-063-0307.
RHRS	74-2RHR-R003	F-A	F1.20D	2-SNUB-074-0385-E & -W. Dual snubbers.
RHRS	74-2RHR-R006	F-A	F1.20D	2-SNUB-074-0386-E & -W. Dual snubbers.
RHRS	74-2RHR-R014	F-A	F1.20D	2-SNUB-074-0387-N & -S. Dual snubbers.
RHRS	74-2RHR-R028	F-A	F1.20D	2-SNUB-074-0389.
RHRS	74-2RHR-R037	F-A	F1.20D	2-SNUB-074-0384.
RHRS	74-2RHR-R058	F-A	F1.20D	2-SNUB-074-0388.
RHRS	74-2RHR-R096	F-A	F1.20D	2-SNUB-074-0383.
SIS	2-47A435-03-018	F-A	F1.20D	2-SNUB-063-0493-B & -T. Dual snubbers.
SIS	2-47A437-2-4	F-A	F1.20D	2-SNUB-063-0481.
SIS	2-63-014	F-A	F1.20D	2-SNUB-063-0213.
SIS	2-63-018	F-A	F1.20D	2-SNUB-063-0214.
SIS	2-63-019	F-A	F1.20D	2-SNUB-063-0215.
SIS	2-63-022	F-A	F1.20D	2-SNUB-063-0216.
SIS	2-63-023	F-A	F1.20D	2-SNUB-063-0217.
SIS	2-63-024	F-A	F1.20D	2-SNUB-063-0218.
SIS	2-63-029	F-A	F1.20D	2-SNUB-063-0220.
SIS	2-63-030	F-A	F1.20D	2-SNUB-063-0221.
SIS	2-63-031	F-A	F1.20D	2-SNUB-063-0222.
SIS	2-63-032	F-A	F1.20D	2-SNUB-063-0223.
SIS	2-63-042	F-A	F1.20D	2-SNUB-063-0246.
SIS	2-63-043	F-A	F1.20D	2-SNUB-063-0247.
SIS	2-63-055	F-A	F1.20D	2-SNUB-063-0248.

PSI Piping-Support-Identifier-To-Snubber-Identifier Cross Reference ASME Code Class 2

System	Support Number	Category	Item Number	Snubber Number
SIS	2-63-062	F-A	F1.20D	2-SNUB-063-0249.
SIS	2-63-064	F-A	F1.20D	2-SNUB-063-0250.
SIS	2-63-069	F-A	F1.20D	2-SNUB-063-0519.
SIS	2-63-078	F-A	F1.20D	2-SNUB-063-0254.
SIS	2-63-095L	F-A	F1.20D	2-SNUB-063-0258-N.
SIS	2-63-095U	F-A	F1.20D	2-SNUB-063-0484-S.
SIS	2-63-236D	F-A	F1.20D	2-SNUB-063-0293.
SIS	2-63-571H	F-A	F1.20D	2-SNUB-063-0521.
SIS	47A435-03-008	F-A	F1.20D	2-SNUB-063-0480.
SIS	74-2RHR-R216	F-A	F1.20D	2-SNUB-074-0390.
SIS	74-2RHR-R220	F-A	F1.20D	2-SNUB-074-0391.
SIS	74-2RHR-R230	F-A	F1.20D	2-SNUB-074-0392.
SIS	74-2RHR-R232	F-A	F1.20D	2-SNUB-074-0393.

PSI Component-Support-Identifier-To-Snubber-Identifier Cross Reference ASME Code Class 2

System	Support Number	Category	Item Number	Snubber Number
SG	SGH-1-1-SNB	F-A	F1.42D	2-SNUB-001-2SG1-A thru -E (5 Hydraulic Snubbers) are examined as 1 support ID.
SG	SGH-1-2-SNB	F-A	F1.42D	2-SNUB-001-2SG2-A thru -E (5 Hydraulic Snubbers) are examined as 1 support ID.
SG	SGH-1-3-SNB	F-A	F1.42D	2-SNUB-001-2SG3-A thru -E (5 Hydraulic Snubbers) are examined as 1 support ID.
SG	SGH-1-4-SNB	F-A	F1.42D	2-SNUB-001-2SG4-A thru -E (5 Hydraulic Snubbers) are examined as 1 support ID.

SECTION 8.0

AUGMENTED EXAMINATION

REGULATORY COMMITMENTS

I. Letters from TVA to NRC:

1. **WBN U2, Initial Response to Bulletins and Generic Letters, dated September 7, 2007, ML 072570676**
2. **WBN U2, Supplemental Response to NRC Bulletin 2004-01, "Inspection of Alloy 82/182/600 Materials used in the Fabrication of Pressurizer Penetrations and Steam Space Piping Connections at Pressurized Water Reactors," dated September 29, 2008, ML 082750518**
3. **WBN U2, Supplemental Information Regarding Certain NRC Generic Letters and Bulletins, dated April 1, 2010, ML 100950044**

For the ASME Section XI program portion, the letters listed above are divided into Preservice and Inservice requirements, excluding steam generator tubing, below. The Inservice requirements will be incorporated into the first interval ISI program for WBN Unit 2.

Preservice Commitments

1. (Attachment 3 of referenced letter 1 and Enclosure 1 of referenced letter 3) WBN U2 will perform a baseline inspection of the RPV head penetration nozzles prior to fuel load that consists of paragraph IV.C(5)(b) of the First Revised Order EA-03-009.

2. (Attachment 5 of referenced letter 1) TVA will perform a baseline inspection (VT-2) of the lower head penetrations prior to fuel load.

3. (Attachment 6 of referenced letter 1, Enclosure 1 of referenced letter 2, and Enclosure 5 of referenced letter 3) WBN U2 will perform NDE prior to and after completion of mechanical stress improvement process (MSIP) of the pressurizer power operated relief valve connections, the safety relief valve connections, and the spray line nozzle and surge line nozzle connections. Should circumferential cracking be observed in either pressure boundary or non-pressure boundary portions of any of the locations covered by the scope of NRC Bulletin 2004-01, TVA will develop plans to perform an adequate extent-of-condition evaluation, and TVA will discuss those plans with cognizant NRC technical staff prior to starting Unit 2.

Inservice Commitments

1. (Enclosure 1 of referenced letter 3) WBN U2 will perform inspections during the first refueling outage according to 10CFR50.55a(g)(6)(ii)(D)(2) through (6) and ASME Code Case N-729-1.

2. (Attachment 5 of referenced letter 1) WBN U2 will perform a VT-2 examination of the RPV lower head penetrations during the first refueling outage.

3. (Attachment 6 of referenced letter 1, Enclosure 1 of referenced letter 2, and Enclosure 5 of referenced letter 3) WBN U2 will perform bare metal visual (BMV) inspection of the upper pressurizer Alloy 600 locations at the first refueling outage. If any evidence of apparent reactor coolant pressure boundary leakage is discovered during the BMV examination, then NDE capable of determining crack orientation will be performed in order to accurately characterize the flaw, the orientation, and extent. TVA will develop plans to perform an adequate extent of condition evaluation, and plans to possible expand the scope of NDE to other components in the pressurizer, which will be discussed with NRC technical staff prior to restarting Unit 2. TVA will provide the required response for inspections performed within 60 days after completion of the first refueling outage.

II. Other PSI/ISI commitments

Preservice Commitment

NCO080008099 - TVA plans to submit PSI related relief requests on or before September 24, 2010.

Inservice Commitment

NCO080008038 - Submit Inservice Inspection (ISI) program within 6 months after receiving an operating license.

III. Augmented PSI/ISI Exam

A. Ultrasonic examination of those areas identified in calculation package 110448.301, "MRP-146 Assessment of Normally Stagnant Non-Isolable Branch Lines". This examination will be conducted as a baseline during PSI (WBN Construction Completion Project) and at the specified periodicity during Inservice Intervals. Refer to PER 375365. Additional NDE qualification and training are required to perform these ultrasonic examinations. EXREQ is "AUGMRP" and Category is "146" in the PSI database.

B. NRC Regulatory Guide 1.14, Rev 1, Regulatory Position C.4.b, requires the ultrasonic and surface examination of all 4 Reactor Coolant Pump Motor Flywheels. The NRC requirement is repeated in WBN-2 Technical Specification 5.7.2.10 and Technical Requirements Manual TSR 3.4.5.1. WBN-2 PSI is utilizing shop data following fabrication as the baseline data since these exams were performed prior to press-fitting the flywheels onto the RCP Motor shafts. All 4 flywheels were examined. EXREQ is "AUG-01" and Category is "A" in the PSI database.

IV. Other Regulatory / Code Issues

A. The PSI examinations for 8 RPV Nozzle-to-Safe End (SE) welds consist of UT from the inside diameter (ID), PT from the outside diameter (OD), and Eddy Current Testing (ECT) from the ID after Mechanical Stress Improvement Process (MSIP) as part of the MRP-139 Rev 1 / Alloy 600 Program and serve as baseline exams for transition to ASME Code Case N-770-1 for ISI during the First 10-Year ISI Interval.

B. The PSI exams for 6 Pressurizer Nozzle-to-SE welds consist of UT and PT from the OD after MSIP as part of the NRC Bulletin 2004-01 and serve as baseline exams for transition to ASME Code Case N-770-1 for ISI during the First 10-Year ISI Interval.

C. Paragraphs A and B above should be captured in the future ISI Program for the First 10-Year ISI Interval and in future revisions of NPG Business Practice BP-257 and NPG Common Technical Procedure NETP-113.

Examination Category A-E, Augmented Examination - Preservice Commitment
Class 1 PWR Components Containing Alloy 600/82/182

Item No.	Component Examined	Component Compliance	Exam Method	Examination Requirements Fig. No.	Extent of Exam	Acceptance Standard	Total Population	Required Examination
RPV Upper Head	**CRD Nozzle J-Groove welds** **Vent pipe J-Groove weld**	EA 03-009 (revised)	UT or	N/A	Note 1	NRC letter April 11, 2003 (ML030980322)	**78** **1**	**78** **1**
	CRD Nozzle J-Groove welds **Vent pipe J-Groove weld**	EA 03-009 (revised)	Surface (Note 2)	N/A	Wetted Surface of weld	see above	**78** **1**	**78** **1**
	Upper Head Injection Auxiliary Head Adapter (UPIAH) welds	Voluntary	UT & PT	N/A	DMW	IWB-3514-2	**8**	**8**
RPV Lower Head	**Instrumentation Nozzle Penetrations**	NRC Bulletin 2003-02	VT-2	N/A	Area around instrument nozzles	No Leakage	**58**	**58**
Pressurizer	**Spray Nozzle-to-pipe connection** **Relief/Safety Nozzle-to-pipe connection** **Surge Nozzle-to-pipe connection**	NRC Bulletin 2004-01	UT	IWB-2500-8	Pre- and Post- MSIP	IWB-3514	**1** **4** **1**	**1** **4** **1**

Note 1 - Examine weld from 2" above the highest point of the root of the J-groove weld on a horizontal plane and from 2" below the toe of the J-groove weld on a horizontal plane.
Note 2 - NRC Order EA 03-009 allows either UT or surface exam or combination of both.

SECTION 9.0

REQUESTS FOR RELIEF

INDEX

RFR Number	Subject	10CFR50.55a	Status	Comments
WBN-2/PDI-4	Alternative Examination for RPV Shell-to -Flange	10CFR50.55a(a)(3)(i)	Approved 9/3/09 TAC No. ME0022	
WBN-2/PSI-1 Rev 0	Class 1 Component Examination Limitations	10CFR50.55a(g)(5)(iii)	Submitted to NRC on 10/12/2010	Under NRC review
WBN-2/PSI-1 Rev 1	WBN-2 / PSI-1, Rev 1 ASME Code Class 1 And 2 Welds With Limited Coverage Examinations for PSI	10CFR50.55a(g)(5)(iii)	Re-submitted with WBN-2 PSI Rev 11	Under NRC Review
WBN-2/PSI-2	ASME Section XI 2001 Edition through 2003 Addenda Code of Record	10CFR50.55a(a)(3)(i)	Approved 02/17/2011 TAC No. ME3113	
WBN-2/PSI-3	Inaccessible Steam Generator Lower-Shell-To-Cone Weld SG-4B-5-2. Limited exam coverage. (L44 150710 002)	10CFR50.55a(g)(5)(iii)	Approved 10/01/2015. TAC No. MF6474	
WBN-2/PSI-4	Weepage of Hydraulic Fluid from Hydraulic Snubbers on Steam Generator Upper Lateral Class 2 Supports	10CFR50.55a(z)(1)	Approved 04/05/2016. CAC No. MF7447	
16-PDI-5	Use of 5% Notches in UT Calibration Blocks	10CFR50.55a(z)(1)	Submitted to NRC in TVA Letter CNL-16-022 on May 27, 2016. (L44 160527 002)	Condition Report 1041394 and Relief Request is for all 7 TVA nuclear Units. Under NRC review

SECTION 10.0

ASME SECTION XI

TECHNICAL POSITIONS

Technical determination made during implementation of this PSI program and/or the examinations to clarify a position that is not clearly understandable or exclusive to Watts Bar Unit 2 from the referenced requirements. Each Technical Position should be numbered (1,2,3,ect.) and reference to the corresponding paragraph in this or any other document that the subject pertains to and signed by as a minimum the program owner and a technical person, if appropriate and inserted in its entirety into this section following the next revision,.

TP Number	Subject	Reference	Comments
TP-1	Basis for Section XI Boundary Identification	**Section XI Class 1, 2 & 3 Components**	**May be used for all Section XI activities or individually as stated in the TP.**
TP-2	Retrieval of Historical Records and Radiographs	Records Management Lifetime Storage Vault.	**May be used for retrieval of Shop Radiograph and other records**

Basis for
Section XI Boundary Identification

Watts Bar Nuclear (WBN) Unit 2
ASME Section XI Preservice Inspection (PSI)

TP-1

This document is a technical position to establish the basis of the interrelationships with TVA classification system and ASME Section XI activities. Nothing in this technical position shall change the overall classification of a system or component from its original design. The intent is to adjoin the design of the plant with the inspection requirements of ASME Section XI requirements for inspection. The overall design of systems structures and components to the appropriate TVA classification is based on the guidelines in the Design Criteria Document, procedure number WB-DC-40-36, "The Classification of Piping, Pumps, Valves, and Vessels". These criteria apply to piping, pumps, valves, and other pressure retaining components within fluid systems that perform a safety function. Primary and secondary safety functions are classified according to their relative importance in protecting the health and safety of the general public. The TVA Class A, B, C and D systems are classified as ASME Section III Class 1, 2 and 3 respectively, based on the relationship between the ANS Safety Class, TVA classifications, and Regulatory Guide 1.26 classifications. The Mechanical flow diagrams are labeled with the TVA classification in such a manner that the classification of every portion of a system can be determined from its flow diagram. The flow diagrams are used to designate the TVA classification A, B, C and D to establish the ASME Class 1, 2 or 3 boundaries to determine the ASME Section XI requirements.

ASME Section XI requires components identified for inspection and testing shall be governed by the group classification criteria and provides the inspection requirements for Class 1, 2 and 3 components. ASME Section XI, IWA-1320 states the rules for IWB shall be applied to those systems whose components are classified ASME Class 1 and the rules for IWC apply to components classified as ASME Class 2 and the rules for IWD apply to components classified as ASME Class 3.

Therefore, based on the guidance of WB-DC-40-36 with reference to the ANS documents and Regulatory Guide 1.26 for classification of components, the labeling and marking of the boundary interface on the flow diagrams for classification of system. Section XI activities shall be determined for ASME Class 1, 2 and 3 systems and components. In reference to the boundary marking on the mechanical flow diagrams, Section XI inspection and testing boundaries will be determined, as required and if needed to farther distinguish the boundaries a color coding method can be used for informational purposes only for the various activities. To further distinguish the activities they are separated to explain the intent of the each and color coding of the boundaries.

1) ASME Section **XI** Systems and Components (**XISC**)

This activity is to identify the system boundaries for components subject to Section XI activities. The boundaries are established based on the WBN -2 design and mechanical flow diagrams that apply to items classified as TVA Class A, B, C and D or ASME Section III Code Class 1, 2 & 3. This activity is not intended to include the Section XI inspection or testing requirements on systems or portions of a system that are optionally upgraded to a high classification, unless specifically directed by other requirements. This applies to systems of nonnuclear safety class to ASME Section III Class 2 or 3 and/or

Class 3 to Class 2, Class 2 to Class 1 or any combination of these. All other boundaries on safety Class systems represent the activities associated with Section XI, including Repair and Replacement regardless of the reason or method that detected the condition requiring the repair/replacement. To further distinguish the boundaries a set of color coded drawing can be established and labeled (i.e.2-48W801-1-XISC) with the XISC to designate the activities for systems and components for this scope of Section XI. Red will be used to represent TVA Safety Class A or ASME Code Class 1. Yellow will be used to represent TVA Safety Class B or ASME Code Class 2 and finally green to represent TVA Safety Class C & D or ASME Code Class 3. This set of color coded drawing is for informational use only and should be review for changes during periodic and/or interval updates to correspond with Section XI.

Note: This set of drawings may or may not be needed prior to startup as explained in NC PP-15, paragraph 2.0 C, but is needed to establish the ASME Section **XI EX**aminations (**XIEX**) and ASME Section **XI P**ressure **T**ests (**XIPT**) color coded drawings.

2) ASME Section **XI P**ressure **T**ests (**XIPT**)

This activity is to identify the pressure testing requirements based on Section XI and within the previously established boundaries for Systems and Components. The pressure test boundaries are determined and established by the general requirements of Article IWA-5000 for ASME Class 1, 2, & 3 systems and components requiring a pressure test. The boundary limits are generally defined by the location of the safety class interface valves within the system or as describe in IWB, IWC and IWD requirements for Class 1, 2 and 3 systems respectively. This activity is not intended to include the Section XI inspection or testing requirements on systems or portions of a system that are optionally upgraded to a high classification, unless specifically directed by other requirements. This applies to systems of nonnuclear safety class to ASME Section III Class 2 or 3 and/or Class 3 to Class 2, Class 2 to Class 1 or any combination there of. All other boundaries on safety Class systems that represent the activities associated with Section XI are to enhance and distinguish the various pressure test boundaries. A color coded drawing can be established and labeled (i.e. 2-48W801-1-XIPT) with the XIPT, to designate the system boundaries requiring a pressure tests and a visual VT-2 to be performed. The colors used to represent Class 1, 2 & 3 components are the same as previously established. This set of drawings is for informational use only and should be review for changes during periodic and/or interval updates to correspond with Section XI.

Note: This set of drawings is not needed prior to startup as explained in NC PP-15, paragraph 2.0 C, but is needed to establish the ASME Section **XI EX**aminations (**XIEX**) color coded drawings.

3) ASME Section **XI EX**aminations (**XIEX**)

This activity is to identify the examination requirements based on Section XI and within the previously established boundaries for systems and components that are not exempted from volumetric, surface or visual requirements on Class 1, 2 and 3 pressure retaining components. This activity is not intended to include the Section XI inspection or testing requirements on systems or portions of a system that are optionally upgraded to a high classification, unless specifically directed by other requirements. This applies to systems of nonnuclear safety class to ASME Section III Class 2 or 3 and/or Class 3 to Class 2, Class 2 to Class 1 or any combination thereof. All other boundaries on safety Class systems that represent the activities associated with Section XI are to enhance and distinguish the various examination

boundaries. A color coded drawing can be established and labeled (i.e.2-48W801-1-XIEX) with the XIEX, to designate the system boundaries requiring an examination by volumetric, surface or visual VT-1 or VT-3 methods. The colors used to represent Class 1, 2 & 3 components are the same as previously established. This set of drawings is for informational use only and should be review for changes during periodic and/or interval updates to correspond with Section XI. Also, the drawings will be a reference to establish the boundaries when creating the various location drawings to identify the individual examinations that will support the population of WBN Unit 2 Preservice Inspection Program Plan.

4) ASME Section XI IWE/IWL (**XIIWE**)

This activity is to identify the examination boundaries based on Section XI IWE (ASME Categories MC) requirements that are determined to be accessible and not exempt. The boundaries will be determined by using the configuration drawing based on the design of WBN-2. To enhance and distinguish the various examination boundaries a color coded drawing can be established and labeled XIIWE, to designate the system boundaries requiring an examination. The boundaries will be represented by an outline of the color blue to designate the boundaries for examination. This set of drawings is for informational use only and should be review for changes during periodic and/or interval updates to correspond with Section XI. Also, the drawing will be referenced to establish the detailed IWE drawing for PSI and ISI.

Note: The revision on all flow diagrams and the revision (RXX) used on the informational use color coded drawing for Section XI does not have to be the same but shall be reviewed for changes that will effect the overall Section XI configuration for inspection and/or testing. As a minimum these drawing shall be reviewed prior to each period and/or interval change as described in the WBN-2 Program Plan.

Prepared By: E. Lynn McClain 5/12/2008

Program Owner: E. Lynn McClain 5/12/2008

Technical Review: Charlie Driskell 5/12/2008

Basis for
Retrieval of Historical Records and Radiographs

Watts Bar Nuclear (WBN) Unit 2
ASME Section XI Preservice Inspection (PSI)

TP-2

During the course of establishing the baseline inspection or during the inservice inspection certain records are required to be retrieved from time to time. The intent of the retrieval is for confirmation of or aid in the inspection activities to qualify, verify or validate the components configuration, i.e. weld map records, retrieval of radiographs, etc. for various reasons.

The following outline may be used to retrieve weld map data and radiographs.

1. Select a weld from the desired PSI/ISI drawing.
   Example: Drawing ISI-2068-W-04, weld RCS-025

2. Locate weld on referenced as constructed drawing from BSL.
   Example: WBN-E-2282-IC-144. Enter as E2882IC144

3. Identity the weld as a field weld or shop weld.
   If the weld is a field weld, order the radiograph from Records Management Lifetime Storage Vault.

   If the weld is a shop weld, identify the sketch number and then retrieve from BSL.
   Example: SK-E2882-1300. Enter as E2882-1300

4. Identify the weld number and piece mark on the piping fabrication sketch.
   Example: Weld K, pc 68-RC-6

5. Identify the box number the radiograph is located in from the Supplier Radiograph Index Manual located in the Records Management Lifetime Storage Vault (Index is sorted like the example).
   Example: E-2882, 68-RC-6 PC, SK 1300-K is located in Box number 42

6. Request that Records Management order the required radiograph from the National Underground Storage Facility.
   Example: Box 42 is located in Room RC, Section 3, Shelf 2, Bin 6

Prepared By: E. Lynn McClain 10/13/2009

Program Owner: E. Lynn McClain 10/13/2009

Technical Review: M. Darlene Tinley 10/13/2009

SECTION 11.0

DRAWING REFERENCE LIST

Some of the drawings will be included as the preservice inspections are completed and the drawings are updated.

FLOW DIAGRAMS

Drawing Number	Drawing Title (System)	Code Class
2-47W801-1	Main & Reheat Steam (1)	2
2-47W801-2	SG Blowdown (1)	2
2-47W803-1	Feedwater (3)	2
0-47W803-2	Auxiliary Feedwater (3)	2&3
2-47W803-3	Auxiliary Feedwater (3)	3
2-47W809-1	Chemical & Volume Control (62)	1,2&3
2-47W809-2	CVC & Boron Recovery (62)	2&3
0-47W809-3	CVC & Boron Recovery (62)	3
0-47W809-5	CVC & Boron Recovery (62)	3
0-47W809-7	Flood Mode Boration Makeup (84)	2&3
0-47W809-9	Chemical & Volume Control (62)	2
2-47W810-1	Residual Heat Removal (74)	1,2&3
2-47W811-1	Safety Injection (63)	1,2&3
2-47W812-1	Containment Spray (72)	2&3
2-47W813-1	Reactor Coolant (68)	1&2
2-47W814-2	Ice Condenser (61)	2
0-47W819-1	Primary Water (81)	2
0-47W830-1	Waste Disposal (77)	2
0-47W832-1	Raw Service Water & HPFP (25/26)	3
0-47W832-2	Raw Service Water & HPFP (25/26)	3
0-47W845-1	Essential Raw Cooling Water (67)	3
0-47W845-2	Essential Raw Cooling Water (67)	3
2-47W845-3	Essential Raw Cooling Water (67)	2&3
2-47W845-4	Essential Raw Cooling Water (67)	3
0-47W845-5	Essential Raw Cooling Water (67)	3
0-47W850-2	Fire Protection Raw Service Water (26)	3
2-47W851-1	Floor & Equipment Drains (77)	2&3
0-47W855-1	Fuel Pool Cooling & Cleaning (78)(62)	2&3
0-47W856-1	Demin Water & Cask Decon (59)	2
0-47W859-1	Component Cooling (70)	3
2-47W859-3	Component Cooling (70)	2&3
0-47W859-4	Component Cooling (70)	3
2-47W862-2	SG Wet Layup, Closed Recirculation Loop (41)	2
2-47W865-5	Air Conditioning Chilled Water (31)	2

COMPONENT LOCATIONS

Drawing Number	Drawing Title (System)	Code Class
ISI-2000-GEN-1 thru -16	DRAWING REFERENCE TABLE	N/A
ISI-2001-E-01	STEAM GENERATOR	1&2
ISI-2001-E-02	STEAM GENERATOR	1
ISI-2001-E-03	STEAM GENERATOR SUPPORTS	1&2
ISI-2001-E-04	MAIN STEAM SAFETY VALVES	2
ISI-2001-H-01	MSS SUPPORT LOCATIONS	2
ISI-2001-H-02	MSS SUPPORT LOCATIONS	2
ISI-2001-H-03	MSS SUPPORT LOCATIONS	2
ISI-2001-H-04	MSS SUPPORT LOCATIONS	2
ISI-2001-W-01	MSS WELD LOCATIONS	2
ISI-2001-W-02	MSS WELD LOCATIONS	2
ISI-2001-W-03	MSS WELD LOCATIONS	2
ISI-2001-W-04	MSS WELD LOCATIONS	2
ISI-2003A-H-01	FEEDWATER SUPPORT LOCATIONS	2
ISI-2003A-H-02	FEEDWATER SUPPORT LOCATIONS	2
ISI-2003A-H-03	FEEDWATER SUPPORT LOCATIONS	2
ISI-2003A-H-04	FEEDWATER SUPPORT LOCATIONS	2
ISI-2003A-W-01	FEEDWATER WELD LOCATIONS	2
ISI-2003A-W-02	FEEDWATER WELD LOCATIONS	2
ISI-2003A-W-03	FEEDWATER WELD LOCATIONS	2
ISI-2003A-W-04	FEEDWATER WELD LOCATIONS	2
ISI-2003B-E-01	AUX FDWR VALVE WELD LOCATION	2
ISI-2003B-E-02	MDAFW PUMP SUPPORT LOCATIONS	3
ISI-2003B-E-03	TDAFW PUMP SUPPORT LOCATIONS	3
ISI-2003B-H-01	AUX FDWR SUPPORT LOCATIONS	2
ISI-2003B-H-02	AUX FDWR SUPPORT LOCATIONS	2
ISI-2003B-H-03	AUX FDWR SUPPORT LOCATIONS	2
ISI-2003B-H-04	AUX FDWR SUPPORT LOCATIONS	2
ISI-2003B-H-05	AUX FDWR SUPPORT LOCATIONS	2
ISI-2003B-H-06	AUX FDWR SUPPORT LOCATIONS	2
ISI-2003B-H-07	AUX FDWR SUPPORT LOCATIONS	2
ISI-2003B-H-08	AUX FDWR SUPPORT LOCATIONS	2
ISI-2003B-H-09	AUX FDWR SUPPORT LOCATIONS	2
ISI-2003B-H-10	AUX FDWR SUPPORT LOCATIONS	2
ISI-2003B-H-11	AUX FDWR SUPPORT LOCATIONS	2

ISI-2003B-H-12	AUX FDWR SUPPORT LOCATIONS	3
ISI-2003B-H-13	AUX FDWR SUPPORT LOCATIONS	3
ISI-2003B-H-14	AUX FDWR SUPPORT LOCATIONS	3
ISI-2003B-W-01	AUX FDWR WELD LOCATIONS	2
ISI-2003B-W-02	AUX FDWR WELD LOCATIONS	2
ISI-2003B-W-03	AUX FDWR WELD LOCATIONS	2
ISI-2003B-W-04	AUX FDWR WELD LOCATIONS	2
ISI-2003B-W-05	AUX FDWR WELD LOCATIONS	2
ISI-2003B-W-06	AUX FDWR WELD LOCATIONS	2
ISI-2003B-W-07	AUX FDWR WELD LOCATIONS	2
ISI-2003B-W-08	AUX FDWR WELD LOCATIONS	2
ISI-2003B-W-09	AUX FDWR WELD LOCATIONS	2
ISI-2003B-W-10	AUX FDWR WELD LOCATIONS	2
ISI-2003B-W-11	AUX FDWR WELD LOCATIONS	2
ISI-2062-H-01	CVCS SUPPORT LOCATIONS	1
ISI-2062-H-02	CVCS SUPPORT LOCATIONS	1
ISI-2062-H-03	CVCS SUPPORT LOCATIONS	1
ISI-2062-H-04	CVCS SUPPORT LOCATIONS	1
ISI-2062-H-05	CVCS SUPPORT LOCATIONS	1
ISI-2062-H-06	CVCS SUPPORT LOCATIONS	1
ISI-2062-H-07	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-08	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-09	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-10	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-11	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-12	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-13	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-14	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-15	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-16	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-17	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-18	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-19	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-20	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-21	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-22	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-23	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-24	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-25	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-26	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-27	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-28	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-29	CVCS SUPPORT LOCATIONS	2

ISI-2062-H-30	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-31	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-32	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-33	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-34	CVCS SUPPORT LOCATIONS	2
ISI-2062-H-35	CVCS SUPPORT LOCATIONS	2
ISI-2062-W-01	CVCS WELD LOCATIONS	1
ISI-2062-W-02	CVCS WELD LOCATIONS	1
ISI-2062-W-03	CVCS WELD LOCATIONS	1
ISI-2062-W-04	CVCS WELD LOCATIONS	1
ISI-2062-W-05	CVCS WELD LOCATIONS	1
ISI-2062-W-06	CVCS WELD LOCATIONS	1
ISI-2062-W-07	CVCS WELD LOCATIONS	2
ISI-2062-W-08	CVCS WELD LOCATIONS	2
ISI-2062-W-09	CVCS WELD LOCATIONS	2
ISI-2062-W-10	CVCS WELD LOCATIONS	2
ISI-2062-W-11	CVCS WELD LOCATIONS	2
ISI-2062-W-12	CVCS WELD LOCATIONS	2
ISI-2062-W-13	CVCS WELD LOCATIONS	2
ISI-2062-W-14	CVCS WELD LOCATIONS	2
ISI-2062-W-15	CVCS WELD LOCATIONS	2
ISI-2062-W-16	CVCS WELD LOCATIONS	2
ISI-2062-W-17	CVCS (SEAL INJ) WELD LOCATIONS	2
ISI-2062-W-18	CVCS WELD LOCATIONS	2
ISI-2062-W-19	CVCS WELD LOCATIONS	2
ISI-2062-W-20	CVCS WELD LOCATIONS	2
ISI-2062-W-21	CVCS WELD LOCATIONS	2
ISI-2062-W-22	CVCS WELD LOCATIONS	2
ISI-2062-W-23	CVCS WELD LOCATIONS	2
ISI-2062-W-24	CVCS WELD LOCATIONS	2
ISI-2062-W-25	CVCS (SEAL INJ) WELD LOCATIONS	2
ISI-2062-W-26	CVCS WELD LOCATIONS	2
ISI-2062-W-27	CVCS WELD LOCATIONS	2
ISI-2062-W-28	CVCS WELD LOCATIONS	2
ISI-2062-W-29	CVCS WELD LOCATIONS	2
ISI-2062-W-30	CVCS WELD LOCATIONS	2
ISI-2062-W-31	CVCS WELD LOCATIONS	2
ISI-2062-W-32	CVCS WELD LOCATIONS	2
ISI-2062-W-33	CVCS WELD LOCATIONS	2
ISI-2062-W-34	CVCS WELD LOCATIONS	2
ISI-2062-W-35	CVCS WELD LOCATIONS	2

ISI-2062A-E-01	CENT CHG PUMP WELD & SUPPORT LOCATIONS	2
ISI-2062B-E-02	SL WTR HT EXCH SPT LOCATION	2
ISI-2062C-E-01	SL WTR INJ FLTR WELD LOCATIONS	2
ISI-2062C-E-02	SL WTR INJ FLTR SUPT LOCATIONS	2
ISI-2062D-E-01	SL WTR FILTER SUPT LOCATIONS	2
ISI-2063-H-01	SIS SUPPORT LOCATIONS	2
ISI-2063-H-02	SIS SUPPORT LOCATIONS	2
ISI-2063-H-03	SIS SUPPORT LOCATIONS	2
ISI-2063-H-04	SIS SUPPORT LOCATIONS	2
ISI-2063-H-05	SIS SUPPORT LOCATIONS	2
ISI-2063-H-06	SIS SUPPORT LOCATIONS	1
ISI-2063-H-07	SIS SUPPORT LOCATIONS	1
ISI-2063-H-08	SIS SUPPORT LOCATIONS	1
ISI-2063-H-09	SIS SUPPORT LOCATIONS	1
ISI-2063-H-10	SIS SUPPORT LOCATIONS	1
ISI-2063-H-11	SIS SUPPORT LOCATIONS	1
ISI-2063-H-12	SIS SUPPORT LOCATIONS	1
ISI-2063-H-13	SIS SUPPORT LOCATIONS	1
ISI-2063-H-14	SIS SUPPORT LOCATIONS	1
ISI-2063-H-15	SIS SUPPORT LOCATIONS	2
ISI-2063-H-16	SIS SUPPORT LOCATIONS	2
ISI-2063-H-17	SIS SUPPORT LOCATIONS	2
ISI-2063-H-18	SIS SUPPORT LOCATIONS	2
ISI-2063-H-19	SIS SUPPORT LOCATIONS	2
ISI-2063-H-20	SIS SUPPORT LOCATIONS	2
ISI-2063-H-21	SIS SUPPORT LOCATIONS	2
ISI-2063-H-22	SIS SUPPORT LOCATIONS	2
ISI-2063-H-23	SIS SUPPORT LOCATIONS	2
ISI-2063-H-24	SIS SUPPORT LOCATIONS	2
ISI-2063-H-25	SIS SUPPORT LOCATIONS	2
ISI-2063-H-26	SIS SUPPORT LOCATIONS	2
ISI-2063-H-27	SIS SUPPORT LOCATIONS	2
ISI-2063-H-28	SIS SUPPORT LOCATIONS	2
ISI-2063-H-29	SIS SUPPORT LOCATIONS	2
ISI-2063-H-30	SIS SUPPORT LOCATIONS	2
ISI-2063-H-31	SIS SUPPORT LOCATIONS	2
ISI-2063-H-32	SIS SUPPORT LOCATIONS	2
ISI-2063-H-33	SIS SUPPORT LOCATIONS	2
ISI-2063-H-34	SIS SUPPORT LOCATIONS	2
ISI-2063-H-35	SIS SUPPORT LOCATIONS	2
ISI-2063-H-36	SIS SUPPORT LOCATIONS	2
ISI-2063-H-37	SIS SUPPORT LOCATIONS	2

ISI-2063-H-38	SIS SUPPORT LOCATIONS	2
ISI-2063-H-39	SIS SUPPORT LOCATIONS	2
ISI-2063-W-01	SIS WELD LOCATIONS	2
ISI-2063-W-02	SIS WELD LOCATIONS	2
ISI-2063-W-03	SIS WELD LOCATIONS	2
ISI-2063-W-04	SIS WELD LOCATIONS	2
ISI-2063-W-05	SIS WELD LOCATIONS	2
ISI-2063-W-06	SIS WELD LOCATIONS	1
ISI-2063-W-07	SIS WELD LOCATIONS	1
ISI-2063-W-08	SIS WELD LOCATIONS	1
ISI-2063-W-09	SIS WELD LOCATIONS	1
ISI-2063-W-10	SIS WELD LOCATIONS	1
ISI-2063-W-11	SIS WELD LOCATIONS	1
ISI-2063-W-12	SIS WELD LOCATIONS	1
ISI-2063-W-13	SIS WELD LOCATIONS	1
ISI-2063-W-14	SIS WELD LOCATIONS	1
ISI-2063-W-15	SIS WELD LOCATIONS	2
ISI-2063-W-16	SIS WELD LOCATIONS	2
ISI-2063-W-17	SIS WELD LOCATIONS	2
ISI-2063-W-18	SIS WELD LOCATIONS	2
ISI-2063-W-19	SIS WELD LOCATIONS	2
ISI-2063-W-20	SIS WELD LOCATIONS	2
ISI-2063-W-21	SIS WELD LOCATIONS	2
ISI-2063-W-22	SIS WELD LOCATIONS	2
ISI-2063-W-23	SIS WELD LOCATIONS	2
ISI-2063-W-24	SIS WELD LOCATIONS	2
ISI-2063-W-25	SIS WELD LOCATIONS	2
ISI-2063-W-26	SIS WELD LOCATIONS	2
ISI-2063-W-27	SIS WELD LOCATIONS	2
ISI-2063-W-28	SIS WELD LOCATIONS	2
ISI-2063-W-29	SIS WELD LOCATIONS	2
ISI-2063-W-30	SIS WELD LOCATIONS	2
ISI-2063-W-31	SIS WELD LOCATIONS	2
ISI-2063-W-32	SIS WELD LOCATIONS	2
ISI-2063-W-33	SIS WELD LOCATIONS	2
ISI-2063-W-34	SIS WELD LOCATIONS	2
ISI-2063-W-35	SIS WELD LOCATIONS	2
ISI-2063-W-36	SIS WELD LOCATIONS	2
ISI-2063-W-37	SIS WELD LOCATIONS	2
ISI-2063-W-38	SIS WELD LOCATIONS	2
ISI-2063-W-39	SIS WELD LOCATIONS	2

ISI-2063A-E-01	SIS BIT TANK WELD & SUPPORT LOCATIONS	2
ISI-2063B-E-01	SIS PUMP WELD & SUPPORT LOCATIONS	
ISI-2067-H-01	ERCW SUPPORT LOCATIONS	3
ISI-2067-H-02	ERCW SUPPORT LOCATIONS	3
ISI-2067-H-03	ERCW SUPPORT LOCATIONS	3
ISI-2067-H-04	ERCW SUPPORT LOCATIONS	3
ISI-2067-H-05	ERCW SUPPORT LOCATIONS	3
ISI-2067-H-06	ERCW SUPPORT LOCATIONS	3
ISI-2067-H-07	ERCW SUPPORT LOCATIONS	3
ISI-2067-H-08	ERCW SUPPORT LOCATIONS	3
ISI-2067-H-09	ERCW SUPPORT LOCATIONS	3
ISI-2067-H-10	ERCW SUPPORT LOCATIONS	3
ISI-2067-H-11	ERCW SUPPORT LOCATIONS	3
ISI-2067-H-12	ERCW SUPPORT LOCATIONS	3
ISI-2067-H-13	ERCW SUPPORT LOCATIONS	3
ISI-2067-H-14	ERCW SUPPORT LOCATIONS	3
ISI-2067-H-15	ERCW SUPPORT LOCATIONS	3
ISI-2068-H-01	RCS PIPING SUPPORT LOCATIONS	1
ISI-2068-H-02	RCS PIPING SUPPORT LOCATIONS	1
ISI-2068-H-03	RCS PIPING SUPPORT LOCATIONS	1
ISI-2068-H-04	RCS PIPING SUPPORT LOCATIONS	1
ISI-2068-H-05	RCS PIPING SUPPORT LOCATIONS	1
ISI-2068-MRP-01	RCS MRP 146 BRANCH LOCATIONS	1
ISI-2068-MRP-02	RCS MRP 146 BRANCH LOCATIONS	1
ISI-2068-W-01	RCS WELD LOCATIONS	1
ISI-2068-W-02	RCS WELD LOCATIONS	1
ISI-2068-W-03	RCS WELD LOCATIONS	1
ISI-2068-W-04	RCS WELD LOCATIONS	1
ISI-2068-W-05	RCS WELD LOCATIONS	1
ISI-2068-W-06	RCS WELD LOCATIONS	1
ISI-2068-W-07	RCS WELD LOCATIONS	1
ISI-2068A-E-01	RV GENERAL ARRGMNT	1
ISI-2068A-E-02	RV INTERIOR VIEW	1
ISI-2068A-E-03	RV SEAM WELDS	1
ISI-2068A-E-04	RV CLOSURE HEAD	1
ISI-2068A-E-05	CRD & VENT PIPE PENTR	1
ISI-2068A-E-06	AUX HEAD ADAPTER	1
ISI-2068A-E-07	CLOSURE HEAD PENTR	1
ISI-2068A-E-08	CLOSURE HEAD PEN & CRD J-WELD	1
ISI-2068A-E-09	RV STUD LOCATION & DETAIL	1

ISI-2068A-E-10	CLOSURE STUDS, NUTS, & WASHER DETAILS	1
ISI-2068A-E-11	RV SUPPORT	1
ISI-2068A-E-12	RV BOTTOM HEAD PENTR	1
ISI-2068A-E-13	RV BOTTOM HEAD INTERNAL VIEW	1
ISI-2068A-E-14	RV BOTTOM HEAD EXTERNAL VIEW	1
ISI-2068A-E-15	RV WELD SEAMS	1
ISI-2068A-E-16	RV MAIN LOOP NOZZLES - HOT LEG	1
ISI-2068A-E-17	RV MAIN LOOP NOZZLES - COLD LEG	1
ISI-2068A-E-18	REACTOR VESSEL CORE BARREL (OR LOWER INTERNALS)	1
SI-2068A-E-19	RV HEAD CRDM RESTRAINT	1
ISI-2068B-E-01	RCP MAIN FLG & LOWER SEAL BLTG	1
ISI-2068B-E-02	RCP MOTOR AUG FLYWHEEL EXAM	N/A
ISI-2068B-E-03	RCP CASING WELD LOCATION	1
ISI-2068B-E-04	RCP AUG PUMP SHAFT EXAM	N/A
ISI-2068B-E-05	RCS PUMP SUPPORTS	1
ISI-2068C-E-01	PRESSURIZER	1
ISI-2068C-E-02	PRESSURIZER (MANWAY BLT)	1
ISI-2068C-E-03	PRESSURIZER SURGE NOZZLE DETAILS	1
ISI-2068C-E-04	PRESSURIZER SPRAY, SAFETY, & RELIEF NOZZLE DETAILS	1
ISI-2068C-E-05	PRESSURIZER HEATER DETAILS	1
ISI-2068C-E-06	PRESSURIZER (SUPPORT SKIRT & SEISMIC LUG DETAIL)	1
ISI-2070-H-01	CCS SUPPORT LOCATIONS	3
ISI-2070-H-02	CCS SUPPORT LOCATIONS	3
ISI-2070-H-03	CCS SUPPORT LOCATIONS	3
ISI-2070-H-04	CCS SUPPORT LOCATIONS	3
ISI-2070-H-05	CCS SUPPORT LOCATIONS	3
ISI-2070-H-06	CCS SUPPORT LOCATIONS	3
ISI-2070-H-07	CCS SUPPORT LOCATIONS	2&3
ISI-2072-H-01	CONT SPRAY SUPPORT LOCATIONS	2
ISI-2072-H-02	CONT SPRAY SUPPORT LOCATIONS	2
ISI-2072-H-03	CONT SPRAY SUPPORT LOCATIONS	2
ISI-2072-H-04	CONT SPRAY SUPPORT LOCATIONS	2
ISI-2072-H-05	CONT SPRAY SUPPORT LOCATIONS	2
ISI-2072-H-06	CONT SPRAY SUPPORT LOCATIONS	2
ISI-2072-H-07	CONT SPRAY SUPPORT LOCATIONS	2
ISI-2072-H-08	CONT SPRAY SUPPORT LOCATIONS	2

ISI-2072-H-09	CONT SPRAY SUPPORT LOCATIONS	2
ISI-2072-H-10	CONT SPRAY SUPPORT LOCATIONS	2
ISI-2072-W-01	CONT SPRAY PIPING WELDS	2
ISI-2072-W-02	CONT SPRAY PIPING WELDS	2
ISI-2072-W-03	CONT SPRAY PIPING WELDS	2
ISI-2072-W-04	CONT SPRAY PIPING WELDS	2
ISI-2072-W-05	CONT SPRAY PIPING WELDS	2
ISI-2072-W-06	CONT SPRAY PIPING WELDS	2
ISI-2072-W-07	CONT SPRAY PIPING WELDS	2
ISI-2072-W-08	CONT SPRAY PIPING WELDS	2
ISI-2072-W-09	CONT SPRAY PIPING WELDS	2
ISI-2072-W-10	CONT SPRAY PIPING WELDS	2
ISI-2072A-E-01	CONT SPRAY PUMP SUPPORTS	2
ISI-2072B-E-01	CONT SPRAY HX WELD LOCATIONS	2
ISI-2072B-E-02	CONT SPRAY HX SUPPORT DETAILS	2&3
ISI-2074-H-01	RHRS SUPPORT LOCATIONS	1&2
ISI-2074-H-02	RHRS SUPPORT LOCATIONS	2
ISI-2074-H-03	RHRS SUPPORT LOCATIONS	2
ISI-2074-H-04	RHRS SUPPORT LOCATIONS	2
ISI-2074-H-05	RHRS SUPPORT LOCATIONS	2
ISI-2074-H-06	RHRS SUPPORT LOCATIONS	2
ISI-2074-H-07	RHRS SUPPORT LOCATIONS	2
ISI-2074-H-08	RHRS SUPPORT LOCATIONS	1&2
ISI-2074-H-09	RHRS SUPPORT LOCATIONS	1&2
ISI-2074-W-01	RHRS WELD LOCATIONS	1&2
ISI-2074-W-02	RHRS WELD LOCATIONS	2
ISI-2074-W-03	RHRS WELD LOCATIONS	2
ISI-2074-W-04	RHRS WELD LOCATIONS	2
ISI-2074-W-05	RHRS WELD LOCATIONS	2
ISI-2074-W-06	RHRS WELD LOCATIONS	2
ISI-2074-W-07	RHRS WELD LOCATIONS	2
ISI-2074-W-08	RHRS WELD LOCATIONS	1&2
ISI-2074-W-09	RHRS WELD LOCATIONS	1&2
ISI-2074A-E-01	RHR PUMP SUPPORT LOCATIONS	2
ISI-2074B-E-01	RHR HT EXCH CHANNEL WELDS	2
ISI-2074B-E-02	RHR HT EXCH SUPPORTS	2&3

SECTION 12.0
PROGRAM - TERMS

ACWS:	Air Conditioning Chilled Water System (31)
ALARA:	As Low As Reasonably Achievable
ANII:	Authorized Nuclear Inservice Inspector
ASME:	American Society of Mechanical Engineers
AUG:	Augmented
AFW:	Auxiliary Feedwater System (003B)
A-E:	Category - Augmented
BC:	Branch Connection
CC:	Code Case
CFR:	Code of Federal Regulations
CH:	Charging
CHR:	Containment Heat Removal
Circ:	Circumferential
CL:	Cold Leg
CCS:	Component Cooling System (70)
CRD:	Control Rod Drive
CSS:	Containment Spray System (72)
CS:	Carbon Steel
CSP:	Containment Spray Pump
CVCS:	Chemical and Volume Control System (62)
DWG:	Drawing
DM:	Dissimilar Metal
E:	Equipment
ECCS:	Emergency Core Cooling System
ERCW:	Essential Raw Water Cooling System (67)
EL:	Elbow
EPRI:	Electric Power research Institute
ET:	Eddy Current Examination
EVT-1:	Enhanced Visual VT-1 (RPV)
FW:	Feedwater
FWS:	Feedwater System (03A)
FMBMS:	Flood Mode Boration Makeup System (84)
H:	Hanger / Support
HL:	Hot Leg

HPFP:	High Pressure Fire Protection (26)
HX:	Heat Exchanger
ICS:	Ice Condenser System (61)
IEP:	Inspection and Examination Procedures
INPO:	Institute for Nuclear Power Operations
ISI:	Inservice Inspection
IWA:	Section XI General Requirements
IWB:	Section XI Class 1 Components
IWC:	Section XI Class 2 Components
IWD:	Section XI Class 3 Components
IWE:	Section XI Class MC Components
IWF:	Section XI Class 1, 2, 3 & MC Component Supports
IWL:	Section XI Class CC Components
MOU:	Memorandum of Understanding
MSIP:	Mechanical Stress Improvement Process
MSS:	Main Steam System (01)
MT:	Magnetic Particle Examination
NC:	Nuclear Construction
NDE:	Nondestructive Examination
NRC:	Nuclear Regulatory Commission
NGDC:	Nuclear Generation Development & Construction
PP:	Project Procedure
P:	Pipe
PENT:	Penetration
PSI:	Preservice Inspection
PSV:	Pressure Relief or Safety Valve
PWR:	Pressurized Water Reactor
PT:	Penetrant Examination
PZR:	Pressurizer
PCV:	Pressure Control Valve
PWS:	Primary Water System (81)
R:	Reducer
RC:	Reactor Coolant
RCP:	Reactor Coolant Pump
RHR:	Residual Heat Removal
RHRS:	Residual Heat Removal System (74)

RECIRC:	Recirculation
RCS:	Reactor Coolant System (68)
RPV:	Reactor Pressure Vessel
RSW:	Raw Service Water (System 25)
RLV:	Relief Valve
RT:	Radiograph Examination
RX:	Reactor
S:	Supports
SCH:	Schedule
SDCHX:	Shutdown Cooling Heat Exchanger
SD:	Shutdown
SER:	Safety Evaluation Report
SG:	Steam Generator
SGBD:	Steam Generator Blowdown (System 1 & 15)
SH:	Sheet
SIS:	Safety Injection System (63)
SI:	Safety Injection
SUR:	Surface Examination
SFPC:	Spent Fuel Pit Cooling (System 84)
SS:	Stainless Steel
SXI:	Section XI, Rules for Inservice Inspection
Tee:	Tee
TK:	Thickness
Tech. Spec:	Technical Specification
TRM:	Technical Requirements Manual
TVA	Tennessee Valley Authority
UFSAR:	Updated Final Safety Analysis Report
UHIS:	Upper Head Injection System (87)
UT:	Ultrasonic Examination
VCT:	Volume Control Tank
VOL:	Volumetric Examination
VT:	Visual Examination
VT-1:	Visual Examination for Detection of Surface Conditions
VT-2:	Visual Examination for Evidence of Leakage
VT-3:	Visual Examination for General Mechanical and Structural Condition
V-E:	Visual Examination (VT-2 Augmented Type)

WDS: Waste Disposal System (77)

WBN: Watts Bar Nuclear

W: Welds

Attachment 1

Transition from EPRI Material Reliability Program MRP-139 Rev 1 And NRC Bulletin 2004-01
To ASME Code Case N-770-1
During Nuclear Construction Phase of Watts Bar Unit 2

To properly categorize and inspect the Unit 2 RCS dissimilar-metal (DM) butt welds, the WBN-2 PSI staff utilized the EPRI Material Reliability Program MRP-139 (applicable only to Unit 1 Reactor inlet and outlet nozzles and Pressurizer nozzles), along with NRC Bulletin 2004-01 (applicable to both Unit 1 and 2 Pressurizers), to identify welds containing Alloy 600/82/182 materials (non-ferrous, high-nickel, high-chromium welds) that could potentially be susceptible to Primary Water Stress Corrosion Cracking (PWSCC) during the future commercial operation of Unit 2.

The DM welds identified are the 8 Reactor Pressure Vessel (RPV) Nozzle-to-Safe-End welds (per MRP-139 Rev 1), the 6 Pressurizer Nozzle-to-Safe-End welds (per NRC Bulletin 2004-01), and the 4 capped RPV Upper Head Injection DM nozzle-to-pipe welds (UPIAH 4A-D), and the 4 UPIAH RPV-to-nozzle welds (UPIAH 2/3A-D, which are not Safe-End welds per MRP-139 Rev 1).

All 14 of the Safe-End welds (RPV inlet and outlet nozzles and the Pressurizer nozzles) were mitigated in 2010 using the Mechanical Stress Improvement Process (MSIP), in which the welds were mechanically squeezed or compressed using steel clamps and hydraulic equipment in order to change the residual stress profile in the welds to a compressive state so that the welds do not crack during plant operation. Unit 2 has not, as yet, been subjected to the hot, pressurized conditions associated with commercial operation. For the application of MSIP of the 8 RPV Nozzle-to-SE Welds, refer to Work Order 111350955. For the application of MSIP of the 6 Pressurizer Nozzle-to-SE Welds, refer to Work Order 09-954268-000. The 8 UPIAH welds were not subjected to MSIP.

All of the 8 RPV Nozzle-to-SE welds were volumetrically (ultrasonically) inspected, using Appendix VIII procedures, after the application of the MSIP. These welds also received an Eddy Current examination on the inside surface. The 6 Pressurizer Nozzle-to-SE welds received a volumetric ultrasonic test (UT) examination per Appendix VIII and a dye penetrant test (PT) examination before and after application of MSIP. No cracking was identified in any of the 14 welds. The 4 capped RPV Upper Head Injection DM nozzle-to-pipe welds (UPIAH 4A-D) received a manual volumetric ultrasonic test (UT) examination from the OD per Appendix VIII and a dye penetrant test (PT) examination from the OD, both manual exams by TVA personnel. The 4 UPIAH RPV Head-to-nozzle welds (UPIAH 2/3A-D) received an automated UT from the ID by AREVA and a manual dye penetrant (PT) examination from the OD by TVA personnel. AREVA referred to these weld as "the AHA welds". This is typical for 4 locations. No cracking was identified in any of the 8 welds.

In the future, during plant operation, the 14 Safe-End welds will be inspected per ASME Section XI and Code Case N-770-1 Table 1 as Category D welds (Uncracked and Mitigated with Stress

Improvement). Also, in the future, during plant operation, the 4 capped RPV Upper Head Injection DM nozzle-to-pipe welds will be inspected per ASME Section XI and Code Case N-770-1 Table 1 as Category B welds (Unmitigated Butt Weld at Cold Leg operating temperature >/= 525F and < 580F) but are not addressed in MRP-139 Rev 1. The examinations performed during the Preservice Inspection (PSI) meet the requirements prescribed in Code Case N-770-1, although Unit 2 PSI is not committed to the Code Case. The PSI serves as the baseline examinations for future Code Case N-770-1 inspections to be performed after Unit 2 enters commercial operation. The examinations performed as PSI comply with Code Case N-770-1 Figure 1, Notes 1, 4, 12, and 13. The other figures and notes do not apply to WBN Unit 2. Note that under MRP-139 Rev 1, Tables 6-1 and 6-2, the 14 Safe-End welds would be classified as Category C (Non-resistant Material, Mitigated with Stress Improvement, Inspected, and Uncracked). The 4 UPIAH 2/3A-D welds are not included in the scope addressed in this paragraph. The future ISI Program Plan for the 1st 10-Year Interval of commercial operation will incorporate the examination schedule for the 18 above-mentioned welds.

For a comparison of the Inservice Inspection categories and schedule of future ISI examinations for commercial operation contained in MRP-139 Rev 1 and Code Case N-770-1, see Attachment 2 titled "Comparison of MRP-139 Rev 1 and Code Case N-770-1, RCS Welds Susceptible to PWSCC (Primary Water Stress Corrosion Cracking), Watts Bar Unit 2 Preservice Inspection (PSI)".

The NPG Business Practice, BP-257, Integrated Materials Issues Management Plan, will be revised to address WBN-2 when Unit 2 goes into Commercial Operation.

The NPG Common Technical Procedure, NETP-113, PWR Alloy 600 Program and Other Augmented Inspection Requirements, may be revised, if needed, to address WBN-2 when Unit 2 goes into Commercial Operation.

The RCS butt welds on the Steam Generator Nozzle-to-Safe-End welds do not contain Alloy 600/82/182 materials in contact with primary water and therefore are not susceptible to Primary Water Stress Corrosion Cracking (PWSCC). MRP-139 Rev 1 addresses these SG Nozzle-to-SE welds as Category A, Resistant Materials, and does not prescribe any additional ISI examinations beyond those contained in ASME Code Section XI. ASME Code Case N-770-1 only addresses welds that are susceptible to PWSCC and is therefore not applicable to these SG Nozzle-to-SE welds.

The Control Rod Drive Mechanism welds, which do contain Alloy 600 material, are ASME Code Category B-O, "Pressure Retaining Welds in Control Rod Housings", and are not addressed by ASME Code Case N-770-1, which only addresses Category B-J and B-F welds. These CRD weld are produced during the shop fabrication of the RPV Head and receive a final machining on the inside diameter and outside diameter. These welds have not had a history of failures during operation. These B-O welds are examined per ASME Code requirements.

Attachment 2

Comparison of MRP-139 Rev 1 and Code Case N-770-1
RCS (Code Category B-F & B-J) Welds Susceptible to PWSCC
(Primary Water Stress Corrosion Cracking)
Watts Bar Unit 2 Preservice Inspection (PSI)

MRP-139 Category / Description	ASME CC N-770-1 Inspection Item / Description	MRP-139 Exam Requirements	N-770-1 Exam Requirements	Remarks
A Resistant Materials	**N/A**	Existing Code Examination Program or Approved Alternative	**N/A**	Steam Generator Nozzle-to-SE Welds are NOT susceptible to PWSCC. [Note 4]
B Non-resistant Material. Reinforced by full structural or optimized weld Overlay Inspected Uncracked	**C** Uncracked Reinforced by full structural Overlay	Existing Code Examination Program or Approved Alternative	Volumetric: Population to be sampled at 25% per 10-year Interval	*N/A to WBN-2.*
C Non-Resistant Material Mitigated by SI Inspected Uncracked	**D** Uncracked butt weld Mitigated with Stress Improvement (SI) [Note 1]	50% of each mitigation type within next 6 years: if no indication, continue with existing Code examination program or approved alternative.	Examine (UT) all welds no sooner than the 3rd refueling outage and no later than 10 years following SI application, 1st Interval. In 2nd Interval, 25% of uncracked welds shall be added to the ISI Program (-2410) and examined once each inspection Interval. [Note 6]	*Applicable to WBN-2.* 8 RPV Nozzle-to-SE Welds (4 Cl & 4 HL) and 6 Pressurizer Nozzle-to-SE Welds are susceptible to PWSCC and have been examined for PSI. [Notes 2 & 3]. Already required to UT & PT by Code Cat B-F at B-D frequency.

MRP-139 Category / Description	ASME CC N-770-1 Inspection Item / Description	MRP-139 Exam Requirements	N-770-1 Exam Requirements	Remarks
D Non-resistant Material. No SI. Pressurizer & Hot Leg. ≥ 2" and MU/HPI. Inspected. Uncracked.	**A-1** Unmitigated butt weld at HL operating temp > 625°F **A-2** Unmitigated butt weld at HL operating temp ≤ 625°F	100% per period, but no longer than 5 years between exams for PZR locations (including Surge line nozzle welds) 100% every 5 years for Hot Leg location (including Surge line nozzle welds near Hot Leg and the dual use line MU/HPI nozzle weld)	Visual: Each refueling outage Volumetric: Every second refueling outage	*N/A to WBN-2.*
E Non-resistant Material No SI Cold Leg ≥ 4" or with ECCS function. Inspected. Uncracked. (N/A to UHI welds)	**B** **Unmitigated butt weld at Cold Leg operating temp ≥ 525°F and <580°F**	**100% every 6 years**	**Visual (VE): Once per Interval Volumetric (UT): Every second inspection period not to exceed 7 years**	***Applicable to WBN-2.*** **8 Upper Head Injection welds on capped penetrations (~5" NPS) are susceptible to PWSCC and have been examined for PSI.** **[Notes 5 & 7]**
F Non-resistant Material Inspected Cracked Reinforced by full structural or optimized weld overlay	**F** Cracked butt weld reinforced by full structural weld overlay of Alloy 52/152 material	Once in next 5 years; if no additional indications/growth, continue with existing Code examination program for unflawed condition or approved alternative	Inspect once during the first or second refueling outage following overlay. If no indications, population sample at 25%.	*N/A to WBN-2.*
G Non-resistant Material Inspected. Cracked. Mitigated by SI.	**E** Cracked butt weld mitigated with Stress Improvement (SI)	100% at 2 RFO intervals. If no additional indications/growth with the 2nd exam (4th RFO), continue with existing Code examination program for unflawed condition or approved alternative	Volumetric: Once during the first or second refueling outage following application of SI. If no indication of growth, population sample at 25% per Interval.	*N/A to WBN-2.*

MRP-139 Category / Description	ASME CC N-770-1 Inspection Item / Description	MRP-139 Exam Requirements	N-770-1 Exam Requirements	Remarks
H Non-resistant Material Pressurizer & Hot Leg Exam does not meet requirements of Fig 5-1 Item 6 Configuration not addressed in Appendix VIII Not inspected Unknown crack status	The Unknown Crack Status is not addressed by N-770-1, but Category **A-1 or A-2** could be applied.	Frequency defined in Table 6-1 of MRP-139 for Category D to the extent possible. Additional interim requirements as defined in Section 5.1.7 of MRP-139.	The Unknown Crack Status is not addressed by N-770-1, but Category A-1 or A-2 could be applied.	*N/A to WBN-2.*
I Non-resistant Material Cold Leg Exam does not meet requirements of Fig 5-1 Item 6 Configuration not addressed in Appendix VIII Not inspected Unknown crack status	The Unknown Crack Status is not addressed by N-770-1, but Category **A-1 or A-2** could be applied.	Frequency defined in Table 6-1 of MRP-139 for Category E to the extent possible. Additional interim requirements as defined in Section 5.1.7 of MRP-139.	The Unknown Crack Status is not addressed by N-770-1, but Category A-1 or A-2 could be applied.	*N/A to WBN-2.*
J Non-resistant Material Pressurizer and Hot Leg	**N/A**	In the outages when volumetric exams are not being performed, visual examination every RFO as defined in Section 5.2.1 of MRP-139 R1, or until mitigated or replace.	**N/A** (Visual exams are addressed in Category D above)	*N/A to WBN-2.*

MRP-139 Category / Description	ASME CC N-770-1 Inspection Item / Description	MRP-139 Exam Requirements	N-770-1 Exam Requirements	Remarks
K Non-resistant Material Cold Leg	**N/A**	Visual examination as defined in Section 5.2.1 of MRP-139 R1 at least once every 3 RFOs or until mitigated or replaced. Analysis may be used as basis for visual exam every Interval, after meeting Category E. In RFOs that UT is performed, a visual exam is credited.	**N/A** (Visual exams are addressed in Category E above)	*N/A to WBN-2.*
N/A	**G** Uncracked butt weld mitigated with an Inlay	**N/A**	Perform a volumetric exam and a surface exam of all welds no sooner than the third refueling outage and no later than the shorter of 10 years following inlay or the design life of the inlay	*N/A to WBN-2.*
N/A	**H** Uncracked butt weld mitigated with an Onlay	**N/A**	Perform a volumetric exam and a surface exam of all welds no sooner than the third refueling outage and no later than the shorter of 10 years following inlay or the design life of the inlay	*N/A to WBN-2.*
N/A	**J** Cracked butt weld mitigated with an Inlay	**N/A**	Once during the first or second refueling outage following application of inlay. This exam shall include a volumetric exam and a surface exam.	*N/A to WBN-2.*
N/A	**K** Cracked butt weld mitigated with an Onlay	**N/A**	Once during the first or second refueling outage following application of inlay. This exam shall include a volumetric exam and a surface exam.	*N/A to WBN-2.*

Note 1: The Stress Improvement technique utilized at WBN Unit 2 is Mechanical Stress Improvement Process (MSIP). MSIP was performed on the 8 RPV Nozzle-to-SE welds and the 6 Pressurizer Nozzle-to-SE welds in the year 2010.

Note 2: The PSI examinations performed on the 8 RPV Nozzle-to-SE welds, after the application of MSIP, consisted of Volumetric (UT) examination as specified in MRP-139 and ASME Code Case N-770-1, although WBN Unit 2 is not committed to Code Case N-770-1 for Preservice Inspection. A Voluntary Surface (Eddy Current) examination was also performed on the inside surface of all the welds. A Surface (Dye Penetrant) examination was performed on the outside surface of each of the 8 welds. All 8 RPV Nozzle-to-SE welds were demonstrated to be acceptable by the various NDE methods. The PSI examinations serve as baseline examinations for the application of ASME Code Case N-770-1 during the First 10-Year Interval of ISI.

Note 3: The PSI examinations performed on the 6 Pressurizer Nozzle-to-SE welds, before and after the application of MSIP, included Volumetric (UT) and Surface (Dye Penetrant) performed on the outside surface as specified in NRC Bulletin 2004-01 and the ASME Code Section XI 2001 Edition with Addenda thru 2003. All 6 Pressurizer Nozzle-to-SE welds were demonstrated to be acceptable by the NDE methods. The PSI exams performed per ASME Code Section XI and NRC Bulletin 2004-01 serve as baseline examinations for the application of ASME Code Case N-770-1 during the First 10-Year Interval of ISI.

Note 4: The Steam Generator Nozzle-to-SE Welds do not contain Alloy 600/82/182 materials in contact with primary water and therefore are not susceptible to Primary Water Stress Corrosion Cracking (PWSCC).

Note 5: The PSI examinations performed on the 4 Upper Head Injection Auxiliary Head Adaptor (UPIAH) lines include 8 welds. There are 4 Inconel welds (UPIAH 4A-D) which join the Inconel nozzle to the 5" NPS stainless steel pipe. These 4 welds were examined by UT and PT, both from the OD, by TVA personnel.
The RPV Head-to-nozzle welds (UPIAH 2/3A-D, and referred to as "the AHA welds") were examined by AREVA with UT from the ID. The OD was examined with PT by TVA personnel. The 4 AHA welds do not contain a true Safe-End but do contain "buttering", which is a layer of weld material made of Alloy 600, and an Inconel weld.
These 8 welds did not receive MSIP.

Note 6: The Extent and Frequency of Examination, along with Note 11(b)(2), in ASME Code Case N-770-1 have been modified by 10CFR50.55.a(g)(6)(ii)(F)(9). This table includes those additional NRC requirements.

Note 7: The RPV Upper Head temperature is assumed to be the same as WBN Unit 1, which is 557 degrees F.

Note 8: The Control Rod Drive Mechanism welds, which do contain Alloy 600 material, are ASME Code Category B-O, "Pressure Retaining Welds in Control Rod Housings", and are not addressed by ASME Code Case N-770-1, which only addresses Category B-J and B-F welds. These CRD weld are produced during the shop fabrication of the RPV Head and receive a final machining on the inside diameter and outside diameter. These welds have not had a history of failures during operation. These B-O welds are examined per ASME Code requirements.