WATTS BAR NUCLEAR PLANT	SITE DIRECTOR PROCEDURE	☒ Safety-Related	☐ Non-Safety-Related
2 UNIT	TI-50B / 11 Document Number / Revision	☒ Quality-Related	☐ Non-Quality-Related
		☒ PORC Reviewed	☐ Non-PORC Reviewed
TENNESSEE VALLEY AUTHORITY		☐ Validated	☐ Not Validated

TITLE: ASME SECTION XI PRESERVICE INSPECTION PROGRAM

Effective Date:

VALIDATION

Validation Method(s):

Checkout: _____ Signature / Date

Scope: ☐ Entire Procedure ☐ Changes Only

Validation: _____ Signature / Date

WRITTEN BY: Kevin E. Casey | Kevin E. Casey | NDE Section XI Prog | 9/20/89
Signature | Name | Organization | Date

DISCIPLINE	QUALIFIED REVIEWER SIGNATURE	DATE	DISCIPLINE	QUALIFIED REVIEWER SIGNATURE	DATE
ADMIN	C.M. Ray	9/20/89			
QA	Don Crowley	9/20/89			

CONCURRENCE SIGNATURES	DATE	CONCURRENCE SIGNATURES	DATE
☐ ANI/ANII		☒ Mary Anne Koltowich Manager, WBN Procedures	9/20/89
☐ Chief, Training Branch		☒ Plant Manager	
☐ Manager, Construction (NC)		☒ J W Self Sponsor (Responsible Supv)	9-22-89
☐ Manager of Projects		☐ Supervisor, PC&BS Staff	
☐ Manager, Project Eng (NE)		☐	
☐ Manager, Site Licensing		☐	
☒ Keith Greene for Manager, Site Quality (SQA)	9/22/89	☐	
☐ Manager, Technical Services		☐	
☐ Manager, Site Services		☐	

PORC Meeting: 2-89 Number 9/22/89 Date _____ Signature, PORC Chairman

Approved By: D. C. Crouch for Signature, Site Director 9/29/89 Date

[LAST PAGE OF THIS PROCEDURE: 266]

3994A

9005070260 900430
PDR ADOCK 05000390
Q PDC

PUNCHLIST

1. Section 6.1.3, Section 6.1.11, and Drawing CHM-2685-B will be revised upon completion of Upper Head Injection system removal and receipt of weld maps showing as-constructed configuration of the Auxiliary Head Adapters.

REVISION LOG

REVISION NUMBER	EFFECTIVE DATE	PAGES AFFECTED	DESCRIPTION OF REVISION
11	9/29/89	All	TWO-YEAR REVIEW for technical adequacy only. Incorporated ICF 89-097; deleted references and drawings to UHI due to system removal; revised Section 8.0, Class 3 examination requirements, removed Class 3 drawings and support tables; organizational changes. Revised punchlist. Conversion to Wang system.

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

Preservice Inspection Program

Cover Sheet

Owner: Tennessee Valley Authority

Address of Corporate Office: Tennessee Valley Authority
Office of Nuclear Power
6N38A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Name and Address of Nuclear Power Plant: Watts Bar Nuclear Plant
P. O. Box 800
Spring City, Tennessee 37381

Applicable Nuclear Power Units: Watts Bar Nuclear Plant, Unit 2

1.0 STATEMENT OF APPLICABILITY

This Technical Instruction supersedes Surveillance Instruction 4.4.10.1.

This program outlines details for performing the preservice nondestructive examinations of the Watts Bar Nuclear Plant ASME Code Class 1, 2, and 3 components (and their supports) containing water, steam, or radioactive material (other than radioactive waste management systems). The program has been organized to comply as practical with the preservice examination requirements of Section XI of the ASME Boiler and Pressure Vessel Code and will be conducted in accordance with the Nuclear Quality Assurance Manual, Part II, Section 5.1.

The requirements of ASME Section XI are in effect when the requirements of ASME Section III have been satisfied. Criteria for determining that ASME Section III requirements have been satisfied are as follows:

Item	When ASME Section III Requirements are Satisfied
Pressure Vessels and Pumps	When "N" stamped
Valves	When "N" stamped
Piping System	When the hydrostatic pressure test is complete, N-5 data form is completed, piping system "N" stamped or partial piping assemblies "NA" stamped.

Specifics concerning performance of nondestructive examinations are not a part of this program, but are included in nondestructive examination procedures (Quality Methods Procedure (QMP) 110.5 or Program Procedure 1502.07 and AI-9.7).

2.0 PURPOSE

The Preservice Inspection Program (hereinafter PSI) is preliminary in nature and is employed to obtain detailed information for inclusion in the Inservice Inspection Program. The examinations required by this program will establish acceptance of components for service.

The PSI Program serves as a means of determining built-in limitations caused by original plant design, geometry, materials of construction of the components, and the current technology or state-of-art of nondestructive testing. The PSI Program will also permit verification of the examination methods selected, finalization of detailed procedures, and will establish preservice examination data to be used as a reference for later inservice examinations.

3.0 CODES OF RECORD AND CODE CASES

The code of record in effect six months prior to the date of issue of the Construction Permit was 1971 Edition, Winter 1971 Addenda of Section XI.

This program was prepared to meet the requirements of the 1974 Edition, Summer 1975 Addenda of Section XI of the ASME Boiler and Pressure Vessel Code.

Procedures for eddy current examination of heat exchanger tubing, which the Summer 1975 Addenda of ASME Section XI has no provisions for, meets the requirements of the 1974 Edition, Summer 1976 Addenda of ASME Section XI. Steam generator tubing examination requirements are in accordance with a modification of Regulatory Guide 1.83, Revision 1.

The following categories shall be in accordance with the 1977 Edition, Summer 1978 Addenda of Section XI:

(1) Class 2 pressure-retaining bolting.

(2) Class 2 valve body weld examinations

(3) Component support integrally welded attachment examinations for piping, pumps, valves and pressure vessels.

(4) Component support examinations for piping, pumps and valves.

(5) Interior clad surfaces of reactor vessels and other vessels examination are not required.

(6) Reactor vessel interior and core support structure examinations.

(7) Parts examined, examination requirements figure number, examination techniques and acceptance standards in accordance with Table IWB-2500-1 for examination categories B-F (except item No. B5.10 - reactor vessel nozzle-to-safe end welds) and B-J, and Table IWC-2500-1 for examination category C-F. Ultrasonic examination techniques in accordance with IWA-2232 (b) and (c) and ultrasonic evaluation standards IWA-3000. (See Request for Relief ISI-1 and ISI-2).

The repair and replacement program is in accordance with plant instruction AI-9.15 and Program Procedure 1402.02.

TVA will use code cases N-234, N-235, N-307-1, N-308, N-401 and N-416 which have been approved for TVA use by NRC in accordance with Regulatory Guide 1.147, as outlined in the applicable NDE Procedure. Code case N-341 and N-356 were authorized for TVA use by NRC on the letter from G. G. Zech to S. A. White dated January 25, 1988.

TVA will utilize Regulatory Guide 1.150 Rev. 1, "Ultrasonic Testing of Reactor Vessel Welds During Preservice and Inservice Examination" for its examinations, as outlined in the NDE Procedures.

4.0 METHOD OF IMPLEMENTATION AND RESPONSIBILITIES

Preliminary weld maps and other pertinent component drawings and tables are included in Appendix A of this program to define areas subject to examination (in addition to sections 5.0, 6.0, 7.0, and 8.0). The preliminary piping weld maps should be established by NDE Section XI Programs from Nuclear Construction's latest revision weld maps.

Prior to performance of the examinations, each system should be walked down by NDE Section XI Programs to verify that the NDE Section XI Programs drawings depict field configurations. Any drawing revisions that are necessary as a result of the walkdown will be made before the drawings are included in this program. Also each component drawing shall be reviewed by the responsible NDE Section XI Programs engineer to ensure that the appropriate information is included on the drawing and shall be approved by the NDE Section XI Programs supervisor.

Nuclear Quality Assurance (NQA) shall prepare scan plans using component listings supplied by NDE Section XI Programs using component drawings for systems or components requiring examinations. The plans shall include as a minimum references to specific welds or components supports to be examined, ASME Code Category, component drawing number, Non-Destructive Examination (NDE) procedures to be used, and calibration block number.

Prior to performing examinations on a system or component, the scan plans shall be approved by NDE Level III individual from NQA and made available by NQA to the Plant Manager for information. System and component weld maps are incorporated in Appendix A of this program.

NQA shall notify the Authorized Inspection Agency (AIA) reasonably in advance of when components are scheduled for examination. If variations in piping configurations are discovered or modifications or repairs to piping are made during the course of the PSI, these changes shall be marked on field copies of drawings. This information shall be communicated to NDE Section XI Programs, utilizing the Appendix F form, which shall be responsible for revising the original drawings. The NQA scan plan shall also be revised to reflect these changes. Following completion of each system examination, the revised drawings shall be incorporated into this program as a reference for inservice inspections.

The preservice examinations will be performed by personnel from either QA Personnel or outside contractors. Contract preparation, administration, and supervision will be the responsibility of the NQA. Inspection plans submitted by outside contractors shall be reviewed and approved by NQA prior to use. NQA verifies the adequacy of prospective contractor quality assurance programs prior to contract award. All specific NDE procedures used during the inspection program shall be

prepared, reviewed, qualified in accordance with NQAM, Part II, Section 6.3, and controlled in accordance with NQAM, Part III, Section 1.1.

Certain ASME Section III examinations performed in-shop and/or by Nuclear Construction will be identified by NDE Section XI Programs and employed to serve for the ASME Section XI PSI. When in-shop examination records are employed, the examination data sheets and the applicable data package form, with the ANI sign-off, shall be obtained by NDE Section XI Programs. When Nuclear Construction examination records are employed, Nuclear Construction examination procedures shall be obtained by NQA for reference (excluding pressure test procedures), and a random sample review of records shall be done by NQA.

If it is necessary to use Construction radiographs for ASME Section XI examinations or for information, these radiographs must be carefully reviewed to insure that the radiograph matches the weld in question.

Additionally, the Site Quality Organization (SQO) will be responsible for notifying the Plant Manager of all unacceptable indications found during preservice inspections as soon as practical. This does not include preservice examinations following repair and replacements Whenever an unacceptable indication is discovered, this procedure (Section 16.0) and the Notification of Indication (NOI) form in Appendix C shall be utilized. In those cases where an outside contractor is furnishing preservice examination services, the contractor will normally initiate the form in Appendix C under the supervision of the SQO representative. See section 16.0 of this program.

Computer monitor programs are used to identify any welds or supports that have been reworked by Nuclear Construction after the preservice examination has been done. The Plant shall include provisions for notifying SQO in any work instruction written to modify or rework welds or supports after the preservice examination has been done.

NQA shall maintain the status of completed examinations for each weld or component support required to be examined. Individual component status is kept by transferring all the information from the scan plan to a master plan, as examinations are performed they are recorded in the master plan for status.

As sections are completed, the SQO representative shall sign for completion the appropriate sections of Data Sheet 1 in Appendix B of this program. When all examinations of this program have been completed, Data Sheet 1 shall be signed for completion by the SQO representative, reviewed by the NDE Section XI Programs Representative and approved by the Site Quality Manager. In the event system or component alterations or repairs are made which require component reexamination, or components are reexamined for other reasons, (new NDE techniques, augment examinations required by NRC, etc.) following sign-off of Data Sheet 1, the appropriate sections of Data Sheet 2 in Appendix B shall be completed and signed by the SQO representative, reviewed by the NDE Section XI Programs Representativeand approved by the Site Quality Manager.

All preservice examinations shall be completed prior to initial plant startup (Operational Mode 2). Prior to initial plant startup, Data Sheet 2, in addition to Data Sheet 1, in Appendix B shall be signed. After the data sheets 1 and 2 have been approved, the data package cover sheet shall be signed by the Site Quality Manager. These data sheets shall be filed at the plant site with PSI examination data and final reports discussed in Section 15.0 of this program.

PSI program preparation is the responsibility of NDE Section XI Programs. Any revisions initiated by other groups shall be submitted to NDE Section XI Programs for approval prior to incorporating the revisions into this program.

5.0 ABBREVIATIONS AND DEFINITIONS

5.1 AIA - Authorized Inspection Agency

5.2 AI - Authorized Inspector (may denote an ANI or ANII)

5.3 ANI - Authorized Nuclear Inspector

5.4 ANII - Authorized Nuclear Inservice Inspector

5.5 Components - Denotes items in a power plant such as vessels, piping systems, pumps, valves, and component supports.

5.6 Examination - Denotes the performance of all visual observation and nondestructive examination.

5.7 NOI - Notification of Indication

5.8 CAQ - Condition Adverse to Quality

5.9 CAQR - Condition Adverse to Quality Report

5.10 USQD - Unreviewed Safety Question Determination

5.11 NQAM - Nuclear Quality Assurance Manual

5.12 DCR - Design Change Request

5.13 MR - Maintenance Request

5.14 WR - Work Request

5.15 In-service Inspection (ISI)-Inspections required by ASME Section XI to be completed during each of the inspection intervals for the service lifetime of the power unit. These inspections include NDE, system pressure tests, and pump and valve tests.

5.16 Preservice Inspection (PSI)-Inspections required by ASME Section XI to be completed prior to initial plant startup, or inspections required by ASME Section XI if a component is replaced, added, or altered during the service lifetime of a power unti. These inspections include NDE, system pressure tests, and pump and valve tests.

5.17 Inspection - Denotes verifying the performance of examinations and tests by an Inspector representing an Authorized Inspection Agency.

5.18 Maintenance - Routine servicing or work on an item undertaken to correct or prevent an unsatisfactory condition. Maintenance does not include welding, heat treatment, or defect removal which affects the pressure boundary. Maintenance includes operations such as lapping of seats, adjustment of stem packing, pump seal maintenance. Maintenance does not require the presence of or verification by the Authorized Nuclear Inspector or Authorized Nuclear Inservice Inspector.

5.19 Normal Operation - Normal plant operation conditions include reactor startup, operation at power, hot standby, and reactor cooldown to cold shutdown conditions. Test conditions are excluded.

5.20 Pressure-Retaining Material - Applies to items such as vessel heads, nozzles, pipes, tubes, fittings, valve bodies, bonnets, disks, pump castings, covers, and boltings which join pressure-retaining items.

5.21 Repair - Those operations involving welding, heat treatment, or defect removal which are required to restore an item to a safe and satisfactory operating condition.

5.22 Replacement - Spare and renewal components or pressure retaining parts of a component (e.g., valve body bonnet, disc, bolting). It also includes the addition of components such as valves, and system changes such as rerouting of piping. For the purpose of this procedure, the term replacement shall apply where attachment to the pressure boundary is by welding or mechanical means. It does not include the addition of complete systems.

5.23 Nondestructive Examination (NDE)- Methods used for the detection and evaluation of discontinuities and the measurement of physical dimensions and properties of items. These methods include radiography, ultrasonic, eddy current, liquid penetrant, magnetic particle, and visual. These methods do not impair the serviceability of the items.

6.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 1

The ASME Class 1 (TVA Safety Class A) components to be examined for the PSI are outlined in the following paragraphs. The entire length of each weld described will be examined for the PSI.

All Class 1 components are subject to volumetric and/or surface examination except component connections, piping, and associated valves (and their supports) that are one-inch nominal pipe size and smaller (see section 6.7). Class 1 vessels shall not be examined prior to shop or field hydrostatic tests.

When examinations have been completed on the various components, the data sheet(s) in Appendix B shall be completed.

Table A in Appendix A supplies additional information such as reference drawing numbers and Section XI, Table IWB-2600, examination categories.

6.1 Reactor Vessel

6.1.1 Reactor Vessel Seam Weld

6.1.1.1 Circumferential Shell Weld - Beltline Region

There is one circumferential weld in the vessel cylinderical shell located behind the neutron shield pads. This weld will be ultrasonically examined using remote inspection devices from the vessel I.D. with the core internals removed. The vessel shell sections are machined forgings fabricated of SA-508, Class 2, manganese-molyedenum steel and are clad with weld deposited austenitic stainless steel.

There are no base metal repair welds in the beltline region where repair depth exceeds 10 percent nominal of vessel wall.

6.1.1.2 Circumferential Shell Welds

There are three circumferential welds in the vessel cylinderical shell located outside of the belt-line region. These welds will be ultrasonically examined using remote inspection devices from the vessel I.D. with the core internals removed.

The vessel shell section material is identified in section 6.1.1.1.

6.1.1.3 Lower Head Welds

There are six meridional welds and one circumferential weld in the lower head. The welds will be ultrasonically examined using remote inspection devices from the vessel I.D. with the core internals removed.

Base metal below the lower head circumferential weld (weld No. WOI-02) is inaccessible for examination from the vessel I.D. due to instrumentation penetrations. A manual ultrasonic examination of this area will be conducted from the vessel O.D. (see Request for Relief ISI-4).

The bottom head sections are fabricated of SA-533, Gr. B, Class 1, manganese-molybedenum steel, and are clad with weld deposited austenitic stainless steel.

6.1.1.4 Closure Head Circumferental Weld

The head cap weld will be manually ultrasonically examined from the head O.D. The closure head does not include any meridional welds.

The closure head ring is fabricated of SA-508, Class 2, manganese-molybedenum steel. The closure head hemispherical section is fabricated of SA-533, Gr. B, Class 1, manganese-molybedenum steel. Both sections are clad with weld deposited austenitic stainless steel.

6.1.1.5 Vessel-To-Flange And Head-To-Flange Weld

The vessel-to-flange weld will be ultrasonically examined from the vessel I.D. with remote inspection devices. The head-to-flange weld will be manually ultrasonically examined from the head O.D.

The vessel and closure head flange sections are fabricated of SA-508, Class 2, manganese-molybedenum steel and are clad internally and on the gasket face with weld deposited austenitic stainless steel

6.1.2 Reactor Vessel Nozzle-To-Vessel Welds And Inside Radiuses Sections

There are four inlet nozzles (27.441 inch I.D.) and four outlet nozzles (28.937 inch I.D.). The nozzle-to-vessel

welds and nozzle inside radiused sections (including outlet nozzle integral extensions) will be ultrasonically examined from the I.D. using remote inspection devices.

The nozzle forgings are fabricated of SA-508, Class 2, manganese-molybedenum steel and are clad with weld deposited austenitic stainless steel.

6.1.3 Reactor Vessel Penetrations And Attachments

The 78 control rod drives, 4 upper head injection, 1 vent pipe, and 58 instrumentation penetrations shall be visually examined by Nuclear Construction for leakage during the ASME Section III hydrostatic pressure test.

6.1.4 Reactor Vessel Nozzle-To-Safe End Welds

The nozzle-to-safe end welds shall be ultrasonically examined from the I.D. using remote inspection devices. In addition, these welds will be liquid penetrant examined (from O.D.).

The nozzle ends include a buttered safe-end of 309 and 308L and are extended with a stainless steel ring of SA-182, TP 304.

6.1.5 Reactor Vessel Pressure Retaining Bolting Larger Than 2 Inches in Diameter

All 54 of the vessel closure studs shall be ultrasonically and magnetic particle examined. The closure studs may be ultrasonically examined in place under tension, when the closure head is removed, or when the studs are removed.

The closure nuts shall be magnetic particle examined. The vessel flange ligaments (54) between threaded stud holes shall be ultrasonically examined. This examination is to be done manually. Threads in the base material do not require examination.

The 54 concave washers shall be visually examined.

Studs, nuts, and washers are fabricated of SA-540, GR.B24, nickle-chrome-molybedenum steel with a manganese-phosphate surface treatment.

6.1.6 Reactor Vessel Pressure Retaining Bolting 2 Inches and Smaller in Diameter

There is no pressure retaining bolting 2 inches and smaller in diameter.

6. .7 Integrally-Welded Reactor Vessel Supports

There are no integrally-welded vessel supports. The vessel is supported by four support pads located on the bottom of two outlet nozzles and two inlet nozzles.

6.1.8 Reactor Vessel And Closure Head Cladding

There are six clad patches (36 square inches each) in the vessel cladding and six clad patches (36 square inches each) in the closure head cladding. In accordance with the 1977 Edition, 1978 Summer Addenda of Section XI. No examination is required.

Reactor vessel and closure head cladding is of weld deposited austenitic stainless steel.

6.1.9 Reactor Vessel Interior And Removable Core-Support Structures

The space above and below the reactor core that is made accessible for visual examination by the removal of components during normal refueling outages shall be visually examined using visual examination method VT-3.

Visual examination method VT-3 shall also be performed on removable core support structures of the vessel. The examinations shall include 100 percent of the visually accessible attachment welds and visually accessible surfaces of the core support structure. The structures shall be removed from the vessel for these examinations.

6.1.10 Reactor Vessel Control Rod Drive Housings

The pressure-retaining welds in the twenty peripheral control rod drive housings shall be ultrasonically examined.

The housings consist of a 6-inch O.D. adapter of SA-182, TP 304 and a 4-inch O.D. body of SB-167.

6.1.11 Reactor Vessel Auxiliary Head Adapters

The pressure-retaining welds in the four auxiliary head adapters shall be ultrasonically examined. The dissimilar metal welds shall also be liquid penetrant examined. The adapters consist of SA-182, TP 304 stainless steel (upper portion), SB-166 (lower portion), and a weld buildup from the vessel head. The weld buildup is considered an integral part of the vessel head and does not require examination.

6.2 Pressurizer

6.2.1 Pressurizer Longitudinal And Circumferential Welds

There are four longitudinal welds and five circumferential welds in the shell cylinderal region. These welds shall be ultrasonically examined. There are no circumferential or meridional head welds.

All shell and head sections are fabricated of SA-533, Gr. A, Class 2, manganese-molybedenum steel and are clad with austenitic stainless steel.

6.2.2 Pressurizer Nozzle-To-Vessel Welds And Inside Radiused Sections

There are four 6-inch nozzles, one 4-inch nozzle, and one 14-inch nozzle. The nozzle-to-vessel welds and nozzle inside radiused sections will be ultrasonically examined.

The nozzles are fabricated of SA-508, Class 2, manganese-molybdenum steel.

6.2.3 Pressurizer Heater Penetrations

The pressurizer lower head heater penetrations shall be visually examined by Nuclear Construction for leakage during the ASME Section III hydrostatic pressure test.

6.2.4 Pressurizer Nozzle-To-Safe End Welds

Each nozzle includes a welded forging safe end. The nozzle-to-safe end welds shall be ultrasonically and liquid penetrant examined.

Safe-end connections are SA-182, Gr. F-316L forgings.

6.2.5 Pressurizer Pressure Retaining Bolting Larger Than 2 Inches in Diameter

There is no pressure-retaining bolting larger than 2 inches in diameter.

6.2.6 Pressurizer Pressure-Retaining Bolting 2 Inches and Smaller in Diameter

The bolting on the pressurizer manway shall be visually examined. The bolting may be examined either in place under tension or when the bolting is removed.

The manway includes 16 bolts at 1.88 inches in diameter. The bolts are fabricated to SA-193, Gr. B7.

6.2.7 Pressurizer Integrally-Welded Vessel Support

The pressurizer support skirt-to-vessel weld shall be ultrasonically examined.

The support skirt (1.5 inches thick) is fabricated of SA-516, Gr. 70, carbon steel plate.

6.2.8 Pressurizer Cladding

A clad patch (36 square inches) is in the pressurizer interior cladding near the manway. In accordance with the 1977 Edition, 1978 Addenda of Section XI, no examination is required.

Interior cladding is of austenitic stainless steel.

6.3 Steam Generators (4)

6.3.1 Steam Generator Primary Longitudinal And Circumferential Welds

The primary head-to-tube sheet weld on each generator shall be ultrasonically examined. There are no primary longitudinal welds.

The tube plate is a SA-508, Class 2, steel forging, clad on the primary side with NiCrFe alloy (Inconel). The hemispherical chamber is a SA-216, Gr. WCC, casting, clad with austenitic stainless steel.

6.3.2 Steam Generator Primary Nozzle-To-Head Welds And Inside Radiused Sections

There are no steam generator primary nozzle-to-head welds. The steam generator primary nozzles are integrally cast with the hemispherical chamber.

6.3.3 Steam Generator Primary Nozzle-To-Safe End Welds

The steam generator primary nozzle-to-safe end welds shall be ultrasonically and liquid penetrant examined.

The nozzles have buttered 308L safe ends.

6.3.4 Steam Generator Primary Pressure-Retaining Bolting Larger Than 2 Inches In Diameter

There is no pressure-retaining bolting larger than 2 inches in diameter.

6.3.5 Steam Generator Primary Pressure-Retaining Bolting 2 Inches and Smaller in Diameter

The bolting on the manway covers (2) on the primary side of all the generators shall be visually examined. The bolting may be examined either in place under tension or when the bolting is removed.

Each manway has 16 bolts at 1.88 inches in diameter. The bolts are fabricated to SA-193, Gr. B7.

6.3.6 Steam Generator Integrally-Welded Vessel Supports

There are no integrally-welded vessel supports. The four main support pads are secured to the steam generator field support system by high strength bolts.

6.3.7 Steam Generator Vessel Cladding

A clad patch (36 square inches) is in the steam generator interior cladding near each generator manway. In accordance with the 1977 Edition, 1978 Summer Addenda of Section XI, no examination is required.

The hemispherical chamber is clad with austenitic stainless steel.

6.3.8 Steam Generator Tubing

Each steam generator tube bundle consists of 4,674 NiCrFe alloy (Inconel SB-163) U-tubes of 0.750 O.D. by 0.042 average wall thickness.

All tubes shall undergo an augumented preservice inspection by eddy current examination. The preservice examination shall be performed in accordance with Appendix IV of the 1974 Edition, Summer 1976 Addenda of Section XI and Regulatory Guide 1.83, Rev. 1.

6.3.8.1 Acceptance Criteria

6.3.8.1.1 As Used In This Section:

6.3.8.1.1.1 Imperfection means an exception to the dimensions, finish or contour of a tube from that required by fabrication drawings or specifications.

Eddy-current testing indications below 20 percent of the nominal tube wall thickness, if detectable, may be considered as imperfections.

6.3.8.1.1.2 Degradation means a service-induced cracking, wastage, wear, or general corrosion occurring on either inside or outside of a tube.

6.3.8.1.1.3 Degraded Tube means a tube containing imperfections greater than or equal to 20 percent of the nominal wall thickness caused by degradation.

6.3.8.1.1.4 Percent Degradation means the percentage of the tube wall thickness affected or removed by degradation.

6.3.8.1.1.5 Defect means an imperfection of such severity that it exceeds the plugging limit. A tube containing a defect is defective.

6.3.8.1.1.6 Plugging Limit means the imperfection depth at or beyond which the tube shall be removed from service and is equal to 40 percent of the nominal tube wall thickness.

6.3.8.1.1.7 Unserviceable describes the condition of a tube if it leaks or contains a defect large enough to affect its structural integrity in the event of an Operating Basis Earthquake, a loss-of-coolant accident, or a steam line or feedwater line break.

6.3.8.1.1.8 Tube Inspection means an inspection of the steam generator tube from the point of entry (hot leg side) completely around the U-bend to the top support of the cold leg.

6.3.8.1.1.9 Preservice Inspection means an inspection of the full length of each tube in each steam generator performed by eddy current techniques prior to service to establish a baseline condition of the tubing. This inspection shall be performed prior to initial power operation using the equipment and techniques expected to be used during subsequent inservice inspections.

6.3.8.1.2 All defective tubes and tubes containing through-wall cracks shall be plugged.

6.4 Piping

All ASME Class 1 piping systems to be examined are fabricated of stainless steel. The reactor coolant main loop piping straight lengths are centrifugal cast and the elbows are static cast. The upper head injection auxiliary head adapter is included in Section 6.1.11. Specific material specifications for each piping system are included in weld map isometrics in Appendix A. Some examinations cannot be performed (see Request for Relief ISI-2).

The following Class 1 piping systems are subject to examination:

Reactor Coolant
Chemical and Volume Control
Residual Heat Removal
Safety Injection

6.4.1 Circumferential And Longitudinal Pipe Welds

The entire length of each circumferential and longitudinal pipe welds four inches nominal pipe size and greater shall be ultrasonically and surface examined. The entire length of each circumferential and longitudinal pipe weld less than four inches nominal pipe size shall be liquid penetrant examined.

The following circumferential pipe welds will be radiographically examined (later).

6.4.2 Branch Pipe Connection Welds

All branch pipe connection welds exceeding two inches nominal pipe size shall be ultrasonically and liquid

penetrant examined. Each branch pipe connection weld two inches nominal pipe size and smaller shall be liquid penetrant examined.

6.4.3 Piping Socket Welds

Each socket weld shall be liquid penetrant examined as practical. Nuclear Construction examination records will be used for welds done after 12/79. Welds are listed below.

(Later)

6.4.4 Piping Integrally-Welded Supports

All piping integrally-welded external support attachments whose support base material design thickness is 5/8 inch and greater shall be surface examined. Integrally-welded external support attachments include those supports which have attachment welds to the piping pressure-retaining boundary. (See Appendix A, Table G)

6.4.5 Piping Support Components

All piping support components shall be visually examined. This examination includes integrally-welded and nonintegrally-welded support components. The support settings of constant and variable spring type hangers, snubbers, and shock absorbers shall also be verified. (See Appendix A, Table G)

6.4.6 Piping Pressure-Retaining Bolting Larger Than 2 Inches in Diameter

There is no Class 1 piping pressure-retaining bolting larger than 2 inches in diameter.

6.4.7 Piping Pressure-Retaining Bolting 2 Inches and Smaller in Diameter

Class 1 bolting 2 inches and smaller in diameter shall be visually examined. These examinations shall include bolts, studs, and nuts. (See Weld Map Isometrics in Appendix A for location of bolted connections).

The bolting may be examined either in place under tension, when the connection is disassembled, or when the bolting is removed.

6.4.8 Piping Safe-End Welds

There are no piping safe-end welds other than those discussed in Sections 6.1.4, 6.2.4, and 6.3.3.

6.5 Reactor Coolant Pumps (4)-RCP

6.5.1 RCP Pressure-Retaining Bolting Larger Than 2 Inches in Diameter

The main flange on each pump includes 24 bolts at 4-1/2 inches in diameter. The bolts shall be ultrasonically examined and shall be surface examined if removed. Threads in the base material and flange ligaments between threaded stud holes shall be visually examined if the connection is disassembled.

The bolting may be examined either in place under tension, when the connection is disassembled, or when the bolting is removed.

The main flange bolts are fabricated to SA-540, GR B24.

6.5.2 RCP Pressure Retaining Bolting 2 Inches and Smaller in Diameter

The No. 1 seal assembly bolting shall be visually examined.

All bolting may be examined either in place under tension when the connection is disassembled, or when the bolting is removed.

6.5.3 RCP Integrally-Welded Supports

There are no integrally-welded supports associated with the RCP.

6.5.4 RCP Support Components

Each RCP includes three support components bolted to pump feet, which are integrally cast with the pump. Each support component shall be visually examined.

6.5.5 RCP Casing Welds

Each pump includes a two-piece welded type 304SST casing. The casing welds cannot be ultrasonically examined and achieve meaningful results due to limitations of examining integrally cast material. In lieu of this requirement the casing welds shall be surface examined (see Request for Relief ISI-5).

6.5.6 RCP Casings

The internal pressure boundary surfaces of one pump shall be visually examined.

6.5.7 RCP Flywheel

Each RCP flywheel shall undergo a complete ultrasonic examination and shall also be surface examined in accordance with Regulatory Guide 1.14.

Preservice examination is not required by TVA.

The flywheel consists of two plates, approximately 5-inches and 8-inches thick, bolted together. Each plate is fabricated from vacuum degassed A-533, Gr. B, Class 1 steel.

6.6 Valves

6.6.1 Valve Pressure-Retaining Bolting Larger Than 2 Inches in Diameter

There is no Class 1 valve pressure retaining bolting larger than 2 inches in diameter.

6.6.2 Valve Pressure-Retaining Bolting 2 Inches and Smaller in Diameter

Class 1 valve pressure-retaining bolting 2 inches and smaller in diameter shall be visually examined. These examinations shall include bolts, studs, and nuts. (See Appendix A, Table E for valves).

The bolting may be examined either in place under tension, when the connection is disassembled, or when the bolting is removed.

6.6.3 Valve Integrally-Welded Supports

There are no Class 1 valve integrally-welded supports. (See Appendix A, Table E)

6.6.4 Valve Support Components

There are no Class 1 valve support components. (See Appendix A, Table E)

6.6.5 Valve Body Welds

There are no Class 1 valves with body welds.

6.6.6 Valve Bodies

The internal pressure boundary surfaces of one valve in each group of valves of the same constructional design (i.e., globe, gate, check), manufacturing method, and

manufacturer that performs similar functions in the system shall be visually examined. The examinations shall include valves exceeding 4-inch nominal pipe size. (See Appendix A, Table D.)

6.7 Exempted Components

All components exempted from examination in accordance with IWB-1220 of ASME Section XI shall be visually examined for leakage during system hydrostatic pressure tests. See Section 9.0. Components exempted from examination include component connections, piping, and associated valves (and their supports) that are 1-inch nominal pipe size and smaller.

7.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 2

The ASME Class 2 (TVA Safety Class B) components to be examined for the PSI are outlined in the following paragraphs. All components to be examined for inservice inspections during the service life of the plant will be examined for the PSI. Selection of areas for examination will be in accordance with paragraph IWC-2411 and Table IWC-2520 of ASME Section XI. NDE Section XI Programs shall select areas to be examined or the NQA may assist in selecting areas to be examined.

Components that are exempted from examination in accordance with IWC-1220 of ASME Section XI are discussed in Section 7.15 of this program.

Class 2 vessels shall not be examined prior to the field hydrostatic tests.

Where examinations specify a percentage of the total length of weld be examined, the area(s) examined shall be physically marked on the component and documented in the examination report. Where a percentage of weld length is not referenced, the entire weld length shall be examined.

When examinations have been completed on the various components, the data sheet(s) in Appendix B shall be completed.

Table B in Appendix A supplies additional information such as reference drawing numbers and ASME Section XI Table-2520 examination categories.

7.1 Steam Generators (4)

7.1.1 Steam Generator Secondary Circumferential Welds

There are five circumferential shell welds located at structural discontinuities on the secondary side of each steam generator. A total of five welds, all at different locations from the four generators, will be selected for

ultrasonic examination and shall be distributed among the four generators. The examinations shall cover at least twenty percent of each weld selected for examination, uniformly distributed among three areas around the vessel circumference.

One of the five welds selected for examination is partially inaccessible due to the upper steam generator support arrangement (weld nos. SG-4B-5-1, 2, 3, or 4; see Request for Relief ISI-3). The weld selected for examination will be ultrasonically examined on a best effort basis.

The vessel shell and head sections are fabricated of SA-533, Gr. A, Class 2 steel plate.

7.1.2 Steam Generator Secondary Nozzle-To-Vessel Welds

There is one feedwater nozzle (16-inch I.D.), one feedwater by-pass nozzle (6-inch I.D.), and one main steam nozzle (32-inch I.D.) per generator. A total of three nozzle-to-vessel welds from the four generators will be ultrasonically examined and shall be distributed among three of the generators (one feedwater, one feedwater by-pass, and one main steam nozzle).

The nozzles are fabricated of SA-508, Class 2, steel.

7.1.3 Steam Generator Integrally-Welded Supports

There are no integrally-welded vessel supports.

7.1.4 Steam Generator Pressure-Retaining Bolting Exceeding 2 Inches in Diameter

There is no steam generator secondary side bolting larger than two inches in diameter.

7.2 Residual Heat Removal Heat Exchangers (2) - RHRHX

7.2.1 RHRHX Circumferential Welds

There are two circumferential welds located at structural discontinuities on the tube side of each RHRHX. A total of two welds from the two heat exchangers will be selected for ultrasonic examination and shall be distributed among the two RHRHX. The welds selected shall be located at different areas. The examinations shall cover at least twenty percent of each weld selected for examination, uniformly distributed among three areas around the vessel circumference. The examination cannot cover twenty percent of the weld, channel cylinder section to channel flange (see Request for Relief ISI-9).

The welds include the channel cylinder section to channel flange weld and the channel cylinder section to channel head weld. The channel flange is fabricated from SS, SA-336-F8. The channel cylinder section and channel head are from SS, SA-240, TP-304.

7.2.2 RHRHX Nozzle-To-Vessel Welds

The channel cylinder section of each RHRHX includes one inlet nozzle (14-inch I.D.) and one outlet nozzle (14-inch I.D.). A total of two nozzle-to-vessel welds from the two RHRHX will be ultrasonically examined and shall be distributed among the two heat exchangers (one inlet nozzle and one outlet nozzle). The examination is limited (see Request for Relief ISI-10).

The nozzles are fabricated from SS, SA-336-F8.

7.2.3 RHRHX Integrally-Welded Supports

There are two integrally-welded support attachments on each RHRHX. A total of two support pad-to-vessel welds from the two heat exchangers will be liquid penetrant examined and shall be distributed among the two heat exchangers (a different support on each heat exchanger).

The support pad (attachment plate is 5/8 inch thick) is fabricated from SS, SA-240, TP-304.

7.2.4 RHRHX Pressure-Retaining Bolting Exceeding 2 Inches in Diameter

There is no RHRHX bolting larger than two inches in diameter.

7.3 Regenerative Heat Exchanger (1)-RHX

7.3.1 RHX Circumferential Welds

The regenerative heat exchanger is composed of three heat exchangers interconnected with piping. There are twelve circumferential welds located at structural discontinuities on the heat exchanger. These welds shall be ultrasonically examined. The examinations shall cover at least twenty percent of each weld and shall be uniformly distributed among three areas around the vessel circumference. This examination cannot be uniformly distributed (see Request for Relief ISI-6).

These welds include six channel cylinder section to channel head welds and six channel cylinder section to the tube sheet head welds. The channel cylinder sections are fabricated to SS, SA-351-CF8. The channel heads are fabricated to SS, SA-240-304L. The channel flanges are fabricated to SS, SA-182-F304.

7.3.2 RHX Nozzle-to-Vessel Welds

There are not any nozzles greater than 4 in. diameter. The nozzles are fabricated to SA-479-304 sch 160 material.

7.3.3 RHX Integrally - Welded Supports

There is one integrally welded support (1/4 inch thick) attachment and three lugs (5/8 inch thick) welded to the heat exchanger. The three (5/8 inch thick) lugs per Westinghouse are not functionally required and no credit has been taken for these welds in the analysis of the heat exchanger. Therefore, there is no integrally welded support attachments exceeding inch material design thickness.

7.3.4 RHX Pressure Retraining Bolting Exceeding 2 Inches in Diameter

There is not any pressure retaining bolting included with the RHX.

7.4 Letdown Heat Exchanger (1)-LHX

7.4.1 LHX Circumferential Welds

There are two circumferential welds located at structural discontinuities on the tube side. These welds shall be ultrasonically examined. The examinations shall cover at least twenty percent of each weld, uniformly distributed among three areas around the vessel circumference.

This examination cannot be uniformly distributed (see Request for Relief ISI-7).

7.4.2 LHX Nozzle-To-Vessel Welds

There are not any nozzles greater than 4 in. diameter. The nozzles are fabricated to SA-312, TP 304.

7.4.3 LHX Integrally-Welded Supports

There are two integrally-welded support attachments (1/2 inch and 3/4 inch thick) on the LHX. Only the

3/4 inch thick support to vessel welds shall be liquid penetrant examined.

The supports are fabricated to SA-240, TP 304.

7.4.4 LHX Pressure Retraining Bolting Exceeding 2 Inches in Diameter

There is no LHX bolting larger than two inches in diameter.

7.5 Excess Letdown Heat Exchanger (1)-ELHX

7.5.1 ELHX Circumferential Welds

There is one circumferential weld located at the structural discontinuity on the heat exchanger. This weld shall be ultrasonically examined. The examination shall cover at least twenty percent of the weld and be uniformly distributed among three areas around the vessel circumference. This examination cannot be uniformly distributed (see Request for Relief ISI-7).

The weld is the channel flange to the channel head weld. The channel flange and the channel head are fabricated to SA105II, F/S and SA-240, TP 304, respectively.

7.5.2 ELHX Nozzle To Vessel Welds

There are not any nozzles greater than 4 in. diameter. The nozzles are fabricated to SA-312, TP 304.

7.5.3 ELHX Integrally-Welded Supports

There are no integrally-welded supports to the tube side of the heat exchanger.

7.5.4 ELHX Pressure Retaining Bolting Exceeding 2 Inches in Diameter

There is no ELHX bolting larger than two inches in diameter.

7.6 Boron Injection Tank (1)-BIT

7.6.1 BIT Circumferential Welds

There are two circumferential welds located at structural discontinuities on the BIT. These welds shall be ultrasonically examined. The examinations shall cover twenty percent among three areas around the vessel circumference. There are two head-to-shell welds. The head and shell are fabricated to SA-240, TP304 and SA-351, CF8A respectively.

7.6.2 BIT Nozzle-to-Vessel Welds

There is one nozzle located on each head, both with a 6-inch inside diameter. These nozzle-to-vessel welds shall be ultrasonically examined.

The nozzles are fabricated to SA-182, F304.

7.6.3 BIT Integrally-Welded Supports

There are four integrally-welded support attachment pads (5/8 inch thick) welded to the shell. These welds shall be liquid penetrant examined.

The pads are fabricated to SA-240, TP 304 material.

7.6.4 BIT Pressure Retaining Bolting Exceeding 2 Inches in Diameter

There are 16 2-inch diameter manway cover studs and nuts. The studs shall be volumetrically examined.

The studs and nuts are fabricated SA-193, GRB7 and SA-194 GR-2H respectively.

The studs may be examined either in place under tension, when the connection is disassembled, or when the stud is removed.

7.9 Piping

Material specifications for each piping system are included in weld map isometrics in Appendix A. Some examinations cannot be performed (see Request for Relief ISI-2). The following ASME Class 2 piping systems are subject to examination:

Residual Heat Removal
Safety Injection
Main Steam
Feedwater
Auxiliary Feedwater
Chemical Volume Control

7.9.1 Piping Circumferential Welds

Circumferential welds subject to examination shall include those welds at structural discontinuities and welds within three pipe diameters of the centerline of rigid pipe anchors, or anchors at the penetrations of primary containment, or at rigidly anchored components.

Selection of areas to be examined shall be in accordance with IWC-2411 and Table IWC-2520 of ASME Section XI.

The entire length of circumferential piping welds equal to or less than one-half inch in nominal wall thickness shall be surface examined. The entire length of circumferential piping welds over one-half inch in nominal wall thickness shall be surface and ultrasonically examined.

7.9.2 Piping Longitudinal Welds

Areas subject to examination include longitudinal welds in fittings (i.e., tees, elbows, reducers). Selection of areas to be examined shall be in accordance with IWC-2411 and Table IWC-2520 of ASME Section XI. The entire length of these welds that are one-half inch or less in nominal wall thickness shall be surface examined. The entire length of these welds over one-half inch nominal wall thickness shall be surface and ultrasonically examined.

7.9.3 Branch Pipe Connection Welds

The entire length of all branch pipe connection welds selected for examination in accordance with IWC-2411 and Table IWC-2520 of Section XI will be surface examined. This includes both circumferential welds and longitudinal welds in the branch connection.

7.9.4 Piping Pressure-Retaining Bolting Exceeding 2 Inches in Diameter

There is no pressure-retaining bolting larger than 2 inches in diameter.

7.9.5 Piping Integrally-Welded Supports

All piping integrally-welded external support attachments whose base material design thickness exceeds 3/4 inch shall be surface examined. Integrally-welded external support attachments include those supports which have attachment welds to the piping pressure-retaining boundary. (See Appendix A, Table H)

7.9.6 Piping Support Components

All piping support components shall be visually examined. This examination includes integrally-welded and nonintegrally-welded support components. The support settings of constant and variable spring type hangers, snubbers, and shock absorbers shall also be verified. (See Appendix A, Table H)

7.10 Residual Heat Removal Pumps (2) - RHRP

7.10.1 RHRP Casing Welds

The RHRP casing does not include any casing welds. The casing is a one piece forging fabricated to SA-182, F304.

7.10.2 RHRP Pressure-Retaining Bolting Exceeding 2 Inches in Diameter

There is no RHRP bolting larger than two inches in diameter.

7.10.3 RHRP Integrally-Welded Support

There are three integrally-welded support attachments greater than 3/4 inch thick associated with the RHRP. These welds shall be surface examined. The supports are fabricated to SA-240, TP 304.

7.10.4 RHRP Support Components

Each RHRP includes one support component bolted to the pump feet, which are integrally welded to the pump.

Each support component shall be visually examined.

7.11 CVCS Centrifugal Charging Pumps (2) CCP

7.11.1 CCP-Casing Welds

The CCP casing does not include any casing welds.

7.11.2 CCP Pressure Retaining Bolting Exceeding 2 Inches in Diameter

There is no CCP bolting larger than two inches in diameter.

7.11.3 CCP-Integrally-Welded Supports

There are four integrally-welded supports greater than 3/4 inch thick associated with the CCP. These supports shall be surface examined.

7.11.4 CCP-Support Components

Each CCP includes a support component bolted to the pump feet, which are integrally welded with the pump. The support component shall be visually examined.

7.12 Safety Injection Pumps (2)-SIP

7.12.1 The SIP casing does not include any casing welds. The casing consists of two pieces manufactured of SA-182, F304.

7.12.2 SIP Pressure-Retaining Bolting Exceeding 2 Inches in Diameter

There is no SIP bolting larger than two inches in diameter.

7.12.3 SIP Integrally-Welded Supports

There are no integrally-welded supports associated with the SIP.

7.12.4 SIP Support Components

Each SIP includes a support component bolted to the pump casing. The support component shall be visually examined.

7.13 CVCS Positive Displacement Pump (Reciprocating Charging Pump) (1) PDP

7.13.1 PDP Casing Welds

The PDP casing does not include any casing welds. The casing is fabricated to SA-182 F304, SA-204 Type 304, SA-479 T304, and SA-479, 410.

7.13.2 PDP Pressure Retaining Bolting Exceeding 2 Inches in Diameter

There is no PDP bolting larger than two inches in diameter.

7.13.3 PDP Integrally-Welded Supports

There are no integrally-welded supports associated with the PDP.

7.13.4 PDP Support Components

The PDP includes a support component bolted to the pump feet which are integrally forged with the pump. The support component shall be visually examined.

7.14 Valves

7.14.1 Valve Body Welds

There are ASME Class 2 valves with body welds. Selection of areas to be examined shall be in accordance with

IWC-2411 and Table IWC-2520 of Section XI. These welds shall be surface examined. (See Appendix A Table F.)

7.14.2 Valve Pressure-Retaining Bolting Exceeding 2 Inches in Diameter

There is no ASME Class 2 valve pressure-retaining bolting larger than 2 inches in diameter.

7.14.3 Valve Integrally-Welded Supports

There are no Class 2 valve integrally-welded supports. (See Appendix A, Table F)

7.14.4 Valve Support Components

There are no Class 2 valve support components. (See Appendix A, Table F)

7.15 Exempted Components

All components exempted from examination in accordance with IWC-1220 of ASME Section XI shall be visually examined for leakage during system hydrostatic pressure tests. See Section 9.0 and Appendix A, Table I.

Components exempted from examination include (1) components in systems where both the design pressure and temperature are equal to or less than 275 psig and 200 F, respectively; (2) components in systems or portions of systems, other than emergency core cooling systems, which do not function during normal reactor operation; (3) component connections, piping, and associated valves, and vessels (and their supports), that are 4-inch nominal pipe size and smaller.

8.0 COMPONENTS SUBJECT TO EXAMINATION - ASME CLASS 3 (TVA SAFETY CLASS C AND D)

In accordance with 10CFR50, Section 50.55a(g)(2), a preservice examination of ASME Class 3 components is not required.

9.0 HYDROSTATIC PRESSURE TESTS

ASME Class 1 and 2 components (including exempted components) shall be visually examined for leakage during system hydrostatic pressure tests. These examinations shall be performed by Nuclear Construction during the ASME Section III hydrostatic tests. Additional pressure test shall be performed in accordance with Program Procedure 1502.08.

10.0 AUTHORIZED INSPECTOR

TVA shall employ an Authorized Inspector(s) in accordance with ASME Section XI. The Inspector shall verify, assure, or witness that code requirements have been met. He shall have the prerogative and authorization to require requalification of any operator or procedure when he has reason to believe the requirements are not being met. TVA shall provide access for the ANII in accordance with IWA-2140 of ASME Section XI.

Requirements for interface with the ANI and ANII are included in AI-9.15 NQAM Part II, Sections 2.3 and 5.1.

11.0 EXAMINATION METHODS

11.1 Visual Examination

A visual examination is employed to provide a report of the general condition of the part, component, or surface to be examined, including such conditions as scratches, wear, cracks, corrosion, or erosion on the surfaces; misalignment or movement of the part for component; or evidence of leakage.

Visual examination shall be conducted in accordance with Article 9, Section V, of the ASME Code, except that lighting shall be sufficient to resolve the 1/32-inch wide black line on an 18-percent neutral gray background.

11.2 Visual Examination (VT-3)

(a) The VT-3 visual examination shall be conducted to determine the general mechanical and structural conditions of components and their supports such as the presence of loose parts, debris, or abnormal corrosion products, wear, erosion, corrosion, and the loss of integrity at bolted or welded connections.

(b) The VT-3 visual examination may require, as applicable to determine structural integrity, the measurement of clearances, detection of physical displacement, structural adequacy of supporting elements, connections between load carrying structural members, and tightness of bolting.

(c) For component supports and component interiors, the visual examination may be performed remotely with or without optical aids to verify the structural integrity of the component.

11.3 Visual Examination (VT-4)

(a) The VT-4 visual examination shall be conducted to determine conditions relating to the operability of components or

devices such as mechanical and hydraulic snubbers, components supports, pumps, valves, and spring loaded and constant weight hangers.

(b) The VT-4 visual examination shall confirm functional adequacy, verification of the settings, or freedom of motion. This examination may require (1) disassembly of components or devices and (2) operability test.

11.4 Surface Examination (Magnetic Particle)

Magnetic particle examination shall be conducted in accordance with Article 7, Section V, of the ASME Code.

11.5 Surface Examination (Liquid Penetrant)

Liquid penetrant examination shall be conducted in accordance with Article 6, Section V, of the ASME Code.

11.6 Volumetric Examination (Radiographic)

Radiographic techniques, employing penetrating radiation such as X-rays, gamma rays, or thermalized neutrons, may be utilized with appropriate image recording devices such as photographic film or papers, electrostatic systems, direct-image orthicons, or image converters. For radiographic examinations employing either X-ray equipment or radioactive isotopes and photographic films, the procedure shall be as specified in Article 2, Section V, of the ASME Code.

11.7 Volumetric Examination (Ultrasonic)

Ultrasonic examination shall be conducted in accordance with the provisions of Appendix I or Appendix III of Section XI of the ASME Code, or Article 4 or Article 5 of Section V of the ASME Code.

11.8 Volumetric Examination (Eddy Current)

Eddy current examination of heat exchanger tubing shall be conducted in accordance with the provisions of Appendix IV of Section XI of the ASME Boiler and Pressure Vessel Code (Summer 1976 Addenda).

12.0 QUALIFICATIONS OF NONDESTRUCTIVE EXAMINATION PERSONNEL

Personnel performing nondestructive examination operations shall be qualified in accordance with IWA-2300 of ASME Section XI and QMP 102.4 or Program Procedure 202.14. Contractor personnel shall possess evidence of certification.

13.0 ACCEPTANCE CRITERIA

All acceptance standards for ASME Class 1 and 2 components shall be in accordance with IWA-3000 of ASME Section XI except where ASME Section III examinations are employed to satisfy ASME Section XI requirements.

14.0 REPAIRS AND REPLACEMENTS

All repairs and replacements shall be performed in accordance with plant instruction AI-9.15, Program Procedure 1402.02, and NQAM, Part II, Section 2.3. Repairs and replacements as necessary may be coordinated with the ISI Programs Section.

15.0 RECORDS AND REPORTS

15.1 Recording of and Report of Examinations

A detailed report of all examinations shall be prepared by the performing or responsible organization and shall contain but not be limited to the following information:

Title Page
Table of Contents

I. Introduction - The introduction should include the following information: plant, unit number, preservice or in-service inspection and cycle number, systems, components and vessels examinations were performed on, organization examinations were performed by, dates examinations were performed, ASME Section XI Code of Record.

II. Summary - The summary should include a brief description of the overall inspection: program, performance, personnel, equipment, procedures, evaluations, and results.

III. Discussion - The discussion should discuss the governing documents (ASME Code, Technical Specifications, etc.), inspection schedule, materials, calibration standards, calibration performance, reporting, recording, interpretation, and brief evaluation.

IV. Evaluation - Evaluation is based on the indication's location, metal path, general shape, and any tests that could be applied, such as damping. The evaluation section also should contain a listing of each examination performed and the evaluated results.

V. Summary of Notifications - The summary of notifications shall give a short summary of each notification report along with the indication discrepancy and its location. It should also contain the final disposition and the date of completion.

VI. Scan Plan - The Scan Plan shall give a detailed description of all areas subject to examination during the inspection. It shall contain the following information: examination area, code category, weld size and/or number, reference drawing, examination method, procedure, calibration block, and any reference details pertaining to the exam area, such as the weld number, meridional welds, pump studs.

VII. Weld and Hanger Maps - The Weld and Hanger Maps are the reference drawings for the inspection. The weld maps are isometric drawings showing the location of both field and shop welds on each vessel, components, and piping system subject to examination. The hanger maps are also isometrics showing the location of hangers, snubbers, and supports for each vessel, component, or piping system subject to examination.

VIII. Log by System - The log is the daily status of the inspection section representative of the areas subject to examination during the inspection. This log keeps an up-to-date status of work complete and incomplete.

IX. Personnel Certifications

X. Equipment Certifications

XI. NDE Procedures

XII. Calibration Block Drawings

XIII. Calibration Sheets

XIV. Examination Report Forms

For eddy current examination of heat exchanger tubing, the report shall include a record indicating the tube(s) examined (this may be marked on a tube sheet sketch or drawing), the extent to which each tube was examined, the location and depth of each reported indication, and the identification of the operator(s) and data evaluator(s) who conducted each examination or part thereof, and magnetic tape and strip charts.

All required and pertinent information will be recorded on the appropriate data sheets by the performing organization. When portions of the inspection work are contracted, a detailed report will be submitted to TVA by the contractor with all pertinent and required information. TVA will retain the original copies of all raw data taken.

NQA shall review and submit the final report to the Plant Manager for retention as a quality assurance record in accordance with NQAM, Part II, Section 4.1. These final reports shall be filed at the plant site with the data sheets of Appendix B of this program as discussed in section 4.0 of this program. Data Package Cover Sheet in Appendix B will be completed and used as a cover sheet for the final report and to document the review process. NQA shall maintain a copy of the report for information.

15.1.1 Repair and Replacement Reports

Repair and replacement summary reports shall be prepared for all ASME Class 1 and 2 components, in accordance with Program Procedure 1402.02.

15.2 PSI Report for ASME Class 1 and 2 Components

A PSI report(s) for ASME Class 1 and 2 components shall be prepared and submitted to NRC within ninety days after completion of the PSI.

The report shall be prepared by NQA and submitted to the Director, ONP Nuclear Safety and Licensing for submittal to NRC.

The PSI report shall have a cover sheet providing the following information:

(1) Date of completion of report

(2) Name of owner and address of corporate offices

(3) Name and address of nuclear generating plant in which the nuclear power unit is located

(4) Name or number assigned to the nuclear power unit by TVA

All reports shall have a summary providing the following information:

(1) National Board Number assigned by the manufacturer to the pressure vessel or component

(2) Names of the components or parts of the components for which this is a record, including such information regarding size, capacity, material, location, and drawings as may aid accurate identification.

(3) Name and address of principal manufacturer and the principal contract number which will identify the subcontractors.

(4) Manufacturer's component identification number

(5) Date of completion of the preservice inspection

(6) Name or names of the Inspector(s) when required

(7) Name and mailing address of the employer(s) of the Inspector(s)

(8) Abstract of examinations performed, conditions observed, corrective measures recommended and taken

(9) Signature of Inspector, when required

(10) Completed examination reports

(11) Completed calibration reports

(12) List of component drawings

(13) List of TVA NDE personnel and/or copies of contractor personnel certifications

(14) List of TVA NDE equipment and/or copies of contractor equipment certifications

(15) List of TVA NDE procedures used and/or copies if contractor NDE procedures

The PSI Report shall have an owner's data report for inservice inspection, Form NIS-1 as shown in Appendix II of ASME Section XI

15.3 Records for ASME Class 1 and 2 Components

The following records shall be available for review:

(1) Examination Plans

(2) Examination Results and Reports

(3) Examination Methods and Procedures

(4) Evaluation of Results

(5) Corrective Actions and Repairs

16.0 NOTIFICATION OF INDICATION

Plant management shall be formally notified of the presence of unacceptable indications found during preservice inspections during the performance of nondestructive examinations (excluding VT-2, visual

examinations performed during system pressure test, and preservice examinations following repairs and replacements). Unacceptable indications are defined by the applicable NDE procedure. Formal notification shall consist of completing and submitting to the Plant Manager or his designee the "Notification of Indication" (NOI) form in Appendix C of this program. The NOI form shall only be used to report unacceptable indications of components within the scope of Section XI and which have been scheduled for examination. Any other discrepancies should be reported in accordance with the appropriate plant procedure (e.g., MR, WR, etc.).

NOIs initiated prior to the requirement of a Condition Adverse to Quality Report (CAQR) and the implementation of Revision 9 of this instruction shall be handled as NOIs for which no Condition Adverse to Quality has been identified.

Part I of the NOI shall be completed and signed by the NDE Level II or III examiner detecting the indication. The examiner detecting the indication can initiate a CAQR at this time or defer the decision to the individual responsible for the disposition in Part II of the NOI form. The NOI form and the CAQR are to be processed together. If the indication is detected by an outside contractor, the contractor's field supervisor shall review and sign the NOI form. The SQO representative shall assign a sequential number and review and sign the NOI form. A NOI log shall be maintained on a plant/unit/cycle basis by SQO for each NOI issued. This log shall contain as a minimum: NOI No., component I.D., date issued, examination report No., unsatisfactory condition, MR/WR No., and work instruction and/or DCR numbers as applicable. The original shall be sent to the plant manager or his designee and a copy to NDE Section XI Programs.

In the case of NOIs for which no Condition Adverse to Quality (CAQ) has been identified, the Nuclear Site Director's organization (plant manager or his designee) shall be responsible for determining which organization (construction, modification, plant maintenance, etc.) shall be responsible for preparing a disposition in Part II of the NOI form and performing the associated corrective action. If the organization assigned responsibility for disposition is unable to determine a satisfactory disposition then the NOI form shall be sent to Nuclear Engineering for disposition.

The organization assigned responsibility for the disposition shall evaluate the NOI for the need of a CAQR in accordance with the NQAM Part I, Section 2.16 and plant instruction AI-2.8.14. The CAQR shall be processed in accordance with AI-2.8.14. If a CAQR is needed, enter the identifying number of the CAQR in the space shown on the NOI form. The NOI form and the CAQR are to be processed together.

The individual responsible for preparation of the disposition shall sign and date Part II of the NOI form and ensure that the disposition agrees with the corrective action proposed in the CAQR if one was initiated.

The cognizant supervisor or his designee of the appropriate organization shall review and approve the disposition and sign and date Part II of the form. Copies of the NOI form shall be distributed to the plant manager or his designee and the NDE Section XI Programs. The original shall be returned to the SQO representative. One copy shall be filed with the examination report. A copy of the dispositioned NOI should be attached to the work generating document used in correcting the unacceptable indication.

Dispositions to correct the condition under the plant maintenance program shall be processed in accordance with NQAM, Part II, Section 2.1 and Plant Instruction AI-9.2.1. Dispositions other than restoring to original requirements shall be processed as modifications in accordance with NQAM, Part II, Section 3.0 and Plant Instruction AI-8.8 after licensing. Repair and replacement activities, including coordination with the Authorized Inspection Agency (AIA), shall be performed in accordance with the requirements of NQAM, Part II, Section 2.3 and Plant Instruction AI-9.15.

If Nuclear Construction is responsible for corrective action, it shall be performed in accordance with the disposition on the NOI form and to the satisfaction of the SQO representative. The organization responsible for corrective action shall include preservice examination requirements in the repair or replacement work instruction described in NQAM Part II, Section 2.3 and Plant Instruction AI-9.15.

In some instances the NOI may be dispositioned based on additional information available to the individual responsible for the disposition (e.g., design drawings, drawing notes, specifications, etc.). In this case, the NOI should be categorized as "other," and a documented justification will be included with the disposition. A USQD is not required to disposition NOIs categorized as "other." The disposition shall include reexamination if work was performed (e.g., tightening of loose bolts, etc.). Re-examination may be limited to area of component where work was performed.

Upon completion of corrective action the SQO representative shall verify completion of corrective action, enter the work instruction and/or Design Change Request (DCR) numbers on the NOI form, enter the examination report number if re-examination was performed, and sign and date the NOI form, Part III. The signed NOI form shall remain with the originating examination report for use as a quality assurance record. If re-examination was performed, a copy of the signed NOI form shall also remain with the re-examination report. Copies of the NOI form shall also be distributed to the plant manager and NDE Section XI Programs.

Prior to closure of the WBN Unit 2 PSI Program, the NOIs generated during the preservice examinations shall be trended per Appendix F.

17.0 CALIBRATION BLOCKS

Calibration blocks will be used for ultrasonic examinations (a calibration tube will be used for eddy current examination of steam generator tubing). The blocks will be fabricated to the general requirements of ASME Section V and ASME Section XI. The blocks shall be fabricated of the material to be examined or equivalent P numbers. Mill test reports shall be obtained and retained by the NQA for all calibration blocks. The blocks shall employ drilled holes and/or notches for calibration reflectors (see Request For Relief ISI-1).

NQA shall ensure that as built calibration block drawings are prepared. Copies of the original drawings and any revisions shall be submitted to NDE Section XI Programs. The calibration block drawings shall be maintained in accordance with NQAM, Part II, Section 6.3.

18.0 REQUESTS FOR RELIEF

Where TVA has determined that certain code requirements or examinations are impractical, TVA will submit these request for relief to the NRC for approval via ONP Nuclear Licensing and Regulatory Affairs with information to support the determinations and any proposed alternate examinations. The impractical code requirements or examinations shall be identified in this program, and references to particular requests for relief shall be included.

When impractical examination requirements are identified in the field, NQA shall notify NDE Section XI Programs such that the information may be included in this program and requests for relief may be prepared if necessary. NQA shall submit sketches to NDE Section XI Programs to identify areas which cannot be examined in accordance with code requirements.

19.0 AUGMENTED INSPECTIONS

19.1 Steam Generator Tubes

The augumented examination requirements of the steam generator tubing are included in Technical Specification 4.4.5.3 and Section 6.3.8 of this program. The results of the augumented examination will be included in the PSI Report.

20.0 REFERENCES

20.1 Source Documents

20.1.1 ASME Boiler and Pressure Vessel Code - Section XI through Summer 1975 addenda, Summer 1976 addenda, Summer 1978 addenda.

20.1.2 ASME Boiler and Pressure Vessel Code - Section V through Summer 1975 addenda.

20.1.3 Watts Bar Nuclear Plant Final Safety Analysis Report.

20.1.4 Nuclear Quality Assurance Manual, Part I, Section 2.16

20.1.5 Nuclear Quality Assurance Manual Part II, Section 2.1, 2.3, 3.0, 4.1, 5.1, and 6.3.

20.1.6 Nuclear Quality Assurance Manual Part III, Section 1.1.

20.1.7 Code of Federal Regulation, Title 10, Part 50.55a.

20.1.8 U.S. Nuclear Regulatory Commission Regulatory Guide 1.14, 1.26, 1.83, and 1.150.

20.1.9 Watts Bar Nuclear Plant Technical Specifications.

20.2 Other Documents:

20.2.1 Instruction Manual - 173-inch I.D. Reactor Pressure Vessel - Rotterdam Dockyard Company, Contract No. 71C62-54114-1, N3M-2-3.

20.2.2 Westinghouse Technical Manual - Pressurizer, TM 1440-C225, Contract No. 71C60-54114-1, N3M-2-6.

20.2.3 Westinghouse Technical Manual - Vertical Steam Generators, TM 1440-C254, Contract No. 71C62-54114-1, N3M-2-4.

20.2.4 Westinghouse Instruction Manual - Auxiliary Heat Exchangers, Contract No. 71C62-54114-1, N3M-2-30.

20.2.5 Westinghouse Instruction Book - Reactor Coolant Pump, Contract No. 71C62-54114-1, N3M-2-5.

20.2.6 Ingersoll-Rand Instruction Manual - Residual Heat Removal Pumps, Contract No. 71C62-54114-1, N3M-2-30.

20.2.7 Watts Bar Nuclear Plant Administrative Instructions AI-2.8.5, AI-2.8.14, AI-3.1, AI-7.3, AI-8.8, AI-9.2.1, AI-9.7, and AI-9.15.

20.2.8 Area Program Procedures 202.14, 1402.02, 1502.07, and 1502.08.

20.2.9 Quality Methods Procedure 102.4 and 110.5.

TABLE A
WATTS BAR PRESERVICE INSPECTION PROGRAM - ASME CLASS 1 COMPONENTS

Component	Program Reference Section (See Note 1)	Examination Category Item No. From Table IWB-2600, Section XI	From Table IWB-2600, Section XI	Method of Inspection	Reference Drawing No.
A. Reactor Vessel					
1. Circumferential Shell Weld-Beltline Region	6.1.1.1	B1.1	B-A	UT	CH-M-2551-A
2. Circumferential Shell Welds	6.1.1.2	B1.2	B-B	UT	CH-M-2551-A
3. Lower Head Welds	6.1.1.3	B1.2	B-B	UT	CH-M-2551-A
4. Closure Head Circumferential Weld	6.1.1.4	B1.2	B-B	UT	CH-M-2549-A
5. Vessel-to-Flange and Head-to-Flange Welds	6.1.1.5	B1.3	B-C	UT	CH-M-2549-A
6. Nozzle-to-Vessel Welds and Inside Radiused Sections	6.1.2	B1.4	B-D	UT	
7. Vessel Penetrations and Attachments	6.1.3	B1.5	B-E	VT	CH-M-2551-A & CH-M-2684-C
8. Nozzle-to-Safe End Welds	6.1.4	B1.6	B-F	UT, PT	
9. Closure Studs and Nuts	6.1.5	B6.10, B6.20, B6.30 (See Note 2)	B-G-1 (See Note 2)	UT, MT	CH-M-2551-A

NOTE: 1. See Section 6.0 for additional information.
2. Item number and examination category from 1977 Edition, 1978 Summer Addenda of Section XI.

1401k/C0034

TABLE A
WATTS BAR PRESERVICE INSPECTION PROGRAM - ASME CLASS 1 COMPONENTS

Component	Program Reference Section (See Note 1)	Examination Category Item No. From Table IWB-2600, Section XI	From Table IWB-2600, Section XI	Method of Inspection	Reference Drawing No.
A. Reactor Vessel (Continued)					
10. Ligaments Between Threaded Stud Holes	6.1.5	B6.40 (See Note 2)	B-G-1 (See Note 2)	UT	CH-M-2551-A
11. Closure Washers	6.1.5	B6.50 (See Note 2)	B-G-1 (See Note 2)	VT	CH-M-2551-A
12. Vessel Interior	6.1.9	B13.10 (See Note 2)	B-N-1 (See Note 2)	VT-3	See Sec 6.1.9
13. Removable Core-Support Structures	6.1.9	B13.30 (See Note 2)	B-N-3 (See Note 2)	VT-3	See Sec 6.1.9
14. Control Rod Drive Housings	6.1.10	B1.18	B-O	UT	ISI-0012-A
15. Auxiliary Head Adapter	6.1.11	B5.5, B4.5	B-F, B-J	UT, PT	CH-M-2685-B
B. Pressurizer					
1. Longitudinal and Circumferential Welds	6.2.1	B2.1	B-B	UT	CH-M-2574-A
2. Nozzle-to-Vessel Welds and Inside Radiused Sections	6.2.2	B2.2	B-D	UT	CH-M-2574-A
3. Heater Penetrations	6.2.3	B2.3	B-E	VT	CH-M-2574-A

NOTE: 1. See Section 6.0 for additional information.
2. Item number and examination category from 1977 Edition, 1978 Summer Addenda of Section XI.

TABLE A
WATTS BAR PRESERVICE INSPECTION PROGRAM - ASME CLASS 1 COMPONENTS

Component	Program Reference Section (See Note 1)	Examination Category Item No. From Table IWB-2600, Section XI	From Table IWB-2600, Section XI	Method of Inspection	Reference Drawing No.
B. Pressurizer (Continued)					
4. Nozzle-to-Safe End Welds	6.2.4	B2.4	B-F	UT, PT	CK-M-2574-A
5. Pressure-Retaining Bolting Two Inches and Smaller in Diameter	6.2.6	B7.20 (See Note 2)	B-G-2 (See Note 2)	VT-1	CK-M-2574-A
6. Integrally-Welded Vessel Support	6.2.7	B8.20 (See Note 2)	B-H (See Note 2)	UT	CK-M-2574-A
C. Steam Generators					
1. Primary Head-to-Tube Sheet Weld	6.3.1	B3.1	B-B	UT	CK-M-2660-B
2. Primary Nozzle-to-Safe End Welds	6.3.3	B3.3	B-F	UT, PT	CK-M-2660-B
3. Pressure-Retaining Bolting Two Inches and Smaller in Diameter	6.3.5	B7.30 (See Note 2)	B-G-2 (See Note 2)	VT	CK-M-2660-B
4. Tubing	6.3.8	See Program Reference Section 6.3.8	See Program Reference Section 6.3.8	ET	N/A

NOTE: 1. See Section 6.0 for additional information.
2. Item number and examination category from 1977 Edition, 1978 Summer Addenda of Section XI.

TABLE A
WATTS BAR PRESERVICE INSPECTION PROGRAM - ASME CLASS 1 COMPONENTS

Component	Program Reference Section (See Note 1)	Examination Category Item No. From Table IWB-2600, Section XI	From Table IWB-2600, Section XI	Method of Inspection	Reference Drawing No.
D. Piping					
1. Circumferential Welds 4 inches and greater	6.4.1	B.9.11 (See Note 2)	B-J (See Note 2)	UT,PT	Appendix A, Piping Weld Location Dwgs
2. Longitudinal Welds 4 inches and greater	6.4.1	B9.12 (See Note 2)	B-J (See Note 2)	UT,PT	Appendix A, Piping Weld Location Dwgs
3. Circumferential Welds Less than 4 inches	6.4.1	B9.21 (See Note 2)	B-J (See Note 2)	PT	Appendix A, Piping Weld Location Dwgs
4. Longitudinal Welds Less than 4 inches	6.4.1	B9.22 (See Note 2)	B-J (See Note 2)	PT	Appendix A, Piping Weld Location Dwgs
5. Branch Pipe Connection Greater than 2 inches	6.4.2	B9.31 (See Note 2)	B-J (See Note 2)	UT,PT	Appendix A, Piping Weld Location Dwgs
6. Branch Pipe Connection Welds 2 inches and less	6.4.2	B9.32 (See Note 2)	B-J (See Note 2)	PT	Appendix A, Piping Weld Location Dwgs
7. Socket Welds	6.4.3	B9.40 (See Note 2)	B-J (See Note 2)	PT	Appendix A, Piping Weld Location Dwgs

NOTES: 1. See Section 6.0 for additional information.
2. Item number and examination category from 1977 Edition, 1978 Summer Addenda of Section XI.

TABLE A
WATTS BAR PRESERVICE INSPECTION PROGRAM - ASME CLASS 1 COMPONENTS

Component	Program Reference Section (See Note 1)	Examination Category Item No. From Table IWB-2600, Section XI	From Table IWB-2600, Section XI	Method of Inspection	Reference Drawing No.
D. Piping (Continued)					
8. Integrally-Welded Supports	6.4.4	B10.10 (See Note 2)	B-K-1 (See Note 2)	PT	Appendix A, Table G
9. Support Components	6.4.5	B11.10 (See Note 2)	B-K-2 (See Note 2)	VT-3 VT-4	Appendix A, Hanger Location Dwgs
10. Pressure-Retaining Bolting Two Inches and Smaller in Diameter	6.4.7	B7.50 (See Note 2)	B-G-2 (See Note 2)	VT	Appendix A, Piping Weld Location Dwgs
E. Reactor Coolant Pumps					
1. Pressure-Retaining Bolting Larger Than Two Inches in Diameter	6.5.1	B6.180, B6.190 (See Note 2)	B-G-1 (See Note 2)	UT, VT-1, PT or MT	CH-M-2672-B
2. Pressure-Retaining Bolting Two Inches and Smaller in Diameter	6.5.2	B7.60 (See Note 2)	B-G-2 (See Note 2)	VT-1	CH-M-2672-B
3. Support Components	6.5.4	B11.20 (See Note 2)	B-K-2 (See Note 2)	VT-3, VT-4	ISI-0121-A
4. Casing Welds	6.5.5	B5.6	B-L-1	PT	ISI-0048-B
5. Casings	6.5.6	B5.7	B-L-2	VT	ISI-0048-B

TABLE A
WATTS BAR PRESERVICE INSPECTION PROGRAM - ASME CLASS 1 COMPONENTS

Component	Program Reference Section (See Note 1)	Examination Category Item No. From Table IWB-2600, Section XI	From Table IWB-2600, Section XI	Method of Inspection	Reference Drawing No.
F. Valves					
1. Pressure-Retaining Bolting Two Inches and Smaller in Diameter	6.6.2	B7.70 (See Note 2)	B-G-2 (See Note 2)	VT	Appendix A, Table E
2. Valve Bodies	6.6.6	B6.7	B-M-2	VT	Appendix A, Table D
G. Exempted Components	6.7	B1.19 B2.10 B3.9 B4.11 B5.8 B6.8	B-P	VT	N/A

NOTE: 1. See Section 6.0 for additional information.
2. Item number and examination category from 1977 Edition, 1978 Summer Addenda of Section XI.

TABLE B

WATTS BAR PRESERVICE INSPECTION PROGRAM - ASME CLASS 2 COMPONENTS

Component	Program Reference Section (See Note 1)	Examination Category Item No. From Table IWC-2600, Section XI	From Table IWC-2600, Section XI	Method of Inspection	Reference Drawing No.
A. Steam Generators					
1. Circumferential Welds	7.1.1	C1.1	C-A	UT	CH-M-2660-B
2. Nozzle-to-Vessel Welds	7.1.2	C1.2	C-B	UT	CH-M-2660-B
B. Residual Heat Removal Heat Exchangers					
1. Circumferential Welds	7.2.1	C1.1	C-A	UT	CH-M-2662-A
2. Nozzle-to-Vessel Welds	7.2.2	C1.2	C-B	UT	CH-M-2662-A
3. Integrally-Welded Supports	7.2.3	C3.10 (See Note 2)	C-C (See Note 2)	PT	CH-M-2662-A
C. Regenerative Heat Exchangers					
1. Circumferential Welds	7.3.1	C1.1	C-A	UT	ISI-0077-A
D. Letdown Heat Exchangers					
1. Circumferential Welds	7.4.1	C1.1	C-A	UT	ISI-0075-A
2. Integrally-Welded Supports	7.4.3	C3.10 (See Note 2)	C-C (See Note 2)	PT	ISI-0075-A

NOTES: 1. See Section 7.0 for additional information.
2. Item number and examination category from 1977 Edition, 1978 Summer Addenda of Section XI.

TABLE B

WATTS BAR PRESERVICE INSPECTION PROGRAM - ASME CLASS 2 COMPONENTS

Component	Program Reference Section (See Note 1)	Examination Category Item No. From Table IWC-2600, Section XI	From Table IWC-2600, Section XI	Method of Inspection	Reference Drawing No.
E. Excess Letdown Heat Exchanger					
1. Circumferential Welds	7.5.1	C1.1	C-A	UT	ISI-0076-A
F. Boron Injection Tank					
1. Circumferential Welds	7.6.1	C1.1	C-A	UT	
2. Nozzle-to-Vessel Welds	7.6.2	C1.2	C-B	UT	
3. Integrally-Welded Supports	7.6.3	C3.10 (See Note 2)	C-C (See Note 2)	PT	
4. Pressure Retaining Bolting Exceeding Two Inches in Diameter	7.6.4	C4.10 (See Note 2)	C-D (See Note 2)	UT	

TABLE B

WATTS BAR PRESERVICE INSPECTION PROGRAM - ASME CLASS 2 COMPONENTS

Component	Program Reference Section (See Note 1)	Examination Category Item No. From Table IWC-2600, Section XI	From Table IWC-2600, Section XI	Method of Inspection	Reference Drawing No.
G. Piping					
1. Circumferential Welds one-half inch or less nominal wall	7.9.1	C5.11 (See Note 2)	C-F (See Note 2)	PT or MT	Appendix A, Piping Weld Location Dwgs
2. Circumferential Welds over one-half inch nominal wall	7.9.1	C5.21 (See Note 2)	C-F (See Note 2)	UT,PT OR MT	Appendix A, Piping Weld Location Dwgs
3. Longitudinal Welds one-half inch or less nominal wall	7.9.2	C5.12 (See Note 2)	C-F (See Note 2)	PT or MT	Appendix A, Piping Weld Location Dwgs
4. Longitudinal Welds over one-half inch nominal wall	7.9.2	C5.22 (See Note 2)	C-F (See Note 2)	UT,PT OR MT	Appendix A Piping Weld Location Dwgs
5. Circumferential Pipe Branch Connection Welds	7.9.3	C5.31 (See Note 2)	C-F (See Note 2)	PT or MT	Appendix A, Piping Weld Location Dwgs
6. Longitudinal Pipe Branch Connection Welds	7.9.3	C5.32 (See Note 2)	C-F (See Note 2)	PT or MT	Appendix A Piping Weld Location Dwgs

TABLE B

WATTS BAR PRESERVICE INSPECTION PROGRAM - ASME CLASS 2 COMPONENTS

Component	Program Reference Section (See Note 1)	Examination Category Item No. From Table IWC-2600, Section XI	From Table IWC-2600, Section XI	Method of Inspection	Reference Drawing No.
7. Integrally-Welded Supports	7.9.5	C3.40 (See Note 2)	C-C (See Note 2)	PT or MT	Appendix A, Table H
8. Support Components	7.9.6	C3.50,C3.60 (See Note 2)	C-E (See Note 2)	VT-3 VT-4	Appendix A, Hanger Location Dwgs
H. Residual Heat Removal Pumps					
1. Integrally-Welded Supports	7.10.3	C3.70 (See Note 2)	C-C (See Note 2)	PT	ISI-0117-A
2. Support Components	7.10.4	C3.80 (See Note 2)	C-E (See Note 2)	VT-3	ISI-0117-A
I. Chemical Volume Control Centrifugal Charging Pump					
1. Integrally-Welded Supports	7.11.3	C3.70 (See Note 2)	C-C (See Note 2)	PT	ISI-0118-A
2. Support Components	7.11.4	C3.80 (See Note 2)	C-E (See Note 2)	VT-3	ISI-0018-A
J. Safety Injection Pumps					
1. Support Components	7.12.4	C3.80 (See Note 2)	C-E (See Note 2)	VT-3	ISI-0120-A

NOTES: 1. See Section 7.0 for additional information.
2. Item number and examination category from 1977 Edition, 1978 Summer Addenda of Section XI.

TABLE B

WATTS BAR PRESERVICE INSPECTION PROGRAM - ASME CLASS 2 COMPONENTS

Component	Program Reference Section (See Note 1)	Examination Category Item No. From Table IWC-2600, Section XI	From Table IWC-2600, Section XI	Method of Inspection	Reference Drawing No.
K. Chemical Volume Control Positive Displacement Pump					
1. Support Component	7.13.4	C3.80 (See Note 2)	C-E (See Note 2)	VT-3	ISI-0119-A
L. Valves					
1. Valve Body Welds	7.14.1	C6.20 (See Note 2)	C-G (See Note 2)	PT	ISI-0081-A ISI-0082-A
M. Exempted Components	7.15	N/A	N/A	VT	N/A

NOTES: 1. See Section 7.0 for additional information.
2. Item number and examination category from 1977 Edition, 1978 Summer Addenda of Section XI.