

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

August 2, 1985

Director of Nuclear Reactor Regulation
Attention: Ms. E. Adensam, Chief
Licensing Branch No. 4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Ms. Adensam:

In the Matter of the Application of) Docket Nos. 50-390
Tennessee Valley Authority) 50-391

Enclosed is revision 17 to the Watts Bar Nuclear Plant ASME Section XI Preservice Inspection Program Technical Instruction TI-50A. Included in the revision is the revised section of request for relief ISI-4 and ISI-14. The changes are listed below. Listed below are changes and a status of the requests for relief that has been identified for the preservice inspection program. We do not anticipate adding any additional request for relief to the program.

Request for Relief

ISI - 1	No change
ISI - 2	No change
ISI - 3	No change
ISI - 4	Revised - Changed report number R-501L to R-501 and scan 15 to scan 4 for weld MSF-D006-10
ISI - 5	No change
ISI - 6	No change
ISI - 7	Withdrawn
ISI - 8	No change
ISI - 9	No change
ISI - 10	No change
ISI - 11	No change
ISI - 12	Withdrawn
ISI - 13	No change
ISI - 14	Revised - Misspelled word
ISI - 15	No change

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Director of Nuclear Reactor Regulation

August 2, 1985

Previous revisions were provided as follows:

I-50A

Revision 16 - May 14, 1985
Revision 15 - February 19, 1985
Revision 14 - January 30, 1985
Revision 13 - September 21, 1984
Revision 12 - April 13, 1984
Revision 11 - November 21, 1983
Revision 10 - November 21, 1983
Revision 8 - February 17, 1983
Revision 7 - May 19, 1982
Revision 6 - March 31, 1982
Revision 5 - March 31, 1982
Revision 3 - November 18, 1981
Revision 2 - November 18, 1981
Revision 1 - November 4, 1981
Revision 0 - October 6, 1981

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Revision 6 - November 7, 1984
Revision 5 - November 21, 1983
Revision 4 - August 8, 1983
Revision 3 - December 16, 1982
Revision 2 - June 4, 1982
Revision 1 - March 31, 1982
Revision 0 - October 6, 1981

If you have any questions concerning this matter, please get in touch with K. P. Parr at FTS 858-2682.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



R. H. Shell
Nuclear Engineer

Sworn to and subscribed before me
this 2nd day of August 1985

Paulette J. White
Notary Public
My Commission Expires 8-24-88

Enclosure

cc: U.S. Nuclear Regulatory Commission (Enclosure)
Region II
Attention: Dr. J. Nelson Grace, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Boyd Brown (Enclosure)
EG&G
Idaho Laboratory Facility
P.O. Box 1625
Idaho Falls, Idaho 83401

WATTS BAR NUCLEAR PLANT

TECHNICAL INSTRUCTION

TI-50A

ASME SECTION XI

PRESERVICE INSPECTION
PROGRAM

UNIT 1

CURRENT REVISION LEVEL: 17

Prepared By Jeff Goulart

Revised By Jeff Goulart

Submitted By PL Landage

PQA Review Richard Pop. (JMS)

PORC Review Date 6/25/85

Approved By M. Umm
Plant Manager

Date Approved 6/25/85

Last page of this
instruction: 454

- 1C Doc. Control Unit, 1520 CST2-C
- NRC
- 1C NSRS, 249 A HBB-K
- 1C Plant Master File
- Plant Manager
- Supt. (O & E)
- Supt. (Maint)
- Plant Adm Svs Supv.
- ASE Duty Station
- Bldg Svs Supv
- Chem Lab
- Chem Unit Supv
- Chief, Nuclear Safety Staff
- 1C Chief, Nuclear Training Branch
- Chief Operations QA Branch 401 UBB-C
- Compliance Unit
- Component Engg & Svs Group
- DPSO-WBN
- Dwg & Vendor Manual Supv.
- Elec Maint Supv
- Engg Group Supv
- 1C Engg Section Supv
- Health Physicists
- Health Physics Lab
- Instr Maint Supv
- Instr Shop
- Materials Unit Supv
- 1C Mech Maint Supv
- 1C Mech Unit Supv
- 1C Modifications Manager
- Operating Instruction Coordinator
- 1C Operations Supv
- 1C Operations Training *Sub. Super*
- P&S Supv
- 2C Plant QA Supv
- Plant Training Officer
- Power Stores Unit Supv
- Preop Test Supv.
- Public Safety
- Reactor Unit Supv
- Safety Engr
- 1C Shift Engr's Office
- Support Svs Supv
- Tech Support Center
- 1C Unit 1 Control Rm
- Unit 2 Control Rm
- 1C John Raulston, NEB, W10A63 C-K
- Site Director
- Site Svs Manager
- Design Svs Manager
- 1C ANI-U&B
- 1C NDE Inspection Section - WB
- 1C Mech. Maint Shop Office
- 1C WB Tech Sec
- 2C ISI Programs Section
- 1C Inservice Inspection Group
- 1C NDE Engineering Section - C
- 1C NDE Inspection Section - C
- 1C DCU-B-OC - WB - Kenny Cole

HISTORY OF REVISION/REVIEW

<u>REV. NO.</u>	<u>DATE</u>	<u>REVISED PAGES</u>	<u>REASON FOR CURRENT REVISION (INCLUDE ALL TEMPORARY CHANGE NUMBERS)</u>
15	2/1/85	Cover Sheet, History of Revision/Review, Table of Contents, 2, 3, 4, 6, 15, 15B, 22, 25, 38, 45, 50, 88, 89, 92, 95-106, 111, 112, 124, 165, 180, 181, 189, 304, 308, 309, 311, 328, 330, 333, 416, 417C, 418, 434-446, 448-452 ADDED History of Revision/Review Page DELETED Punchlist Page	Minor corrections and clarifications, added penetration welds to drawings, added penetration welds to Request for Relief ISI-4, revised some of the National Board Numbers, and deleted punchlist page.
16	3/30/85	Table of Contents, 12, 15b, 16, 42, 64, 126, 282-295, 298, 303-305, 307-309, 311, 312, 312b, 313-322, 324-326, 328, 330-332, 337-339, 341, 403, 417	Revised some support acceptance ranges in Appendix A, also revised section 6.4 because weld RCF-B4-4 was added to request for relief ISI-4, and corrected page numbers in Table of Contents.
17	6/25/85	1-4, 15, 30, 32, 34, 36-38, 38a, 64 153, 156, 313, 315 417, 432a	Minor corrections and clarifications, revised RFR ISI-4 and ISI-14, changed support numbers MSH-301 and MSH-421 to 47A400-1-31 and 32, and revised drawings.

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:

<u>Item</u>	<u>When ASME Section III Requirements are Satisfied</u>
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 (Program Procedure 1502.07 formerly DPM N80E3, 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.

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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) Criteria for determining Class 1 and 2 pressure-retaining bolting subject to examination
- (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) Technique for ultrasonic examination of piping welds shall be in accordance with IWA-2232(b) and IWA-2232(c) for examinations performed after 9/16/81. (See Request for Relief ISI-1, ISI-4 and ISI-13)
- (6) Standards for examination evaluation following ultrasonic examination of piping welds (IWA-3000) (See Request for Relief ISI-1)
- (7) Interior clad surfaces of reactor vessels and other vessels examination are not required.
- (8) Reactor vessel interior and core support structure examinations.

The repair and replacement program is in accordance with plant instruction AI-9.15 and Program Procedure 1402.02 (formerly DPM No. WB82M1).

The use of code cases N-234, N-235, and N-401 have been approved for TVA use by NRC.

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 ISI Programs Section of the Division of Nuclear Services Inservice Inspection Group from CONST's latest revision weld maps.

Prior to performance of the examinations, each system shall be walked down by the ISI Programs Section to verify that the ISI Programs Section 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 ISI Programs Section engineer to ensure that the appropriate information is included on the drawing and shall be approved by the ISI Programs Section supervisor.

The NDE Engineering Section of the Inservice Inspection Group shall prepare scan plans 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 established and approved by NDE Level III and submitted by NDE Section to the Plant Manager for information, and system or component weld maps incorporated in Appendix A of this program.

The NDE Section 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 the ISI Programs Section which shall be responsible for revising the original drawings. The NDE Engineering Section 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 the Inservice Inspection Group, Plant Quality Assurance Staff or outside contractors. Contract preparation, administration, and supervision will be the responsibility of the NDE Engineering Section. Inspection plans and/or Quality Assurance Programs submitted by outside contractors shall be reviewed and approved by the Inservice Inspection Group and Division of Quality Assurance, Procurement Evaluation Branch prior to use. All specific NDE procedures used during the inspection program shall be reviewed and approved in accordance with NQAM Part II, Section 6.3.

Certain ASME Section III examinations performed in shop and/or by CONST will be identified by the ISI Programs Section 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 the ISI Programs Section. When CONST examination records are employed, CONST examination procedures

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shall be obtained by the NDE Engineering Section for reference (excluding pressure test procedures), and a random sample review of records shall be done by the NDE Engineering Section.

Additionally, the Inservice Inspection Group representative will be responsible for notifying the Plant Manager of all unacceptable indications as soon as practical. Whenever an unacceptable indication is discovered, the procedure and 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 Inservice Inspection Group representative. See section 16.0 of this program.

Computer monitor programs are used to identify any welds or supports that have been reworked by CONST after the preservice examination has been done. The plant shall include provisions for notifying inservice inspection group in any work instruction written to modify or rework welds or supports after the preservice examination has been done.

The Inservice Inspection Group 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 NDE Inspection Section 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 NDE Inspection Section representative and reviewed by the NDE Engineering Section Supervisor, ISI Programs Section supervisor, and approved by Inservice Inspection Group supervisor. In the event system or component alterations or repairs are made which require component reexamination, or components are reexamined for other reasons, following sign-off of Data Sheet 1, the appropriate sections of Data Sheet 2 in Appendix B shall be completed and signed by the NDE Section representative and reviewed by NDE Engineering Section supervisor, ISI Program Section supervisor, and approved by Inservice Inspection Group supervisor.

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 by the NDE Section representative and reviewed by the NDE Section Supervisor, and the ISI Programs Supervisor, and approved by the Supervisor of the Inservice Inspection Group. After the data sheets 1 and 2 have been approved, the data package cover sheet shall be signed by the Mechanical Branch Chief and the Plant 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 ISI Programs Section. Any revisions initiated by other groups shall be submitted to the ISI Programs Section for approval prior to incorporating the revisions into this program.

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-4).

The following Class 1 piping systems are subject to examination:

- Reactor Coolant
- Chemical and Volume Control
- Residual Heat Removal
- Safety Injection
- Upper Head Injection

6.4.1 Circumferential And Longitudinal Pipe Welds

The entire length of each circumferential and longitudinal pipe weld shall be ultrasonically examined as practical.

The following circumferential pipe welds will be radiographically examined (RHRF-D053-5, -1, -12, -4, RHRF-D055-14, UHIF-D040-13, UHIF-D041-7, UHIF-D042-13, UHIF-D043-7., UHIS-26, SIF-D092-13, and RCF-D232-1D).

6.4.2 Branch Pipe Connection Welds

All branch pipe connection welds exceeding six inches in diameter shall be ultrasonically examined. Each branch pipe connection weld six inches in diameter and smaller shall be liquid penetrant examined.

6.4.3 Piping Socket Welds

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

1-068A-T001-2	1-068A-T002-1	1-068A-T005-2
-3	-2	-7
-4	-3	-10
-5	-4	-11
-6	-5	-12
-7	-6	-13
-11	-7	-17
-12	-8	-18
-13	-9	-19
-17	-10	
-18	-11	
-19		

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 J.

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.

8.1 Hydrostatic Pressure Tests

ASME Class 3, components will be visually examined for leakage by CONST during the system hydrostatic pressure tests required by ASME Section III.

8.2 Supports And Hangers

Supports and hangers for components exceeding 4-inch nominal pipe size whose structural integrity is relied upon to withstand design loads when the system function is required, shall be visually examined to detect any loss of support capability, and evidence of inadequate restraint. (See Appendix A, Table C and I)

9.0 HYDROSTATIC PRESSURE TESTS

ASME Class 1, 2, and 3 components (including exempted components) shall be visually examined for leakage during system hydrostatic pressure tests. These examinations shall be performed by CONST during the ASME Section III hydrostatic tests. Additional pressure test shall be performed in accordance with (Program Procedure 1502.08, formerly DPM No. WB 82E1 for NUC PR).

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.

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 of Section XI of the ASME Code. Where Appendix I (I-1200) is not applicable, the provisions of Article 5 of Section V of the ASME Code shall apply except as noted in Section 3.0 of this program.

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 Program Procedure 202.14 (formerly DPM No. N75C01 for NUC PR). 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 and Program Procedure 1402.02 (formerly DPM No. WB82M1) Preparation of Work Instructions for Repairs and Replacements of ASME Section XI Components, and NQAM, Part II, Section 2.3, Repairs and Replacements of ASME Section XI Components. Repairs and replacements as necessary may be coordinated with the Applications Engineering Group of the Mechanical Branch.

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.

The NDE Engineering Section 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.

15.1.1 Repair and Replacement Reports

The plant shall prepare a summary of repairs and replacements for all ASME Class 1 and 2 components, in accordance with Program Procedure 1402.02 (formerly DPM No. WB82M1).

16.0 NOTIFICATION OF INDICATION

Plant management shall be formally notified of the presence of unacceptable indications detected during the performance of nondestructive examinations. Unacceptable indications are defined by the applicable NDE procedure. Formal notification shall consist of completing and submitting to the Plant Manager the "Notification of Indication" form in Appendix C of this program.

Part I of the "Notification of Indication" shall be completed and signed by the NDE Level II or III examiner detecting the indication. The NDE Section representative shall assign a sequential number and review and sign the form. If the indication is detected by an outside contractor, the contractor's field supervisor shall review and sign the form. The original shall be sent to the plant manager and a copy to the ISI Programs Section.

The plant manager or his assistant shall designate the organization (Modifications Group, Plant Maintenance, or the Office of Construction) responsible for preparing a disposition in Part II of the form and performing the associated corrective action. If the organization assigned responsibility for disposition is unable to determine a satisfactory disposition then the form should be sent to the Mechanical Branch for disposition.

The individual responsible for preparation of the disposition shall sign and date Part II of the form. The cognizant supervisor of the appropriate organization shall review and approve the disposition and sign and date Part II of the form. Copies of the form shall be distributed to the plant manager and the ISI Programs Section. The original shall be returned to the NDE Engineering Section Representative. One copy shall be filed with the examination report.

If the organization assigned responsibility for disposition is within NUC PR, they shall determine if the unacceptable condition is significant and potentially reportable in accordance with the requirements of NQAM, Part III, Section 7.2 and Plant Instruction AI-7.3. 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. 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-8.5 before licensing and 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. Dispositions to accept the condition as-is shall include in Part II of the form the basis for the disposition. In addition for dispositions to accept the condition as-is, a USQD shall be prepared by the appropriate organization in accordance with established procedures.

If Construction is responsible for corrective action, it shall be performed in accordance with the disposition on the Notification of Indication form and to the satisfaction of the Inservice Inspection Group representative. The organization responsible for corrective action shall include preservice examination requirements in the repair or replacement work instruction described in AI-9.15.

Upon completion of corrective action the Inservice Inspection Group Representative shall verify completion of corrective action, enter the work instruction and/or DCR numbers on the Notification of Indication form, enter the examination report number if re-examination was performed, and sign and date the form, Part III. The signed form shall remain with the examination report for use as a quality assurance record. If reexamination was performed, a copy of the signed form shall also remain with the reexamination report. Copies of the form shall also be distributed to the plant manager and the ISI Programs Section.

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 NDE Inspection Section for all calibration blocks. The blocks shall employ drilled holes and/or notches for calibration reflectors (see Request For Relief ISI-1).

The NDE Inspection Section shall ensure that as built calibration block drawings are prepared. The calibration block drawings shall be maintained in accordance with NQAM, Part III, Section 3.3.

18.0 REQUESTS FOR RELIEF

Where TVA has determined that certain code requirements or examinations are impractical, TVA will submit written requests for relief to NRC with information to support the determinations with 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, the NDE Inspection Section or NDE Engineering Section shall notify the ISI Programs Section such that the information may be included in this program and requests for relief may be prepared if necessary. The NDE Inspection Section or NDE Engineering Section shall submit sketches to the ISI Programs Section to identify areas which cannot be examined in accordance with code requirements.

19.0 AUGMENTED INSPECTIONS

19.1 Steam Generator Tubes

The augmented examination requirements of the steam generator tubing are included in Technical Specification 4.4.5.0 and Section 6.3.8 of this program.

20.0 REFERENCES

20.1 Source Documents

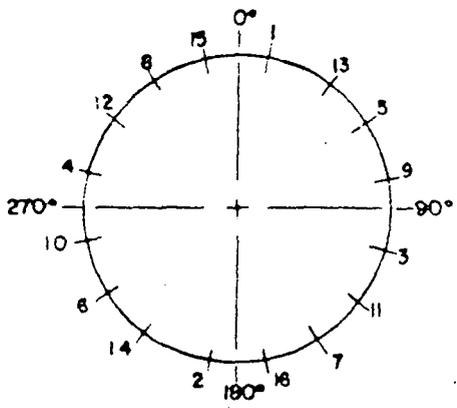
- 20.1.1 ASME Boiler and Pressure Vessel Code - Section XI through Summer 1975 addenda, Summer 1976 addenda, Summer 1978 addenda.
- 20.1.2 ASME Boiler and Pressure Vessel Code - Section V through Summer 1975 addenda.
- 20.1.3 Watts Bar Nuclear Plant Final Safety Analysis Report.
- 20.1.4 Nuclear Quality Assurance Manual Part II, Sections 2.1, 2.3, 3.0, 5.1 and 6.3.
- 20.1.5 Nuclear Quality Assurance Manual Part III Sections 3.3 and 7.2.
- 20.1.6 Code of Federal Regulation, Title 10, Part 50.55a.
- 20.1.7 U.S. Nuclear Regulatory Commission Regulatory Guides 1.26 and 1.83.
- 20.1.8 Watts Bar Nuclear Plant Technical Specifications

20.2 Other Documents

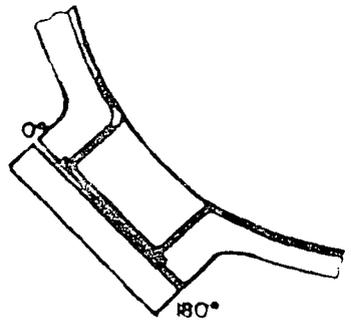
- 20.2.1 Instruction Manual - 173-inch I.D. Reactor Pressure Vessel - Rotterdam Dockyard Company, Contract No. 71C62-54114-1, N3M-2-3.
- 20.2.2 Westinghouse Technical Manual - Pressurizer, TM 1440-C225, Contract No. 71C60-54114-1, N3M-2-6.
- 20.2.3 Westinghouse Technical Manual - Vertical Steam Generators, 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.

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- 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-3.1, AI-7.3, AI-8.5, AI-8.8, AI-9.2, AI-9.7, and AI-9.15.
- 20.2.8 Area Program Procedures 202.14, 1402.02, 1502.07 and 1502.08.

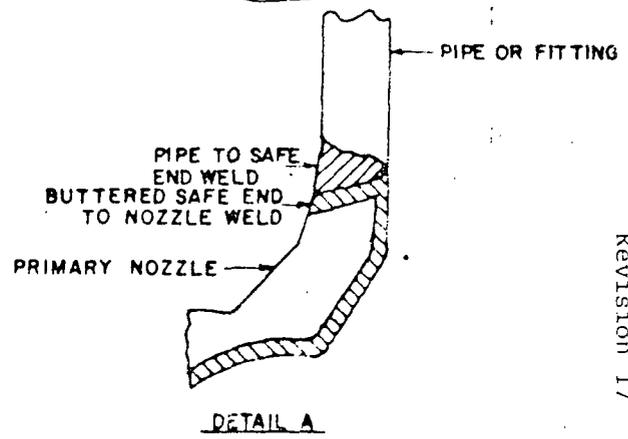


PRIMARY MANWAY BOLTING
SEE NOTE 1



NOTES

1. PROCEED THE BOLT NUMBER WITH SGX-Y WHERE X=STEAM GENERATOR NUMBER & Y=C FOR COLD LEG MANWAY OR H FOR HOT LEG MANWAY.



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3	3-6-85	ADD NOTES AND REFERENCES TO THE NOTES	CKD	APP
2	8-6-84	ADD DETAIL A	CKD	APP
1	7-13-84	CORRECT BOLT NUMBER SEQUENCE AND DELETED NOTE	CKD	APP
NO	DATE	REVISIONS	CKD/APP	

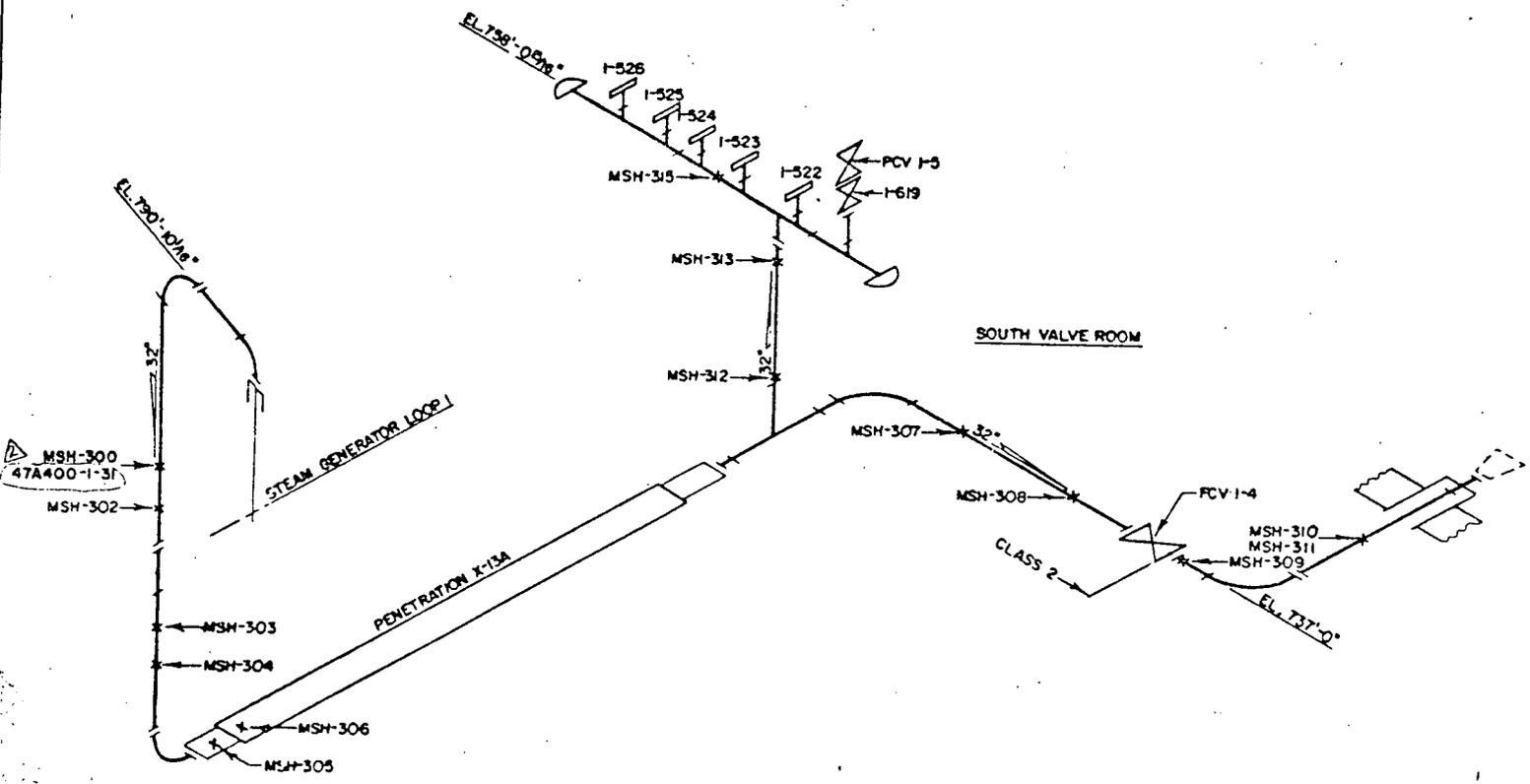
TENNESSEE VALLEY AUTHORITY
 DIVISION OF NUCLEAR POWER
 WATTS BAR NUCLEAR PLANT
 UNITS #1 & #2
 STEAM GENERATOR

DESIGNED BY RJS	APPROVED BY RJS	DATE 7/13/84	SCALE 1/2" = 1'-0"
DRAWN BY RJS	APPROVED BY RJS	DATE 7/13/84	SCALE 1/2" = 1'-0"
CHECKED BY RJS	APPROVED BY RJS	DATE 7/13/84	SCALE 1/2" = 1'-0"

CH-M-2660-B R 3

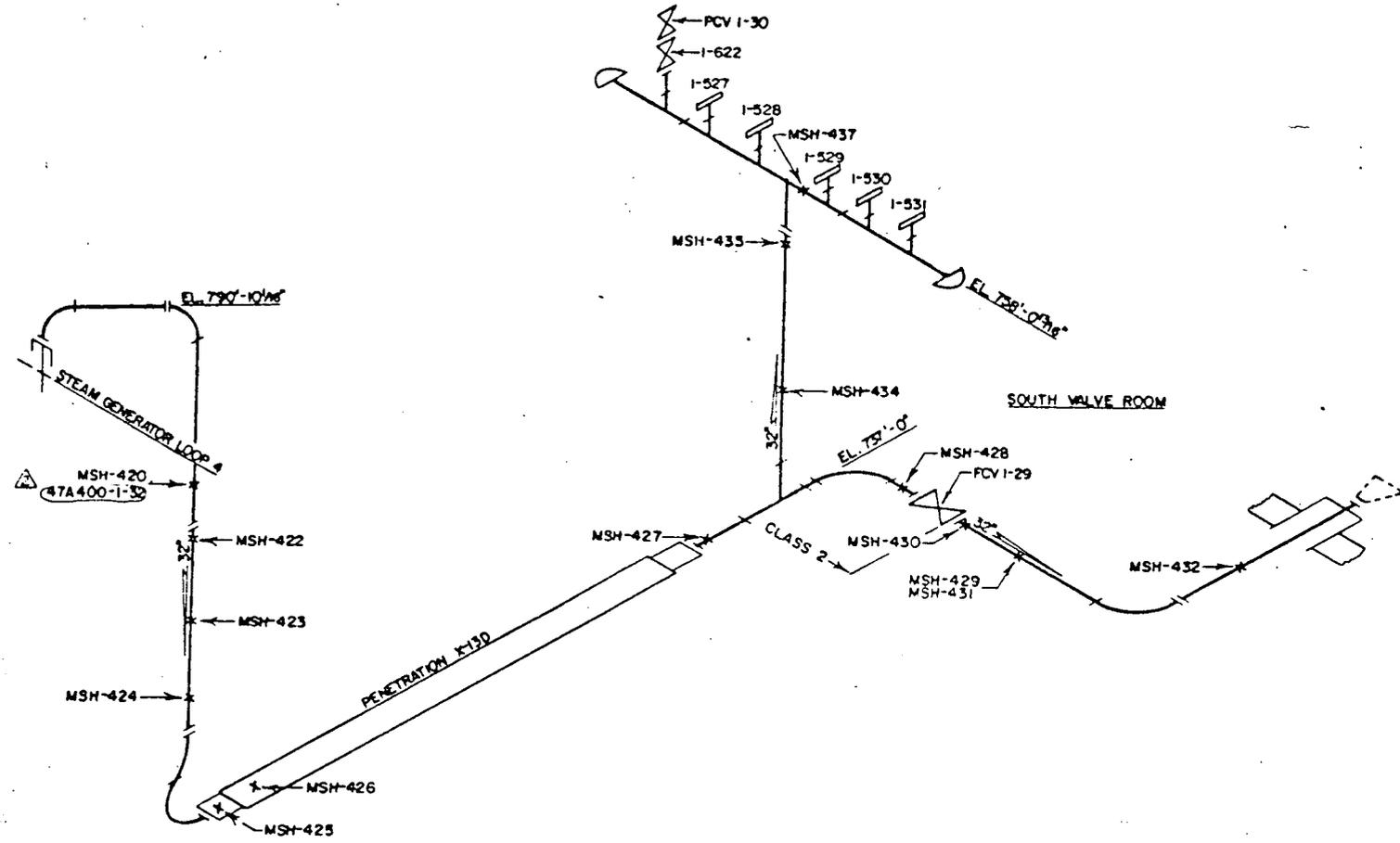
REFERENCE DRAWING
47W400-213
CLASS 2

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NO.	DATE	REVISIONS	CK'D APP.
2	5-27-85	CORRECTED HANGER NO. 7AA	J.P.
1	1-20-84	CORRECT REFERENCE DRAWING #17	K.C.
TENNESSEE VALLEY AUTHORITY DIVISION OF NUCLEAR POWER WATTS BAR NUCLEAR PLANT UNIT #1 MAINSTEAM SYSTEM HANGER LOCATIONS			
SCALE	NTS	DATE	8-21-81
BY	KEY	DESIGNED	SI-0011-C

REFERENCE DRAWING
 47W400-216
 CLASS 2



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NO.	DATE	REVISIONS	CK'D BY
2	5-22-85	CORRECTED HANGER NO. JAA	QJA/MS
1	1-20-84	CORRECT REFERENCE DRAWING #17	JCC/MS
REVISIONS			CK'D BY
TENNESSEE VALLEY AUTHORITY			
DIVISION OF NUCLEAR POWER			
WATTS BAR NUCLEAR PLANT			
UNIT #1			
MAINSTEAM SYSTEM			
HANGER LOCATIONS			
DATE	BY	APP'D	NO.
8-24-81	MS	JAB	SI-0011-C

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TABLE H
COMPONENTS SUBJECT TO EXAMINATION CATEGORY

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ASME CLASS 2 SUPPORTS

System Dwg. No. Table
 MS ISI-0011-C IWC

Support No.	Sheet No.	Support Type					Integrally-Welded Attachment Size	Exam Required	Bolting	Acceptance Range	
		Pipe Size	Restraint	Snubber	Spring	Anchor					
MSH-300	1	32		PSA-100			6"	No	VT-3,4	Yes	1 1/8" - 5 3/4"
47A400-1-31	1	32		PSA-100			6"	No	VT-3,4	Yes	1/4" - 4 3/8"
MSH-302	1	32			BP-VS4B(2)		4 3/4"	Yes 1" lug	VT-3,4, ST	Yes	2 1/16" - 4 1/2"
MSH-303	1	32		PSA-35(2)			6"	Yes 1" lug	VT-3,4, ST	Yes	1 3/4" - 5 3/4"
MSH-304	1	32		PSA-35(2)			6"	No	VT-3	Yes	1/4" - 5 7/16"
MSH-305	1	32			BP-VS4A		4 3/4"	No	VT-3,4	Yes	1/2" - 4 1/2"
MSH-306	1	32	X					No	VT-3,4	Yes	
MSH-307	1	32		PSA-10			6"	No	VT-3,4	Yes	1 1/16" - 5 3/4"
MSH-308	1	32		PSA-100(2)			6"	No	VT-3,4	Yes	3/4" - 5 9/16"
MSH-309	1	32			BP-VS2B		2 3/8"	No	VT-3	Yes	1/4" - 1 25/32"
MSH-310	1	32	X					No	VT-3	Yes	
MSH-311	1	32	X					No	VT-3	Yes	
MSH-312	1	32		PSA-100			6"	No	VT-3,4	Yes	5/8" - 5 5/8"
MSH-313	1	32		PSA-10			6"	No	VT-3,4	Yes	1/4" - 4 5/8"
MSH-315	1	32	X					No	VT-3	Yes	

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TABLE H (CONTINUED)
COMPONENTS SUBJECT TO EXAMINATION CATEGORY

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ASME CLASS 2 SUPPORTS

System Dwg. No. Table
 MS ISI-0011-C IWC

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Support No.	Sheet No.	Pipe Size	Support Type				Integrally-Welded Attachment Size	Exam Required	Bolting	Acceptance Range	
			Restraint	Snubber	Spring	Anchor					Stroke
MSH-383	3	32		PSA-35			6"	Yes 1" lug	VT-3,4, ST	Yes	1 5/8" - 5 3/4"
MSH-384	3	32			BP-VS26-B		2 3/8	No	VT-3,4	Yes	5/8" - 2 1/8"
MSH-385	3	32	X					No	VT-3	Yes	
MSH-386	3	32			BP-VS4A		4 3/4	No	VT-3,4	Yes	1/4" - 3 5/8"
MSH-387	3	32		PSA-35			6"	No	VT-3,4	Yes	1 11/16" - 5 3/4"
MSH-388	3	32	X					No	VT-3	Yes	
MSH-389	3	32		PSA-3	BP-VS2F		5" 2 3/8	No	VT-3,4	Yes	13/16" - 4 3/4" 1/4" - 1 9/16"
MSH-391	3	32		PSA-100			6"	No	VT-3,4	Yes	1/4" - 5 1/2"
MSH-392	3	32		PSA-10			6"	No	VT-3,4	Yes	2" - 5 3/4"
MSH-394	3	32	X					No	VT-3	Yes	
MSH-420	4	32		PSA-100			6"	No	VT-3,4	Yes	11/16" - 5 3/4"
47A400-1-32	4	32		PSA-100			6"	No	VT-3,4	Yes	1/4" - 4 5/16"
MSH-422	4	32			BP-VS4B		4 3/4	Yes 1" lug	VT-3,4, ST	Yes	2 3/16" - 4 1/2"
MSH-423	4	32		PSA-35			6"	Yes 1" lug	VT-3,4, ST	Yes	1 3/4" - 5 3/4"
MSH-424	4	32	X					No	VT-3	Yes	

REQUEST FOR RELIEF ISI-4 (Continued)

Weld Number ¹	Code Category ²	Drawing Number	Physical Configuration ³	Scan ⁴ /Limitation ⁵	Remarks ⁶
MSS-61A-LS	CG	CHM-2669-C 4 of 4	P	All/Limited by 10%	Limited examinations due to pipe support
MSS-61B-LS	CG	CHM-2669-C 4 of 4	P	All/Limited by 10%	Limited examinations due to pipe support
MSF-D006-10 (R-501)	CG	CHM-2669 4 of 4	P/V	4/Limited	Limited examination due to component geometry
RCS-106	B-J	ISI-0017-C 6 of 11	F/P	3/No scan 4/7:00 to 11:00	No examination due to component geometry. Limited due to permanent pipe restraint. (Note 8)
RHRF-D055-10	C-F	CHM-2636-C 8 of 8	E/V	3/9:00 4/No scan	No examination due to component geometry. Limited due to gamma plug.
SIF-D088-9	CF	CHM-2758-C 6 of 14	E/P	All/6:00	Limited examination due to thermocouple.
RCF-B4-4	B-J	CHM-2758-C 13 of 13	Branch Connection Boss/P	No Scan	No examination due to boss and pipe configuration (Note 8)

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REQUEST FOR RELIEF ISI-14

Components: Residual Heat Removal Heat Exchanger

Class: ASME Class 2 (TVA Safety Class B)

Inspection Requirement: Volumetric examination of at least twenty percent of each circumferential butt weld at structural discontinuities in examination category C-A. This examination shall be uniformly distributed among three areas around the vessel circumference.

Basis for Relief: Approximately eighteen percent of weld, RHRHX-2-1A, can be examined due to residual heat removal heat exchanger inlet and outlet nozzle, and the residual heat removal heat exchanger support pad attachment plates. See attached drawing.

The weld had a shop radiographic examination performed in accordance with ASME Section III.

Alternate Inspection: The circumferential weld shall be volumetrically examined in all accessible areas.