TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT

SITE STANDARD PRACTICE

SSP-6.10

ASME SECTION XI ISI/NDE AND AUGMENTED NONDESTRUCTIVE EXAMINATION PROGRAMS

REVISION 5

UNIT 1

QUALITY RELATED

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APPROVED BY: W L Elliott DATE: 4/11/96 4/12/96 WLE 4/11/96

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REVISION LOG

REVISION OR CHANGE NUMBER	EFFECTIVE DATE	AFFECTED PAGE NOs	DESCRIPTION OF REVISION/CHANGE
5	5-13-96*	All	General revision. Change SSP emphasis from preservice inspection program to inservice inspection program. Incorporate Revision 5 of Standard 6.10. Added Section 4.0, Appendix A and C, and Attachments 1 and 2.

* The effective date shown is for administrative purposes only. The actual effective date is the date of "Commercial Operation".

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1.0 PURPOSE

10 CFR 50.55a(g) requires the establishment and implementation of Inservice Inspection (ISI) requirements (including preservice) in accordance with Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code for components (including supports) which are classified as ASME Code Class 1, Class 2, and Class 3 equivalent. The code and related regulatory documents are not specific or detailed enough to sufficiently define some aspects of the ASME Section XI ISI/NDE Program administration and implementation. In addition, TVA implements augmented examinations which are imposed through various requirement sources. This Site Standard Practice (SSP) provides administrative controls for the ISI/NDE program and the augmented examinations which have been integrated with the ASME Section XI ISI Programs and those which have not been integrated. The administrative controls for augmented examinations are included in Appendix A of this SSP.

2.0 SCOPE

This SSP establishes administrative controls and provides requirements, guidance, and interfaces for preparation and implementation of ASME Section XI ISI/NDE Program and Augmented Nondestructive Examination Programs for Watts Bar.

This SSP will affect other examination/testing programs in that some of the components required to be examined under the ASME Section XI Code are also required to be examined/tested in accordance with the Technical Requirements or other codes/standards or augmented examinations. This SSP does not control the total examination/testing program but establishes the ASME Section XI ISI/NDE requirements and allows integration of all the examination/test programs.

This SSP applies to employees, contractors and Nuclear Power (NP) organizations who prepare, revise, issue, and/or implement ASME Section XI ISI/NDE Program instructions or augmented examination instructions.

This SSP implements Nuclear Power Standards Procedure STD-6.10.

3.0 INSTRUCTIONS

Adhere to the following instruction when preparing, revising, and implementing the ASME Section XI ISI/NDE Program, 1-TRI-0-10.

3.1 Site Nuclear Engineering (NE) Responsibilities

A. NE Responsible Manager Responsibilities:

1. Defining ASME Section XI Code Class 1, 2, and 3 (equivalent) boundaries in accordance with 10 CFR 50.55a (c), (d), and (e).

2. Utilizing design classifications (as indicated on TVA flow diagrams) to identify the ASME Section XI Code Classification 1, 2, and 3 (equivalent) boundaries within each plant system as defined in Section 3.1.A.1.

3. Providing specific written details for any augmented requirements for which they are responsible and to determine if a post examination meeting is required.

4. Determining critical areas subject to augmented examination to ensure structural integrity has not been compromised and identifying these areas for NDE when requested.

5. Evaluating and making recommendations for further examinations within the system and/or other systems when the additional examinations shall include all the welds, areas, or parts of similar design, size and function.

B. NE Responsible Discipline Responsibilities on ISI Program and Drawings:

1. Preparing/revising ISI/NDE drawings which identify the ASME Section XI Class 1, 2, and 3 equivalent components (including supports) that require inservice and/or preservice nondestructive examination (NDE) to satisfy ASME Section XI ISI/NDE Program requirements. ISI/NDE Program drawings, which require welds to be located by as-built dimensions (i.e. reactor vessel), shall have the weld location source documents referenced on the drawings.

2. Preparing/revising/docketing with the NRC the WBN ASME Section XI ISI/NDE Program as required and ensuring the program provides detailed instructions for ISI including the following information as a minimum:

   a. The ASME Section XI Code of Record for ISI and applicable code cases.

   b. The inspection interval.

   c. A list of the TVA flow diagram drawings used to define the ASME Section XI ISI boundaries.

   d. A list of the ISI drawings.

   e. An examination schedule in tabular form to provide, the 10-year interval sample and the samples for the three periods within the interval.

   f. Augmented examination requirements based on other codes/standards regulatory guides, etc.

   g. The NDE method to be used for each component.

   h. The ASME Section XI examination category and item number for each component.

   i. Copies of request for relief.

   j. Name and address of owner.

   k. Name and address of generating plant.

   l. Name or number designation of unit.

   m. Commercial operating date for the unit.

   n. A description of the system for maintaining status of completed work; and

   o. A discussion of scan plans which provide details of required component examinations such as component identifier, NDE procedure, calibrations block, drawing number, etc.

3. Providing inservice and/or preservice ASME Section XI clarification as requested by various site organizations or as required in program development and implementation.

4. Ensuring that the ISI program and program revisions are submitted in a timely manner to the Authorized Nuclear Inservice Inspector (ANII) for review in accordance with IWA-2110.

C. NE Responsible Discipline Responsibilities on PRISIM and Scan Plans:

1. Preparing and/or revising the PRISIM database by providing a list of components requiring examination during each period and cycle of the 10-year interval which includes the components that must be examined during a specific refueling outage. This listing shall include the component identifier, ASME Section XI examination category and item number, examination method, ISI drawing and sheet number, and examination requirement source. This list will be provided to the Inspection Services Organization (ISO) in accordance with plant schedules.

2. Providing additional samples required due to unacceptable examination results.

3. Approving all scan plans and scan plan revisions.

4. Submitting copies of the approved scan plan(s) to site management as requested, and to the Authorized Nuclear Inservice Inspector (ANII).

D. NE Responsible Discipline Responsibilities for Augmented Examinations:

Initiating a pre-outage meeting on augmented examinations in accordance with Appendix A, Section 2.2, of this SSP.

E. NE Responsible Discipline Responsibilities on Performance of NDE:

1. Ensuring that the services of an Authorized Inspection Agency (AIA) are used when performing Code required examinations through a contract established with an AIA (Reference Section 3.3.A.4).

2. Arranging for the AIA representative to have access to any documents and all parts of the plant and offices (subject to plant security and health physics requirements) necessary for performing his required duties.

3. Notifying the ANII prior to starting a series of ISI examinations.

4. Performing NDE, in accordance with ISI/NDE Program Instruction, applicable scan plan, and NDE procedures utilizing personnel qualified/certified in accordance with IEP-200, or with contractor procedures that have been authorized for use by ISO.

5. Preparing examination reports for completed examinations in accordance with the format in the NDE procedure.

   a. Ensuring that all scan plan examinations are completed prior to the completion of each refueling outage.

   b. Ensuring that status of completed examinations are recorded in PRISIM.

   c. Ensuring that report number, date of examination, examiner's initials, NOI number and any comments or discrepancies are recorded in PRISIM.

6. Planning and scheduling examinations and coordinating with Radiological Control to minimize personnel exposures to radiation.

7. Scheduling examinations during outages in accordance with SSP-7.02 and coordinating with Outage Management to prepare and schedule examination plan.

8. Ensuring that Notification of Indication (NOI) Form is utilized to document ISI/NDE results which exceed acceptance criteria and to document the disposition.

   a. Preparing NOIs for examination results which do not meet the acceptance criteria of the NDE procedure, when evaluated by Level II or III examination personnel. NOIs do not apply to PSI Examinations following repair and replacement activities.

   b. Ensuring that NOIs are forwarded to Technical Support Group as notification of discrepant conditions and for disposition.

   c. Ensuring that NOIs are closed as required by the disposition.

   d. Documenting re-examinations by recording the examination report number on NOI form prior to closure.

   e. Ensuring that the closed NOI is filed with the examination report.

9. Ensuring that a NDE Level II or III individual evaluate the NDE results in accordance with ASME Section XI, IWA-3000. When flaws are detected and recorded, the results shall be compared with results of the preservice NDE and previous inservice NDE results, if applicable.

10. Ensuring areas that are inaccessible or partially inaccessible for examination, or conformance with ASME Code requirements is impractical, shall be evaluated by a NDE Level III and an ISI/NDE Program Engineer to determine if a request for relief should be submitted to the NRC. This information shall be coordinated with TVA Nuclear (TVAN) Engineering Corporate, Materials and Inspection.

11. Ensuring that requests for relief include supporting information on the need for relief and any alternate examinations are documented.

12. Submitting Requests for Relief to Site Licensing.

    Requests for Relief from the ASME Section XI program code requirements may need to be considered for assessment under the requirements of the 10 CFR50.59 process, "Changes, Tests and Experiments." The decision to perform such an assessment shall be governed by Site Standard Practice SSP-12.13 pertaining to the 10 CFR50.59 process. In general, only those requests for relief that will be put into irrevocable use prior to regulatory approval should have to be subjected to the 10 CFR50.59 process. This assessment is normally performed during the Site procedure change process.[1]

13. Submitting additional sample results for further evaluation during ISI implementation.

F. NE Responsible Discipline Responsibilities on Reports:

1. Preparing ISI Summary Report including ASME Form NIS-1 for the ISI/NDE Program in accordance with Section 4.3.1 as required by ASME Section XI IWA-6000.

2. Submitting Form NIS-1 to the ANII for signature.

3. Including information provided for Steam Generator, Repair and Replacement, and System Pressure Test Programs as a part of the ISI Summary Report.

4. Ensuring that analytical evaluations as required by Section 3.1.J.2 are submitted to Site Licensing.

5. The ISI Summary Report shall be submitted to Site Licensing on a schedule that permits submittal to the NRC within 90 days after the refueling outage.

6. Preparing the Site Final Report which includes all pertinent preservice/inservice data in accordance with Section 4.3.2.

7. Submitting the Site Final Report which contains the examination reports and the ISI Summary Report, to DCRM as a QA record.

G. NE Responsible Discipline Responsibilities When NDE Performed by Contractors:

1. Ensuring that contractors are familiar with the ASME Section XI ISI/NDE Program being used.

2. Ensuring contractors are certified using guidelines of IEP-200.

3. Maintaining surveillance of contractor preservice or inservice activities to verify compliance with the contract and applicable ASME Section XI ISI/NDE Program requirements.

4. Ensure that the elements of Subsection 3.1.E, 3.1.F, and this section are completed.

5. Ensuring PSI/ISI examinations are performed in accordance with TVA NDE Procedures or are performed in accordance with contractor procedures that have been authorized for use by ISO.

H. NE Responsible Discipline Responsibilities with PSI Conducted in Manufacturer's Shop:

Ensuring records are identified and documented in accordance with this Instruction. Other report formats may be utilized provided the minimum required information is contained therein.

I. NE Responsible Discipline Responsibilities for Component Support Boundaries:

Determining the examination boundary for new or modified supports in accordance with Appendix C.

J. Other NE Responsibilities:

1. Designing for the fabrication, erection, and construction of all structures, systems, and components to quality standards commensurate with the importance of the safety function to be performed. Design for access in accordance with the ASME Code, Section XI must be satisfied.

2. Performing analytical evaluations, as required, for component acceptability in accordance with the requirements of Articles IW(X)-3000 of the ASME Section XI Code.

3.2 TVAN Engineering Corporate, Inspection Services Organization Responsibilities

A. Inspection Services Organization (ISO), Responsibilities:

1. Entering data into PRISIM as established in 3.1.C to include all components within the ASME Section XI ISI/NDE Program for WBN and incorporating ISI/NDE drawing revisions into PRISIM when revised ISI/NDE drawings are issued.

2. Providing scan plans for each refueling outage of an inspection interval as established in 3.1.C utilizing PRISIM. This includes providing additional information by NDE Level III personnel, such as NDE procedure references, calibration standard references, and ultrasonic scanning angles. Providing NDE Level III approval of the scan plan. Submitting scan plans to ISI/NDE in accordance with plant schedules.

3. Providing NDE Level III approval of each scan plan revision, which affects the additional information supplied in 3.2.A.2, and maintaining a scan plan revision history log.

4. Providing a NDE Level III to compare and/or evaluate completed examination results to the requirements of the scan plan, identify any limitations or impractical examinations, and provide notification to ISI/NDE for possible action in accordance with Section 3.1.E.8.

5. Preparing, revising and approving NDE procedures to comply with applicable codes and regulatory requirements. ASME Section XI NDE procedures shall be in accordance with IWA-2200.

6. Coordinating with Site Engineering to ensure the requirements of IWA-1400(o) are fulfilled for recording of regions in ferritic steel components where acceptance standards have been modified as required in IWB-3410.2

7. Submitting the modified acceptance standards of 3.2.A.6 to Corporate Licensing

8. Preparing, implementing and maintaining the qualification/certification program for NDE personnel in accordance with IWA-2300 of ASME Section XI requirements.

9. Ensuring that the NDE procedures and qualification/certification program has been reviewed by the Authorized Inspection Agency (AIA) for compliance with ASME Section XI.

10. Providing a NDE Level III to perform technical overview and monitoring of ISI/NDE field examination activities as requested by the ISI/NDE Supervisor.

11. Providing a NDE Level III to perform final evaluation of NDE indications detected by examiners relative to IWA-3000.

12. Supplying manpower resources, such as NDE Level III specialist, NDE coordinators, NDE technicians, and contractor personnel, to the site as requested to supplement staffing.

13. Providing a NDE Level III to assist in resolving examiners concerns relative to NDE (i.e. adequate surface preparation, extent of examinations, etc.), to assist site in resolving ANII concerns relative to NDE and to assist the site during NRC audits of NDE related work.

B. ISO, Additional Responsibilities When NDE Performed by Contractors:

1. Contract preparation and administration. Inspection plans submitted by outside contractors shall be reviewed and approved by ISO prior to use.

2. Approving contractor's written practices for qualification and certification of NDE personnel and approving certifications of contractor's NDE personnel utilized for the performance of PSI/ISI as specified in IEP-200.

3. Provide NDE Level III approval of contractors NDE procedures for technical adequacy and code compliance, where applicable.

3.3 TVAN Engineering Corporate; Materials and Inspection (M&I) Responsibilities

A. M & I Responsibilities:

1. Providing preservice and/or inservice ASME Section XI interpretations as requested by variour site organizations as required in program development and implementation. Frequently used ASME Section XI Code interpretations are provided in Appendix B of this SSP.

2. The conduct of oversight of the PSI/ISI program implementation at each site either by assessment, evaluations, participation in formal QA audits of assessments as technical assistant, participation in process improvement teams, or by routine involvement in program aspects such as review and concurrence of program changes and submittals to NRC.

3. Reviewing and commenting for all preservice and/or inservice program relief requests prior to issuance.

4. Administrating TVA Authorized Inspection Agency contracts.

5. Reviewing and commenting on ASME Section XI ISI/NDE Program reports and submittals to Site Licensing prior to submittal to NRC.

3.4 Site Technical Support Responsibilities

A. Assigning a plant organization to be responsible for disposition of NOIs.

B. Maintaining a tracking system to identify the responsible plant organization for each NOI.

C. Reviewing each dispositioned NOI for accuracy and completeness. Dispositions that are evaluated to be acceptable "as is" or required to be repaired/replaced in accordance with SSP-6.09 shall be evaluated in accordance with SSP-3.4.

D. Providing NIS-2s and system pressure test reports to ISI/NDE for inclusion in the ISI Report.

E. Coordinating with Corporate Steam Generator Programs to develop and perform steam generator tube inspections in accordance with the Steam Generator Program. Responsibilities include:

1. Providing a list of steam generator tubes to be examined for a specific refueling outage. This listing shall include the component identifier, ASME Section XI examination category and item number, examination method, drawing and sheet number, and examination requirement source. This list will be provided to the appropriate site organization and ISO in accordance with plant schedules.

2. Providing any additional samples required due to examinations performed.

3. Approving scan plans and revisions to scan plans affecting tube selection or any provision of the listing of tubes identified in 3.4.E.1.

4. Submitting copy of final SG scan plan and report to NE for inclusion in the ISI Report.

3.5 Site Licensing Responsibilities

A. Submittal of ASME Section XI ISI/NDE Program for each 10 year interval, to the NRC.

B. Submitting ASME Section XI ISI/NDE Program requests for relief, analytical evaluations and reports to the NRC for review and/or approval.

C. Ensuring all ASME Section XI correspondence shall include NE on distribution.

3.6 Site Document Control and Records Management (DCRM) Responsibilities

A. Issuing controlled copies of the ASME Section XI ISI drawings to specified distribution lists.

B. Providing controlled copies of ASME Section XI ISI/NDE Program instructions to NE Representatives, the Authorized Nuclear Inspector/Authorized Nuclear Inservice Inspector (ANI/ANII), and to the Site Licensing Manager as requested.

3.7 Corporate Nuclear Assurance and Licensing Responsibilities

A. Ensuring the adequacy of prospective contractor's QA Program in accordance with the TVA Nuclear Quality Assurance Plan.

B. Submitting modified acceptance standards submitted by ISO to the NRC in accordance with IWB-3410.2(d).

3.8 Responsibilities for PSI Conducted in Manufacturer's Shop and by Construction Organization

If examiantions were performed in the manufacturer's shop or during the construction phase, they may serve as PSI examinations provided:

A. They were performed after hydrostatic test of vessels.

B. They were conducted under conditions and with methods expected to employed for subsequent ISI examinations.

NE is responsible for ensuring manufacturer's shop records and reports are identified and documented in accordance with Section 3.1.E.5. Other report formats may be utilized provided the minimum required information is contained therein.

NE is responsible for ensuring construction phase examinations were conducted under conditions and with methods expected to be employed for subsequent ISI examinations and that records are identified and documented.

4.0 RECORDS AND REPORTS

4.1 QA Records

A. Site specific ASME Section XI ISI program instructions produced in accordance with this SSP

B. ASME Section XI ISI Drawings

C. Examination Procedures

D. Examination Reports, including radiographs and their review forms and NOIs produced in accordance with this SSP

E. Inservice Inspection Summary Reports

F. Preservice Inspection Summary Reports

G. Site Final Report

4.2 Non-QA Records

A. Augmented Nondestructive Examination Request Form, Attachment 1

B. Component Support Examination Boundary Clarification Request Form, Attachment 2

4.3 Reports

4.3.1 ISI Summary Report for Class 1 and 2 Components

An ISI summary report for Class 1 and 2 components shall be prepared and submitted to Site Licensing and other review organizations on a schedule that permits submittal to the NRC within 90 days of the completion of the inservice inspection during each refueling outage. Examinations, tests, replacements, and repairs conducted since the preceding summary report shall be included

The ISI summary report shall be submitted to the Plant Manager for retention as part of the Site Final Report discussed in Section 4.3.2. WBN M&I shall submit the summary report as described above via WBN Site Licensing for submittal to NRC.

Each summary report shall be formatted to contain:

A. Title Page

A title page stating "ASME Section XI Inservice Inspection Summary Report for Watts Bar Nuclear Plant, Unit 1, X Refueling Outage," where X is the refueling outage number. A Table of Contents for the report should follow the title page.

B. Cover Sheet

A cover sheet providing the following information:

i. Date of document completion.
ii. Name and address of owner.
iii. Name and address generating plant.
iv. Name or number assigned to the nuclear power unit by TVA.
v. Commercial operation date for unit.

C. Form NIS-1

The Owner's Report for Inservice Inspections, Form NIS-1, as shown in Appendix II of the code shall be completed and included.

D. Introduction and Summary of the Inspection

The introduction should include the following information: Plant, unit number, preservice or inservice examinations, RFO cycle, systems, components and vessels examinations were performed on, organization examinations were performed by, dates examinations were performed, ASME Section XI ISI Code of Record. The summary should include a brief description of the overall inspection. Included as part of the summary, ASME Class 1, 2, and 3 equivalent components whose examination results require evaluation analysis (IWB-3132.4 and 3142.4 for Class 1 and 3; and IWC-3122.4 and 3132.3 for Class 2) shall be submitted to the NRC as required by IWB-3134 and -3144 and IWC-3125 and -3134.

E. Summary of Notification of Indications (NOIs)

The summary of NOIs shall give a short summary of each NOI report along with the indication discrepancy and its location. It should also contain the final disposition including a reference to the corrective action taken and the date of completion.

F. Summary of Requests for Relief

The summary of requests for relief shall give a short summary of each relief request resulting from the inspection, if needed.

G. Appendix I, Examination Plan

The Examination Plan shall give a detailed description of all areas subject to examination during the inspection. It should contain the following information: Examination Area, Code Category and Item Number, Reference Drawing, Examination Method, Examination Procedure, Calibration Block, date of examination and results of examination. This plan may be submitted as the PRISIM Outage Report.

H. Appendix II, Augmented Examination Plan

A brief summary of augmented examinations reportable to the NRC and the augmented examination plan including information described in 4.3.1.F shall be included.

I. Appendix III, Steam Generator Tube Scan Plan

The Steam Generator Tube Scan Plan supplied by Technical Support as described in Section 3.4.E shall be included.

J. Appendix IV, Report for Repair and Replacements, Form NIS-2

The Owner's Report for Repair and Replacements, Form NIS-2, as shown in Appendix II of the code shall be included. These are suppled by Technical Support as described in Section 3.4.D.

K. Appendix V, Pressure Test Reports

Pressure test reports suppled by Techncial Support as described in Section 3.4.D shall be included.

4.3.2 Site Final Report

A Site Final report of all examinations conducted in accordance with 1-TRI-0-10 shall be prepared by M&I as discussed in Section 3.1.F. The Site Final Report should contain, but not be limited to, the following information:

A. The ISI Summary Report

The ISI Summary Report prepared in Section 4.3.1 modified as follows:

The title page shall be revised to state "ASME Section XI Inservice Inspection Site Final Report for Watts Bar Nuclear Plant, Unit 1, X Refueling Outage." The Table of Contents should be revised to include the additional Appendices listed below.

B. Appendix VI, Summary of ISI Examinations on ASME Code Class 3 and Non-Regulatory Augmented Examinations

C. Appendix VII, Summary of Personnel Certifications

D. Appendix VIII, Calibration Sheets

E. Appendix IX, Examination Data Sheets

All procedures and equipment shall be identified sufficiently to permit duplication of the examination at a later date.

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

The Site Final Report shall be reviewed and submitted in accordance with SSP-8.2, Surveillance Program, for retention as a quality assurance record in accordance with SSP-2.9, Records Management.

5.0 DEFINITIONS

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

B. AIA - Authorized Inspection Agency.

C. ANI - Authorized Nuclear Inspector.

D. ANII - Authorized Nuclear Inservice Inspector.

E. AUGMENTED EXAMINATION - Examinations which are not required by ASME Section XI, except as identified in items 1 and 2 below:

1. Fabrication and installation NDE performed in accordance with design specification or construction code requirements is not augmented NDE.

2. Leak rate testing required by 10 CFR 50, Appendix J, is not Augmented NDE.

Note: Information only examinations (i.e., examinations performed to determine whether a particular examination method/technique will provide meaningful information, examinations performed to determine the boundary for which formal examinations will be requested, etc.) are not considered augmented examinations. Examinations performed to determine the condition of a part or as part of a formal failure analysis are considered augmented examinations.[2]

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

G. EXAMINATION - Denotes the performance of all visual observation and nondestructive examination by personnel qualified/certified in accordance with SNT-TC-1A.

H. INSERVICE INSPECTION (ISI) - Inspections required by ASME Section XI during the service lifetime of the power unit.

I. NDE - Nondestructive Examination.

J. NONDESTRUCTIVE EXAMINATION (NDE) -An examination by the visual, surface, or volumetric method.

K. NOTICE OF INDICATION (NOI) - A form used to report any discrepant conditions found during the performance of ASME Section XI ISI nondestructive examination. Used for ISI examinations only.

L. PRESERVICE INSPECTION (PSI) - Inspections required by ASME Section XI to be completed prior to initial plant startup, or examinations required by ASME Section XI if a component is replaced, added, repaired, or altered during the service lifetime of a power unit.

M. PROGRAM FOR ISI DATA MANAGEMENT (PRISIM) - A mainframe computer program for scheduling, tracking, maintaining status, and reporting of ISI examinations performed on a site/unit basis. It has the capability to allow categorization of these examinations by areas as needed for Code credit, additional examination credit, augmented credit, etc.

N. SCAN PLAN - A schedule of examinations required to be performed during a particular period of time.

O. WR/WO - Work Request/Work Order.

6.0 REFERENCES

6.1 Source Documents

A. STD 6-10, ASME Section XI and Augmented Nondestructive

B. FSAR Paragraphs 5.2.8, 5.4, 5.5.2.4 and 6.6

C. Technical Surveillance Requirement 3.4.5.2

6.2 Commitment Documents

None

6.3 Interface Documents

A. 1-TRI-0-10, ASME Section XI ISI/NDE Program

APPENDIX A
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ADMINISTRATIVE CONTROL OF AUGMENTED NONDESTRUCTIVE EXAMINATIONS (NDEs)

1.0 PURPOSE

Provide administrative controls for augmented examinations which have been integrated with the ASME Section XI ISI/NDE Program and those which have not been integrated. This includes augmented examinations performed on a one time basis as well as those performed on a periodic frequency. This Site Standard Practice provides minimum administrative controls to be utilized.

2.0 INSTRUCTIONS

Augmented examinations are performed in addition to ASME Section XI Code requirements. The augmented examinations may be required by the NRC or self-imposed by TVA. Typical sources include generic letters, IE bulletins, technical specifications, vendor recommendations, and industry experience. Examinations for the purpose of wall thickness, water level determinations, or other examinations where degradation or flaw detection is not applicable are exempt from the requirements of Section 2.1 below.

2.1 Request for Augmented Examination

The responsible organization or owner, which has technical and administrative responsibility for each augmented examination shall be identified. This responsibility shall include scheduling any nondestructive examinations through WBN Site NE, tracking the status of examinations and reporting completed examinations.

2.1.1 Periodic Augmented Examinations

The responsible organization requesting performance of augmented examinations on a periodic frequency shall submit a written request to the organization being requested to perform the examinations.[3] The written request shall include specific details such as requirement source, identification of all components requiring examination, examination frequency, examination method, examination area/volume, acceptance criteria, types of flaws anticipated, areas of high susceptibility, probability of failure, and reporting requirements. Attachment 1, Augmented Nondestructive Examination Request Form or equivalent, can be used for this purpose. Copies of the written request shall be submitted to RIMS; Inspection Services Organization (ISO) to facilitate nondestructive examination procedure preparation, establishment of training programs, and personnel familiarization; and to WBN Site NE for planning/scheduling of NDE.

ISO and Site NE will be available to assist the responsible organization in developing the specific details for the written request.

It is the responsibility of the organization requesting the augmented examinations to arrange for NDE services and any services required to support the augmented examinations (i.e., scaffolding, insulation removal/reinstallation, surface preparation, etc.).

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2.1.2 "One-Time" Augmented Examinations

For Augmented NDEs that are not intended to be performed on a periodic basis, the information required in Appendix A, Section 2.1.1 should be supplied as appropriate as a part of the Work Request/work order (WR/WO) by the responsible section. A WR/WO that contains the required information is considered to meet the administrative requirements of this site standard practice.

2.2 Pre-outage Requirements

Prior to each refueling outage, a meeting shall be initiated by WBN Site NE. Meeting attendees should include the responsible organization, Outage Management, NE, and ISO. The meeting agenda should include examination plans and schedules, updates on industry experience, and any additional pertinent information.

2.3 Post Examination Requirements

Following the completion of the augmented examination, the organization performing examinations shall report to the responsible organization items such as examination results and changes in results from previous examinations. The responsible organization shall determine if a meeting with WBN Site NE and\or other appropriate organizations is necessary to discuss items such as additional examinations to be conducted during the current outage, trends, lessons learned, and identify any future actions such as changes in frequency of examination.

2.4 Reporting Requirements

Augmented examination written reports required to be submitted to NRC via Site Licensing and augmented examinations requiring verbal notification of NRC via Site Licensing shall be the responsibility of the responsible organization.

3.0 RECORDS

3.1 QA Records

NDE reports are maintained with implementing work orders.

3.2 Non-QA Records

None.

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ASME SECTION XI CODE INTERPRETATIONS NONDESTRUCTIVE EXAMINATION (NDE)

1.0 PURPOSE

Provide a TVA Nuclear (TVAN) position on the ASME Boiler and Pressure Vessel Code (Code) with respect to ASME Section XI. In no case does this restrict NP employees from providing either verbal or written Code interpretations which are not included in this Site Standard Practice.

2.0 INTERPRETATIONS

2.1 Scope of the Code

The scope of the Code includes those safety-related systems where the contained fluid is water, steam, or radioactive waste. Other systems that are safety related should be tested to quality standards commensurate with the system safety function, but at the present time these systems are not included in the scope of the Code. Some systems not in the scope of the Code are included in the Code pump and valve testing program as directed by NRC.

Regulatory Guide 1.26 presents guidance on system quality group classifications. The majority of TVAs system classifications for inservice inspection are based on this regulatory guide. At the present time the regulatory guide does not specifically address radioactive waste management systems.

References:
1. ASME File No.: BC 77-666; NI 77-371
2. Regulatory Guide 1.26, Revision 3

2.2 Inservice Inspection Summary Reports

Records of regularly scheduled system pressure tests (1977 Edition, Summer 1978 Addenda and earlier only) and pump and valve tests are not required to be included in the Inservice Inspection Summary Reports of Article IWA-6000 of the Code. However, records of pressure tests and pump and valve tests which were required as a result of repair/replacement activities must be included in the summary reports. Note that after the Summer 1978 Addenda, system pressure tests are required to be included in the Inservice Inspection Summary Reports.

References:
1. Article IWA-5000, IWA-6000, and IWV-6000 of the Code, 1974 Edition, Summer 1975 Addenda and later.
2. ASME Interpretation XI-83-08, Volume 12

2.3 Visual Examination of Class 3 Component Supports

It is not required that examinations of Class 3 supports be conducted while the system supported by the components is under pressure.

References:
1. Paragraph IWD-2620 and Table IWD-2500-1 of the Code 1977 Edition, Summer 1978 Addenda and later.
2. ASME Interpretation XI-1-79-11, Volume 6.

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2.4 Boundary Jurisdiction for Component Support Baseplates

A. Embedded plates are considered building structure and do not fall within the ASME Section XI Code boundary.

B. When component supports are welded to an embedded plate, the weld is included with the Code boundary.

C. If component supports are mechanically attached to an embedded plate, the mechanical attachment is included within the Code boundary.

D. Surface-mounted baseplates are included within the Code boundary.

E. The anchor bolting used to attach surface-mounted baseplates to building structure is not included within the Code boundary. However, this anchor bolting will receive a visual examination in accordance with the ASME Section XI ISI Program but is exempt from the Section XI Repair/Replacement Program.

F. Concrete bolt anchors, such as "red-head" anchors, are not included within the Code boundary.

G. In the case of a surface-mounted baseplate being welded to an embedded plate, the surface-mounted plate is included within the Code boundary. The weld between the two plates is not included within the Code boundary. However, the weld will receive a visual examination in accordance with the ASME Section XI ISI Program but is exempt from the Section XI Repair/Replacement Program.

All items that are "not included within the Code boundary" are also not included within the Repair and Replacement Program.

References:
1. Memorandum from J. A. Kirkebo to Site Directors, dated June 24, 1987 (L29 870528 815)
2. Article IWF-1000 of the Code, 1980 Edition, Winter 1981 Addenda and later.

2.5 Dissimilar Metal Piping Safe-End Welds

The dissimilar metal welds of Table IWB-2500-1, Examination Category B-F, are limited to the nozzle safe-end welds (including the item number for piping). The remaining dissimilar metal welds are included in Category B-J. The reference to piping in Category B-F was dropped in the 1992 Edition of ASME Section XI.

Reference: ASME Interpretation XI-1-92-13, Volume 31

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2.6 Storage Tanks

The requirements of Table IWC-2500-1, Examination Category C-A, apply to pressure vessels only and do not apply to storage tanks (atmospheric).

Reference: ASME Interpretation XI-1-89-51, Volume 28

2.7 Additional Examinations

Additional examinations required by IWB/IWC-2430(a) may be selected from similar vessels, piping, pumps, or valves within the system which contains the indication. In addition, IWB/IWC-2430(a) limits the required number of additional examinations to an equal number of examinations as was performed initially on similar components within the system which contained the indication. The interpretation is applicable to the Summer 1978 Addenda to the 1977 Edition of ASME Section XI for ASME Class 1 components and to the Summer 1978 Addenda to the 1977 Edition through the 1990 Addenda to the 1989 Edition of ASME Section XI for ASME Class 2 components.

Reference:
1. ASME Interpretation XI-1-92-61, Volume 34
2. ASME Interpretation XI-1-95-13, Volume 36

2.8 Class 2 Piping Examinations

It is the intent of the 1986 and the 1989 Editions of ASME Section XI to exempt Class 2 and 3 vessels, pumps, valves, and other components in piping 4-inch NPS or 1-1/2-inch NPS, as applicable. The ASME Code was revised in the 1989 Addenda to reflect this intention. The ASME Section XI Subcommittee action item status report, item ISI 88-12, for this revision to the 1989 Edition states: "... the major reason for the change was to clarify current Section XI requirements for Class 2 and 3 exemptions, as the current wording is confusing and had led to misapplication of exemption requirements."

Reference: ASME Section XI Subcommittee action item ISI 88-12.

APPENDIX C

GUIDELINES FOR DETERMINING PIPING COMPONENT SUPPORT EXAMINATION BOUNDARIES

1.0 PURPOSE

This Instruction defines and establishes the controls and responsibilities for the determination of ASME Section XI component support examination boundaries.

2.0 SCOPE

This Instruction applies only to the piping component supports included in the ASME Section XI ISI/NDE Program, 1-TRI-0-10, for Watts Bar Nuclear Plant. This Instruction is intended to deal with piping supports only. Equipment support drawings depict the examination boundary for each equipment support. The listing of equipment support drawings is contained in 1-TRI-0-10. Piping integrally welded support attachments and snubbers are not within the scope of these guidelines.

3.0 REFERENCES

A. Memorandum from W. E. Pennell to R. A. Sessoms dated August 10, 1987 (B41 870810 003)

B. Memorandum from J. A. Kirkebo to Site Directors dated June 24, 1987 (L29 870528 815)

4.0 DEFINITIONS

A. INTERVENING ELEMENT - Items that lie in the component support load path between the pressure retaining component and the component supports, between two component supports, or between the component support and the building structure. Items such as: diesel engines, electric motors, coolers, valve actuators, instrument racks, and access structures. For the purposes of this instruction, an intervening element is to be considered the same as "existing steel."

B. EXISTING STEEL - Building steel that is identified on a support drawing as "existing."

C. EXAMINATION BOUNDARY A - The boundary to be used for those supports that are attached to building floor, walls, ceiling, or embedded plate.

D. EXAMINATION BOUNDARY B - The boundary to be used for those supports that are attached to another existing support.

E. EXAMINATION BOUNDARY C - The boundary to be used for those supports that are attached to existing steel.

F. EXAMINATION BOUNDARY D - The boundary to be used for those supports that are attached to an intervening element.

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5.0 RESPONSIBILITIES

A. The NE Representative is responsible for the initial review of ASME Section XI component support drawings and determining the examination boundary for those supports and for determining the examination boundary for new or modified supports. This instruction shall be revised when deemed necessary by the NE Representative.

B. The NE Representative is responsible for determining the acceptance range for all component supports in the ASME Section XI ISI/NDE Program that require acceptance ranges.

C. NE is responsible for examination of component supports within the examination boundary as set forth by this instruction. Any examiner, inspector, or engineer may request boundary clarification where questions exist by submitting the Component Support Examination Boundary Clarification Request Form, Attachment 2 of this SSP.

6.0 IMPLEMENTATION

6.1 Determination of Component Support Examination Boundary

6.1.1 General

A. The following methodology shall be used to determine the component support examination boundary.

1. Snubbers on the support drawings are not subject to examination; however, the remainder of the support including integral and nonintegral attachments for snubbers, including lugs, bolting, pins, and clamps are included within the support examination boundary.

2. In all cases involving supports welded to building structure/existing steel, the weld shall be included within the examination boundary.

3. If component supports are mechanically attached to an embedded plate, the mechanical attachment is included within the Code boundary.

4. Concrete bolt anchors, anchors, are not included within the Section XI code boundary and, therefore, do not fall within the examination boundary. Even though anchors may be listed on a support bill of materials, they are not required to be examined. (This note pertains to anchors only, not the associated bolting.)

5. The anchor bolting used to attach surface-mounted baseplates to building structure is not included within the Code boundary. However, this anchor bolting will receive a visual examination in accordance with the ASME Section XI ISI/NDE Program, but is exempt from the Repair/Replacement Program, SSP-6.9.

6. All shims adjacent to the supported pipe shall be examined. Even though the shims may not be listed on the support bill of materials, they are required to be examined.

7. Insulation removal is not required when mechanical connections of nonintegral supports are buried in the insulation provided the support carries the weight of the component, or serves as a structural restraint in compression (i.e., if the mechanical connection has failed it would be evidenced by damage to the insulation).

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8. Notification of Indication (NOI) form shall be used to report unacceptable indications on component supports only if the criteria in a, b, and c, below, are met:

   a. The component support falls within the scope of ASME Section XI.

   b. The component support is part of the inservice inspection examination sample.

   c. The indication falls within the component support's examination boundary as set forth by this instruction.

   Indications that do not meet the criteria in a, b, and c, above, should be noted by other means, such as, MR's, WR's, etc.

B. For each component support to be reviewed for examination boundary determination, obtain the support drawing and verify for use (i.e., verify the latest revision of the drawing and identify any unincorporated DCA(s) to the drawing). Obtain any change paper identified during the verification for use process. For new or modified supports, the drawing included in the work instruction may be utilized. Using the drawing and applicable change paper, classify the support in one of the following categories:

   1. Support is shown as being attached to building floor, wall, ceiling or embedded plate.

   2. Support is shown as being attached to "existing support."

   3. Support is shown as being attached to "existing steel."

   4. Support is shown as being attached to an intervening element.

   After classifying the support in one of the categories, proceed to the corresponding section to complete the boundary determination.

C. As each support is categorized, the category identifier, shall be input with the respective support in the PRISIM data base.

D. As supports are added or revised in the PRISIM data base, this instruction shall be used to determine or revise the examination boundary for that support.

6.1.2 Supports Attached to Building Floor, Wall, Ceiling, or Embedded Plate

For supports attached to building floor, wall, ceiling or embedded plates, the boundary shall be defined as the point(s)/area(s) of contact between the support and the building structure, along the support load path(s), up to, but not including the pressure retaining component. In addition to the requirements of 6.1.1.A, each item in the support bill of materials, except concrete anchors and material used as a spacer to allow for grouting between the base plate and the building floor, wall, or ceiling, is to be included within the boundary.

This category of supports shall be considered Examination Boundary A and so designated in the PRISIM data base.

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6.1.3 Supports Attached to Existing Supports

NOTE For clarity, Support A is the support being reviewed for boundary determination and Support B is the "existing support" to which Support A is attached.

The boundary of Support A shall be defined as the point(s)/area(s) of contact between Support A and Support B, along the support load path(s), up to, but not including, the pressure retaining component. In addition to the requirements of 6.1.1.A, each item in Support A bill of materials is to be included within the boundary.

In the case of multiple supports (i.e. 3 or more supports) the boundary shall be determined in the same manner as above.

This category of supports shall be considered Examination Boundary B and so designated in the PRISIM data base. In the PRISIM data base, Support B will be identified as the support to which Support A is attached. ("Examine to Support B.")

6.1.4 Supports Attached to Existing Steel

For supports attached to existing steel, the boundary (including the attachment weld) shall be defined as the point(s)/area(s) of contact between the support and "existing steel," along the support load path(s), up to, but not including the pressure retaining component. In addition to the requirements of 6.1.1.A, all items listed on the support bill of materials are to be included within the boundary. For TVA designed supports, the examination boundary may be determined from TVA drawings.

This category of supports shall be considered Examination Boundary C and so designated in the PRISIM data base.

6.1.5 Supports Attached to Intervening Element

For supports attached to an intervening element, the boundary shall be defined as the attachment portion (i.e., welds, bolting, pins, clamps, etc.) of the intervening element to the pressure retaining component and all support members up to, but not including, the intervening element. In addition to the requirements of 6.1.1.A, all items listed in the support bill of materials are to be included within the boundary.

This category of supports shall be considered Examination Boundary D and so designated in the PRISIM data base.

6.1.6 Supports Attached to Various Structures

In many cases, one component support is attached to more than one type of structure. These supports will have more than one Examination Boundary Designator in the PRISIM data base. In all cases, however, the examination boundary for each component support shall include:

A. All items listed on the support's bill of materials, except concrete anchors. For TVA designed supports, the examination boundary may be determined from TVA drawings.

B. All shims adjacent to the supported pipe.

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6.2 Site Implementation During Examination of Supports

A. For each component support to be examined, obtain the support drawing and verify for use (i.e., verify the latest revision of the drawing and identify any unincorporated DCA(s) to the drawing). Obtain any change paper identified during the verification for use process. For new or modified supports, the drawing included in the work instruction may be utilized.

Except for variable supports, examination of supports without obtaining a verified for use drawing, may be permitted provided the component support examination boundary is defined as the attachment to the component, up to and including the attachment to the floor, wall, and ceiling.

B. For variable support settings use the drawing obtained per A above to verify that the thermal movement and examination boundary given on the support drawing matches the corresponding information given in the Scan Plan or implementing instruction (WR/WO, WP, etc.). If the movement and examination boundary do not match:

1. The setting shall be calculated in accordance with Inspection Services Organization Program Manual (Refer to IEP series).

2. Submit Attachment 2, Component Support Examination Boundary Clarification Request Form to the NE Engineer. Upon receipt of a request, an NE Representative shall review the discrepancy and make any necessary changes to the examination boundary. If a request has been submitted (when verbal instructions were not requested), the request will be completed and returned to the person requesting the examination boundary clarification. A support shall not be examined until any discrepancies on that support are eliminated. Any changes in the Examination Boundary shall be incorporated in the PRISIM data base.

7.0 EXAMPLES

A. Example 1 - Examination Boundary A (see Drawing ISI-0439-C, Sht. 1).

B. Example 2 - Examination Boundary B (see Drawing ISI-0439-C, Sht. 1).

C. Example 3 - Examination Boundary C (see Drawing ISI-0439-C, Sht. 1).

D. Example 4 - Examination Boundary D (see Drawing ISI-0439-C, Sht. 1).

ATTACHMENT 1
REQUEST FOR AUGMENTED NONDESTRUCTIVE EXAMINATION (NDE)

To: _____ Date: _____
Organization Requested to Perform Examination

From: _____
Organization Requesting Examination

Please make the necessary arrangements to perform the following AUGMENTED EXAMINATIONS. The source of the requirement for the requested AUGMENTED EXAMINATION is:

_____

_____

Components requiring the EXAMINATION requested are:

_____

_____

The required EXAMINATION frequency is: _____

The EXAMINATION method to be used is: _____

The area and volume to be examined are:

_____

_____

The acceptance criteria to be applied to the EXAMINATION are:

_____

_____

The type of flaws anticipated are:

_____

_____

The areas most highly suspected to contain the flaws are:

_____

_____

The probability of a flaw existing is:

_____

_____

The reporting requirements for the EXAMINATION results are:

_____

_____

Project Control Number (PCN) and Account Number: _____

cc: Inspection Services Organization Manager
Materials and Inservice Inspection Manager
RIMS

ATTACHMENT 2
COMPONENT SUPPORT EXAMINATION BOUNDARY CLARIFICATION REQUEST FORM

Plant: WBN Unit: 1 Date: _____

Component Support No.: _____

Person Requesting: _____

Request:

_____

_____

_____

_____

_____

Photo/Sketch Attached: _____ Yes _____ No

Responding
ISI/NDE Representative: _____ Date: _____

Response:

_____

_____

_____

_____

Did "Examination Boundary" change? _____ Yes _____ No

If Yes, define "New" Examination Boundary _____

_____

SOURCE NOTES

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1 CATD 30710-NPS-01
2 Repair/Replacement Information Request, RIMS L29 930223 801
3 Repair/Replacement Information Request, RIMS L29 930223 001