

ATTACHMENT 1

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT

SITE STANDARD PRACTICE

SSP-6.10

ASME SECTION XI ISI/NDE AND AUGMENTED NONDESTRUCTIVE  
EXAMINATION PROGRAMS

Revision 2

QUALITY RELATED

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EFFECTIVE DATE: 12/16/95

VALIDATION DATE: \_\_\_\_\_

REVISION  
DESCRIPTION

To establish administrative controls and provide requirements, guidance and interfaces for ASME Section XI ISI/NDE Program and Augmented Nondestructive Examination Programs for the second ten year inservice inspection interval for Sequoyah Nuclear Plant. Due to this extensive revision, revision bars are omitted.

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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 B 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 Sequoyah.

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 Specifications 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.

**2.0 SCOPE** (Continued)

- NOTE 1** Repair and Replacement Program shall be in accordance with SSP-6.9
- NOTE 2** System Pressure Testing shall be in accordance with SSP-8.5
- NOTE 3** Inservice Snubber Testing shall be in accordance with SSP-8.54
- NOTE 4** Steam Generator Tubing Eddy Current Testing Program shall be in accordance with SSP-8.56
- NOTE 5** Pump and Valve Testing shall be in accordance with SSP-8.6

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, 0-SI-DXI-000-114.2 (Unit 1 and Unit 2).

**3.1 Mechanical/Nuclear (Mech/Nuc) Engineering Responsibilities****A. Materials and Inservice Inspection 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) in an ASME Section XI classification criteria document and assuring that it is updated as necessary when a boundary classification drawing is revised.

**3.1 Mechanical/Nuclear (Mech/Nuc) Engineering Responsibilities (Continued)**

2. Preparing/revising ASME Section XI color-coded boundary classification drawings 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. These drawings are to be used for ASME Section XI Program activities only.
3. Evaluating and providing a disposition for indications initiated by a Notification of Indication (NOI).
4. Providing specific written details for any augmented requirements for which they are responsible and to determine if a post examination meeting is required.
5. Determining critical areas subject to augmented examination to ensure structural integrity has not been compromised and identifying these areas to ISI/NDE when requested.
6. 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. Program and Drawing Responsibilities (ISI/NDE):**

1. Preparing/revising ISI/NDE drawings which identify the Class 1, 2, and 3 equivalent components (including supports), as defined in Section 3.1.A, 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 SQN 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.
  - b. The inspection interval.
  - c. A list of the Section XI boundary classification drawings (for ISI only).
  - 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. The NDE method to be used for each component.
  - g. The ASME Section XI examination category for each component.



**3.1 Mechanical/Nuclear (Mech/Nuc) Engineering Responsibilities (Continued)**

- h. Copies of requests for relief.
  - i. Name and address of owner.
  - j. Name and address of generating plant.
  - k. Name or number designation of the unit.
  - l. Commercial operating date for the unit.
3. Providing inservice and/or preservice ASME Section XI clarification as requested by various site organizations or as required in program development and implementation.
- C. PRISIM and Scan Plan Responsibilities (ISI/NDE):
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, drawing number 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. Responsibilities for Augmented Examinations (ISI/NDE):
1. Initiating a pre-outage meeting on augmented examinations in accordance with Appendix B, Section 2.2, of this SSP.
- E. Responsibilities on Performance of NDE (ISI/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.

**3.1 Mechanical/Nuclear (Mech/Nuc) Engineering Responsibilities (Continued)**

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. Ensuring that the Notification of Indication (NOI) Form in Attachment 4 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 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 examination report number on NOI form prior to closure.
  - e. Ensuring that the closed NOI is filed with the examination report.
7. 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.

**3.1 Mechanical/Nuclear (Mech/Nuc) Engineering Responsibilities (Continued)**

8. 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 Corporate Engineering and Modifications, Materials and Inspection, Codes and Inservice Inspection.
9. Ensuring that requests for relief include supporting information on the need for relief and any alternate examinations are documented.
10. Submitting Request for Relief to Site Licensing.
11. Submitting first and second additional sample results for further action, if needed (Reference Section 7.5).

**F. Responsibilities on Reports (ISI/NDE):**

1. Preparing ISI Summary Report including 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, System Pressure Test, and Snubber Testing Programs as a part of the ISI Summary Report.
4. 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.
5. Preparing the Site Final Report which includes all pertinent preservice/inservice data in accordance with Section 4.3.2.
6. Submitting the Site Final Report which contains the examination reports and the ISI Summary Report, to DCRM as a QA record.

**3.1 Mechanical/Nuclear (Mech/Nuc) Engineering Responsibilities (Continued)****G. Responsibilities When NDE Performed by Contractors (ISI/NDE):**

1. Ensuring the overall implementation of SSP-10.51, Control of Contract Services.
  - a. Ensuring that contractors are familiar with the ASME Section XI ISI/NDE Program being used.
  - b. Ensuring contractors are certified using guidelines of IEP-200.
  - c. Maintaining surveillance of contractor preservice or inservice activities to verify compliance with the contract and applicable ASME Section XI ISI/NDE Program requirements.
  - d. Ensure that the elements of Subsection 3.1.E, 3.1.F, and this section are completed.

**H. Responsibilities with PSI Conducted in Manufacturer's Shop (ISI/NDE):**

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. Responsibilities for Component Support Boundaries (ISI/NDE):**

Determining the examination boundary for new or modified supports.

**J. Other Mech/Nuc 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.

**3.2 Inspection Services Organization (ISO) 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 SQN and incorporating ISI/NDE drawing revisions into PRISIM when revised ISI/NDE drawings are issued.

**3.2 Inspection Services Organization (ISO) Responsibilities (Continued)**

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. 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 ASME Section XI requirements.
6. Preparing, implementing and maintaining the qualification/certification program for NDE personnel in accordance with ASME Section XI requirements.
7. Ensuring that the NDE procedures and qualification/certification program has been reviewed by the Authorized Inspection Agency (AIA) for compliance with ASME Section XI.
8. Providing a NDE Level III to perform technical overview and monitoring of ISI/NDE field examination activities as requested by the ISI/NDE Supervisor.
9. Providing a NDE Level III to perform final evaluation of NDE indications detected by examiners relative to IWA-3000.
10. Supplying manpower resources, such as NDE Level III specialist, NDE coordinators, NDE technicians, and contractor personnel, to the site as requested to supplement staffing.
11. 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.

**3.2 Inspection Services Organization (ISO) Responsibilities (Continued)**

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 Corporate Engineering and Modifications; Materials and Inspection (M&I) Responsibilities****A. M&I, Codes and Inservice Inspection (C&ISI), Responsibilities:**

1. Providing preservice and/or inservice ASME Section XI interpretations as requested by various site organizations and frequently used ASME Section XI Code interpretations provided in Appendix A of this SSP or as required in program development and implementation.
2. Conducting periodic assessments of the implementation of the ISI/NDE program at each site.
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 Document Control and Records Management (DCRM) Responsibilities**

- A. Issuing controlled copies of ASME Section XI Code Boundary Classification Drawings and ISI Drawings to specified distribution lists.
- B. Providing controlled copies of ASME Section XI ISI/NDE Program instructions to ISI/NDE Representatives, the Authorized Nuclear Inspector/Authorized Nuclear Inservice Inspector (ANI/ANII), and to the Site Licensing Manager as requested.

**3.5 Site Licensing Responsibilities**

- A. Initial 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 and reports to the NRC for review and/or approval.
- C. Ensuring all ASME Section XI correspondence shall include Mech/Nuc Engineering on distribution.

**3.6 Corporate Nuclear Assurance and Licensing Responsibilities**

Ensuring the adequacy of prospective contractor's QA Program in accordance with the Nuclear Power Standards Procedure STD-3.1, where applicable.

**3.7 PSI Conducted in Manufacturer's Shop**

If examinations were performed in the manufacturer's shop, they may serve as PSI examinations provided:

- A. They were performed after the hydrostatic test.
- B. They were conducted under conditions and with methods expected to be employed for subsequent ISI examinations.

**3.8 Scan Plan**

A computerized data base system, PRISIM will be utilized, for status and Section XI credit of completed ISI examinations and those augmented examinations, which have been integrated with the ASME Section XI ISI/NDE Program. The PRISIM data base is utilized to provide a scan plan, listing components requiring examination during a specific refueling outage.

Scan Plan responsibilities are defined in Sections 3.1.C.1 through 3.1.C.4 and 3.2.A.1 through 3.2.A.4.

A scan plan may also be utilized to provide a listing of components to be examined for nonoutage activities.

**3.8 Scan Plan (Continued)**

During implementation phases (usually outage periods), it may become necessary to change the scan plan. Scan plan changes can be initiated by ISI/NDE, Representative, ISO, or by other personnel involved with the implementation of the scan plan. All changes shall be coordinated with an ISI/NDE Representative and, as needed, with the appropriate plant planning and scheduling personnel for facilitating the use of supporting craft personnel. See Sections 3.1.C.1 through 3.1.C.4 and 3.2.A.1 through 3.2.A.4 for scan plan responsibilities for revisions. However, interim working copies may be hand written to allow examinations to be performed before a formal revision is issued.

**3.9 Drawing Configuration Changes**

When modifications are made to existing piping or components, drawings shall be reviewed and revised by ISI/NDE Representative to identify the piping configuration, welds, and components that shall be included in the ASME Section XI ISI/NDE Program.

If variations in configuration are discovered or modifications (including additions and deletions), replacements, or repairs are made during the service life of the unit, these changes shall be marked on field corrected copies of the appropriate drawings. These field corrected copies shall be used in the performance of examinations. Copies of these field corrected drawings shall be logged using a Field Corrected Drawing Transmittal Form in Attachment 5. A file and number log of the corrected drawings and forms shall be maintained by ISI/NDE Representative. ISI/NDE Representative shall be responsible for reviewing the proposed change, revising the drawings as necessary, and issuing the revised drawing prior to the next refueling outage. The scan plan shall be revised as necessary to reflect these field corrected drawings (interim working drawings) and any preservice and/or inservice examinations performed due to these variations in configuration.



**4.0 RECORDS AND REPORTS****4.1 QA Records**

The following are QA Records required by this program in accordance with 0-SI-DXI-000-114.2 and shall be retained in accordance with SSP-2.9:

- A. Site Final Report
- B. ASME Section XI ISI Drawings
- C. ASME Section XI Boundary Classification Drawings
- D. NOI Form, Attachment 4
- E. Notification of Additional Sample Results Form, Attachment 6

**NOTE** In-process records shall be controlled in accordance with SSP-2.9.

**4.2 Non-QA Records**

- A. Tabulation of Augmented Nondestructive Examinations Performed on a Periodic Basis, Attachment 1.
- B. Augmented Nondestructive Examination Request Form, Attachment 2.
- C. Component Support Examination Boundary Clarification Request Form, Attachment 3.
- D. Field Corrected Drawing(s) Transmittal Form, Attachment 5.

**4.3 Reports****4.3.1 Report for ISI (NIS-1) of Class 1 and 2 Components**

An ISI Report (NIS-1) for Class 1 and 2 components shall be prepared, in accordance with ASME Section XI, IWA-6220, to be submitted to Site Licensing and other review organizations on a schedule that permits submittal to the NRC within 90 days after the refueling outage.

The ISI Report (NIS-1) shall have a cover sheet providing the following information:

- A. Date of document completion.
- B. Name and address of owner.

**4.3.1 Report for ISI of Class 1 and 2 Components (Continued)**

- C. Name and address generating plant.
- D. Name or number assigned to the nuclear power unit by TVA.
- E. Commercial operation date for unit.

As a part of the ISI Report (NIS-1), ASME Class 1, 2, and 3 equivalent components and their supports whose examination results require evaluation analysis (IWB-3142.4 Class 1 and 3 and IWC-3122.4 Class 2) shall be submitted to the regulatory authority having jurisdiction at the plant site for their review, as required by IWB-3144 and IWC-3125.

As required by the provisions of the ASME Section XI Code Form NIS-1 Owner's Report for Inservice Inspections, as shown in Appendix II of ASME Section XI shall be utilized.

The Inservice Inspection Report shall be submitted to the Plant Manager for retention as part of the Site Final Report discussed in Section 4.3.2. Materials and Inservice Inspection shall submit applicable summaries of the report as described above via SQN Site Licensing for submittal to NRC.

**4.3.2 Site Final Report**

A detailed report of all examinations conducted in accordance with 0-SI-DXI-000-114.2 shall be prepared by Materials and Inservice Inspection (and/or the performing or responsible organization) and should contain, but not be limited to, the following information:

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- A. Introduction - 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.
- B. Summary - The summary should include a brief description of the overall inspection.

**4.3.2 Site Final Report (Continued)**

- C. Summary of Notifications – The summary of notification shall give a short summary of each notification 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.
- D. 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, Reference Drawing, Examination Method, Examination Procedure, Calibration Block, date of examination and results of examination.
- E. Summary of Personnel Certifications
- F. Calibration Sheets
- G. Examination Data Sheets
- H. Copy of the ISI Report (NIS-1) as required by Section 4.3.1.

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.

In accordance with SSP-10.51 (Appendix B, "Contracted Personnel Interface", and Appendix C, "Contract Personnel Training Worksheet") shall be utilized as applicable, and filed as a part of the Site Final Report.

The Site Final Report shall be reviewed and submitted in accordance with SSP-8.2, Surveillance Test 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).

**5.0 DEFINITIONS (Continued)**

- B. **AIA** – Authorized Inspection Agency.
- C. **ANII** – Authorized Nuclear Inservice Inspector.
- D. **ANI** – Authorized Nuclear 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.
- 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)** – Examinations required by ASME Section XI during the service lifetime of the power unit.
- I. **NDE** – Nondestructive Examination.
- J. **NONDESTRUCTIVE EXAMINATION (NDE)** – Methods used for the detection and evaluation of discontinuities and the measurement of physical dimensions and condition of items. These methods include acoustic emission, radiography, ultrasonic, eddy current, liquid penetrant, magnetic particle, inservice visual, and welding visual. These methods do not impair the serviceability of the items.
- K. **NORMAL OPERATION** – Normal plant operation conditions include reactor startup, operation at power, hot standby, and reactor cooldown to cold shutdown conditions. Test conditions are excluded.
- L. **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.
- M. **PER** – Problem Evaluation Report.
- N. **PRESERVICE INSPECTION (PSI)** – Examinations 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.
- O. **PRESSURE-RETAINING MATERIAL** – Applies to items such as vessel heads, nozzles, pipes, tubes, fittings, valve bodies, bonnets, disks, pump casings, covers, and boltings which join pressure-retaining items.

**5.0 DEFINITIONS (Continued)**

- P. 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 exam credit, augmented credit, etc.
- Q. SCAN PLAN** – A schedule of examinations required to be performed during a particular period of time.
- R. SUPPORT FUNCTION A**– Supports such as one-directional rod hangers (i.e., rigid supports, rigid struts).
- S. SUPPORT FUNCTION B** – Supports such as multi-directional restraints (i.e., rigid supports, rigid struts).
- T. SUPPORT FUNCTION C** – Supports that allow thermal movement, such as variable springs.
- U. SUPPORT FUNCTION D** – Supports where a load is transmitted through a hydraulic fluid or mechanical components (i.e., hydraulic or mechanical snubbers).
- V. WR/WO** – Work Request/Work Order.

**6.0 NOTIFICATION OF INDICATION**

Whenever an unacceptable inservice examination indication is discovered, an NOI shall be initiated. In those cases where an outside contractor is furnishing inservice examination services in accordance with TVA's QA Program, the contractor will normally initiate the NOI form under the supervision of an ISI/NDE Representative. When an outside contractor is furnishing turn-key examination services, the contractor shall notify the ISI/NDE Representative of unacceptable indications in accordance with their QA Program.

- A.** The Notification of Indication (NOI) form (Attachment 4 of this SSP) is to be used to:
  - 1. Notify Plant Management of unacceptable indications found during the performance of scheduled inservice examinations that will require evaluation and a disposition in accordance with plant procedures.
  - 2. Notify ISI/NDE Representative of indications that exceed the acceptance criteria of Article 3000 of the ASME Section XI Code and/or – 3000 of Code Case N-491 and/or Code Case N-509 has been documented on an examination report form contained within the NDE procedure used for examination.

**6.0 NOTIFICATION OF INDICATION (Continued)**

3. Provide ISO and ISI/NDE Representative with a method to track examination reports that require reexamination or a documented disposition for closure.
  4. As a final product, with the disposition provided in accordance with plant procedures added to Part II of the form; to provide the ISI/NDE Representative a method of determining if additional examinations are required in accordance with the Code.
- B. Functionally an NOI form shall be initiated and processed as follows:
1. Part 1 of an NOI Form will be initiated by the NDE Examiner when an indication exceeds the acceptance criteria of the NDE Procedure being used to perform a scheduled inservice examination. The Examiner will sign and date the NOI Form. The Field Supervisor, in the case of contracted examination, will review the information in Part I and sign and date the NOI Form as approving the information. The ISI/NDE Representative will review for clarity and completeness, sign, and date the NOI Form.
  2. After completion of Part I, ISI/NDE Representative shall submit the NOI Form and a copy of the Examination Report to plant management as a notification that an indication requiring evaluation has been found and that a potential exists for additional examinations to be performed per ASME Section XI.
  3. Plant Manager or his designee shall be responsible for evaluating and providing a disposition for the indication in accordance with plant procedures. The disposition shall be documented in detail on an administrative control program document (PER, WR/WO, etc.) if required by the Corrective Action Program, (Reference Section 8.0, of this SSP).
  4. Plant Manager or his designee shall include the final disposition on the NOI Form in Part II, sign, date and return the NOI Form, to the ISI/NDE Representative. Reference to any PERs or WR/WOs, etc., shall be included.
  5. The ISI/NDE Representative shall determine additional examination requirements.
  6. The ISI/NDE Representative shall check "yes" or "no" for additional examinations, and he shall close the NOI Form in Part III by reexamination, in the case where work was performed as a part of the disposition, or by verification of the disposition if no physical work was required to remove or modify the indication.

**6.0 NOTIFICATION OF INDICATION (Continued)**

7. The NOI form shall be filed with the examination report. The reexamination report, if applicable, shall reference the NOI number. The NOI form shall reference the reexamination report number.

**7.0 ADDITIONAL SAMPLES**

After an NOI has been dispositioned and returned to the ISI/NDE Representative, the NOI shall be evaluated to determine if additional examinations shall be required in accordance with ASME Section XI IWB-2430, IWC-2430, -2430 of Code Case N-491, or paragraph 1.3 of Code Case N-509. If it is determined that additional examinations are required, these examinations shall be performed during the same outage as the initial examinations. A sample is defined as those items (welds, areas, or parts) as described or intended in a particular examination category and item number and within the same system. The initial sample is the sample scheduled for examination at a particular outage for Section XI credit.

**7.1 Additional Examinations for Class One Equivalent Components (IWB)**

Additional examinations for Class 1 equivalent components (IWB), except component supports, shall be in accordance with the requirements of IWB-2430. The additional examination samples are defined as those items (welds, areas, or parts) in a particular examination category and item number and within the same system. The initial sample is the sample scheduled for examination at a particular outage for ASME Section XI credit.

- A. Examinations of the initial sample that reveal indications exceeding the acceptance standards of table IWB-3410-1 shall be extended to include additional examinations in the same outage except for volumetric and surface examinations where IWB-3112(b) is applicable. (Such as, flaws detected by volumetric or surface examinations that meet the nondestructive examination standards of NB-2500 and NB-5300, as documented in QA records, shall be acceptable).
- B. The first additional examination sample shall include items included in the inspection item listing scheduled for the current and subsequent period. If examinations for that item are not scheduled in the subsequent period, the next most immediate period containing scheduled examinations of that item shall be examined as the additional sample.

**7.1 Additional Examinations for Class One Equivalent Components (IWB)**  
(Continued)

- C. If the first additional examinations of paragraph B. above reveal indications exceeding the acceptance standards of Table IWB-3410-1, except where IWB-3112(b) is applicable, further additional examinations shall be performed during the outage. The second additional examination sample shall include all the items of similar design, size and function within the system under examination. If examinations performed in the second additional sample reveal indications exceeding the acceptance standards of Table IWB-3410-1, shall be evaluated for further action, if needed.

**7.2 Additional Examinations for Class Two Equivalent Components (IWC)**

Additional examinations for Class 2 equivalent components (IWC), except component supports, shall be selected per IWC-2430. If it is determined that additional examinations are required, those examinations shall be performed in the same outage. The additional examination samples are defined as those items (welds, areas, or parts) in a particular examination category and item number and within the same system. The initial sample is the sample scheduled for examination at a particular outage for ASME Section XI credit.

- A. A first additional sample shall be selected for those initial samples that detect indications exceeding the allowable standards of IWC-3000, except where the flaw is acceptable under IWC-3112(b). The first additional sample shall include approximately the same number of items examined in the initial sample. The items selected should be those available in the interval sample that have the longest service time from its previous inservice examination.
- B. If the first additional examinations of paragraph A, above detect indications exceeding the acceptance standards of IWC-3000, further additional examinations shall be performed during the outage. The second additional sample shall include the remaining number of items of the interval sample not examined in the initial or first additional sample. If no items remain in the interval sample, a notification of the first additional sample results shall be provided, in accordance with Section 7.5, to evaluate the indications for further action, if needed.

**7.3 Additional Examinations for Component Supports (IWF)**

Additional examinations for component supports (IWF) shall be in accordance with -2430 of Code Case N-491.



**7.3 Additional Examinations for Component Supports (IWF) (Continued)**

- A. If component supports of the initial sample are subjected to corrective measures (for example: unacceptable) in accordance with - 3000 of Code Case N-491, the component supports immediately adjacent to those for which corrective action is required shall be examined. Also, the examinations shall be extended to include a first additional sample that includes supports within the system, equal in number and of the same type and function as those scheduled for examination during the period.
- B. When the additional examinations of paragraph A. above require corrective measures in accordance with - 3000 of Code Case N-491, a second additional sample of the remaining component supports within the system of the same type and function as in paragraph A shall be examined.
- C. When the additional examinations of paragraph B. above require corrective measures in accordance with - 3000 of Code Case N-491, examinations shall be extended to include a third additional sample of all nonexempt supports potentially subject to the same failure modes that required corrective measures in paragraphs A. and B above. These additional examinations shall include nonexempt component supports in other systems when support failures requiring corrective measures indicate non-system related failure modes. At the request of the ISI/NDE Representative a determination of failure mode applicability and selection of a third additional sample shall be made. The Notification of Additional Sample Results Form in Attachment 6 shall be used to make this request.
- D. When the additional examinations of paragraph C. above require corrective measures in accordance with - 3000 of Code Case N-491, examination shall be extended to those exempt component supports that could be affected by the same observed failure modes and could affect nonexempt components. At the request of the ISI/NDE Representative, a determination of failure mode applicability and selection of a fourth additional sample shall be made of all component supports on exempt components which could affect nonexempt components. The Notification of Additional Sample Results Form in Attachment 6 shall be used to make this request.

#### 7.4 Additional Examinations for Class 1,2 and 3 Equivalent Integrally Welded Attachments

Additional examinations for Class 1,2, and 3 Equivalent Integrally Welded Attachments shall be in accordance with paragraph 1.3 of Code Case N-509.

- A. Class 1, 2, and 3 equivalent integrally welded attachment additional examination requirements of IWB-2430 for Class 1 (See Section 7.1), IWC-2430 for Class 2 and Class 3 (See Section 7.2) or shall be applied to integrally welded attachments whose examinations reveal flaws or relevant conditions that exceed the acceptance standards of IWB-3000, IWC-3000, and IWD-3000, respectively.
- B. When Integrally welded attachments are examined as a result of identified component support deformation and the results of these examinations exceed the acceptance standards of IWB-3000, IWC-3000 and IWD-3000 shall be evaluated for additional or successive examinations. This evaluation shall be documented in accordance with The Notification of Additional Sample Results Form in Attachment 6 of this SSP.

#### 7.5 Completion of Additional Examinations

After completion of the additional examinations, ASME Section XI Code Requirements for Additional Examinations are complete. If the final sample examinations reveal indications which exceed the acceptance standards of Article 3000 the indications shall be evaluated for further action, if needed, within this and /or other systems.

Included in the notification should be a summary of the indications found, number of examinations, number of indications in each sample, type of examinations performed, examination category, item number, copies of the NOIs, and any other pertinent information. This notification shall be made using the Notification of Additional Sample Results Form in Attachment 6 of this SSP.

#### 8.0 CORRECTIVE ACTION PROGRAM

Any corrective action required as a result of Inservice examinations shall be handled in accordance with SSP-3.4.

**8.1 Successive Examination - Class 1 Equivalent Components**

Areas of flaw indications evaluated in accordance with IWB-3000 and SSP-3.4 that qualify for continued service shall be reexamined during the next three inspection periods listed in the inspection schedules. If the re-examinations reveal that the flaw indications remain essentially unchanged for three successive inspections, then the component examination schedule may revert to the original schedule. Components requiring successive examinations shall be scheduled for examination in accordance with the ASME Section XI ISI/NDE Program, 0-SI-DXI-000-114.2.

**8.2 Successive Examinations - Class 2 Equivalent Components**

Components with flaw indications evaluated in accordance with IWC-3000 and SSP-3.4 that qualify for continued service shall be reexamined during the next inspection period listed in the inspection schedule. If the reexamination reveals that the flaw indications remain essentially unchanged the component examination schedule may revert to the original schedule. Components requiring successive examinations shall be scheduled for examination in accordance with the ASME Section XI ISI/NDE Program, 0-SI-DXI-000-114.2.

**8.3 Successive Examinations for Component Supports (IWF)**

Successive Examinations for component supports (IWF) shall be in accordance with - 2420 of Code Case N-491.

- A. When a component support must be subjected to corrective measures in accordance with - 3000 of Code Case N-491 that support shall be reexamined during the next inspection period listed in the inspection schedule. Components requiring successive examinations shall be scheduled for examination in accordance with the ASME Section XI ISI/NDE Program, 0-SI-DXI-000-114.2.
- B. When additional corrective measures are not required during the next inspection period as a result of the examinations required by paragraph A. above, the inspection schedule may revert to the original schedule.

**8.4 Successive Examinations for Class 1, 2 and 3 Equivalent Integrally Welded Attachments**

Successive examinations for Class 1, 2 and 3 equivalent integrally welded attachments shall be in accordance with paragraph 1.3 of Code Case N-509.

- A. Class 1, 2 and 3 equivalent integrally welded attachment successive examination requirements of IWB-2420 (for Class 1) or IWC-2420 (for Class 2 and 3), shall be applied to integrally welded attachments whose examinations reveal flaws or relevant conditions that exceed the acceptance standards of IWB-3000, IWC-3000, and IWD-3000, respectively.
- B. When integrally welded attachments are examined as a result of identified component support deformation and the results of these examinations exceed the applicable acceptance standards listed above shall be evaluated for additional or successive examinations.

**9.0 NONDESTRUCTIVE EXAMINATION (NDE)****9.1 Examinations**

NDE examinations shall be performed in accordance with Inspection Services Organization Procedures or approved contractors procedures. NDE procedures shall be implemented in accordance with Inspection Services Organization Programs Manual, IEP Series..

When inservice examinations are implemented by instructions other than this program (e.g., maintenance instructions), copies of the instruction data sheets shall be submitted to the ISI/NDE Representative by the performing organization to allow these examinations, if applicable, to be included in the appropriate reports.

During an examination, if it is determined by an NDE Level III that code exam coverage cannot be achieved he shall coordinate with an ISI/NDE Programs Engineer for the selection of an alternate component (substitution) or the fact shall be documented on the data sheet and a maximum extent practical examination shall be performed if an alternate component (substitution) cannot be selected. The ISI/NDE Representative shall be informed in writing of the limited exam in accordance with 3.1.E.8 and 3.2.A.4.

SQN	<b>ASME SECTION XI ISI/NDE AND AUGMENTED NONDESTRUCTIVE EXAMINATION PROGRAMS</b>	SSP-6.10 Rev 2 Page 29 of 42
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**9.2 Calibration Standards**

Calibration blocks shall be used for ultrasonic examinations. The blocks shall be fabricated to the requirements of ASME Section V and ASME Section XI.

ISO shall maintain as-built calibration block drawings. The calibration blocks shall be stored and maintained in accordance with IEP-203.

**9.3 Qualifications and Certifications of NDE Personnel**

Personnel performing NDE operations shall be qualified and certified in accordance with IEP-200.

**9.4 Acceptance Standards**

All acceptance standards for ASME Code Class 1, 2 and 3 equivalent components and their supports shall be in accordance with IWA-3000, IWB-3000, IWC-3000, or IWD-3000 of ASME Section XI, and Code Case N-491-3000 for IWF.

**10.0 REQUESTS FOR RELIEF**

Where TVA has determined that certain code requirements or examinations are impractical, TVA shall submit written requests for relief to NRC with information to support the determinations and any proposed alternate examinations, the requests for relief shall be included as a part of O-SI-DXI-000-114.2. Requests for Relief shall be submitted to the NRC via SQN Site Licensing.

Requests for relief responsibilities are defined in 3.1.E.8 through 3.1.E.10, 3.3.A.3, and 3.4.

**11.0 AUTHORIZED INSPECTOR**

TVA shall employ an Authorized Inspection Agency (AIA) in accordance with ASME Section XI for inservice examinations of ASME Code Class 1, 2 and 3 equivalent components at SQN. Duties of the AIA Inspector are described in IWA-2000 of ASME Section XI of the Code. The Authorized Inspector(s) shall verify, assure, or witness that code requirements have been met. TVA shall provide access for the Authorized Inspector(s) in accordance with IWA-2130 of ASME Section XI. He shall have the prerogative and authorization to require requalification of any examiner or procedure when he has reason to believe the requirements are not being met, in accordance with IWA-2110(e).

The responsibilities for interfacing with the Authorized Inspection Agency (AIA) is defined in Nuclear Power Business Practice BP-235.

**12.0 REFERENCES****12.1 Interface Documents**

- A. IEP-100, Administration of Nondestructive Examination Procedures
- B. IEP-200, Qualification and Certification Requirements for NDE Personnel
- C. IEP-203, Control of Calibration Standards
- D. BP-235, Nuclear Power Business Practice
- E. 0-SI-DXI-000-114.2, ASME Section XI ISI/NDE Program Unit 1 and Unit 2
- F. SSP-2.7, Document Control
- G. SSP-2.9, Records Management
- H. SSP-3.1, Quality Assurance Program
- I. SSP-3.4, Corrective Action

**12.1 Interface Documents (Continued)**

- J. SSP-4.5, Regulatory Reporting Requirements
- K. SSP-6.3, Preventative Maintenance Program
- L. SSP-6.9, Repair/Replacement of ASME Section XI Components
- M. SSP-6.21, Maintenance Management System Initiation of Work Requests
- N. SSP-7.55, Guidelines for the Erection of Scaffolds and Ladders Including those in Seismically Qualified Structures
- O. SSP-8.1, Conduct of Testing
- P. SSP-8.2, Surveillance Test Program
- Q. SSP-8.5, ASME Section XI System Pressure Test Program
- R. SSP-8.54, Snubber Program
- S. SSP-8.58, Heat Exchanger Program
- T. SSP-8.56, Steam Generator Program
- U. SSP-8.6, ASME Section XI Inservice Testing of Pumps and Valves
- V. SSP-9.3, Plant Modifications and Design Change Control
- W. SSP-9.54, Flow Accelerated Corrosion Program
- X. SSP-9.56, Raw Water Fouling and Corrosion Control Program
- Y. SSP-10.51, Procurement and Control of Contract Services
- Z. SSP-12.8, Foreign Material Exclusion

**12.1 Interface Documents (Continued)**

AA. SSP-13.2, Chemical Traffic Control Program

**12.2 Developmental References**

- A. Memorandum from G. J. Pitzl and M. L. Turnbow to N. C. Kazanas and D. R. Keuter, "Review of Augmented Nondestructive Examinations (NDEs) not Presently Included in the Inservice Inspection (ISI) Programs," dated September 1, 1992 (L29 920828 800).
- B. Letter from J. N. Steinmetz, Westinghouse, to P. G. Trudel, TVA, dated January 7, 1993, "Westinghouse Report No. MED-PCE-12704, Rev. 1, Sequoyah Nuclear Units 1 and 2 Reactor and Internals ISI Program Dated December 17, 1992" (B38 930114 834).
- C. Memorandum from J. C. Goulart to W. M. Justice dated April 26, 1993 (L29 930426 802).
- D. Memorandum from W. E. Pennell to R. A. Sessoms dated August 10, 1987 (B41 870810 003).
- E. Memorandum from J. A. Kirkebo to Site Directors dated June 24, 1987 (L29 870528 815).
- F. Memorandum from R. R. Calabro to Those listed dated May 16, 1989 (L38 890511 800).
- G. Memorandum from R. R. Calabro to Those listed dated October 30, 1990 (L36 901030 800).

**12.3 Source Documents**

- A. Code of Federal Regulation Title 10, Part 50, "Domestic Licensing of Production and Utilization Facilities", Section 50.55a, "Codes and Standards" (10 CFR 50.55a).
- B. U. S. NRC Regulatory Guide 1.26, "Quality Group Classifications and Standards for Water, Steam, and Radioactive Waste Containing Components of Nuclear Power Plants".



**12.3 Source Documents (Continued)**

- C. U. S. NRC Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI Division 1".
- D. ASME Boiler and Pressure Vessel Code, Section XI 1974 Edition, Summer 1975 Addenda; Section XI 1989 Edition; 1989 Edition Section V Applicable Articles.
- E. TVA Nuclear Quality Assurance Plan TVA-NQA-PLN89-A, Paragraph 9.3.4.H.
- F. SQN UFSAR, Paragraphs 3.2, 3.2.8 and 5.4.4.
- G. SQN Technical Specifications: 3/4.0.5.
- H. Nuclear Power Standard STD-3.1, where applicable and STD-6.10.

APPENDIX A  
Page 1 of 3

## ASME SECTION XI CODE INTERPRETATIONS NONDESTRUCTIVE EXAMINATION (NDE)

**1.0 PURPOSE**

Provide a TVA Nuclear Power (NP) position on interpretations of Section XI of 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 TVA's 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  
3. Sequoyah Engineering  
Calculation SQN-SQTP-001, R1

**2.2 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.

APPENDIX A  
Page 2 of 3**2.3 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.

APPENDIX A  
Page 3 of 3**2.4 Interpretation: XI-1-92-13**

Subject: Section XI, Table IWB-2500-1; Examination Selection - Dissimilar Metal Welds (1977 Edition With Addenda Through Summer 1978)

Date Issued: March 10, 1992

File: IN91-026

Question (1): Are the piping safe end welds examined under Section XI, Table IWB-2500-1, Category B-F, item B5.50 limited to nozzle safe-end dissimilar metal welds?

Reply (1): Yes.

Question (2): Are the dissimilar metal weld selected by note 1(c) in Section XI, Table IWB-2500-1, Category B-J limited to the remaining dissimilar metal welds not selected in Table IWB-2500-1, Category B-F?

Reply (2): Yes.

APPENDIX B  
Page 1 of 4ADMINISTRATIVE 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 examinations through Materials and Inservice Inspection, tracking the status of examinations and reporting completed examinations. Augmented examinations performed on a periodic frequency shall be identified in the ASME Section XI ISI/NDE Program 0-SI-DXI-000-114.2 or Attachment 1 of this SSP.

APPENDIX B  
Page 2 of 4**2.1.1 Periodic Augmented Examinations**

**NOTE** It is not necessary to update Attachment 1 of this Site Standard Practice prior to performance of the requested examination.

The responsible organization requesting performance of augmented examinations on a periodic frequency and not identified in Attachment 1 or in 0-SI-DXI-000-114.2 shall submit a written request to the organization being requested to perform the examinations. 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 2 Augmented Examination Request Form or equivalent, can be used for this purpose. Copies of the written request shall be submitted to RIMS; the Inspection Services Organization to facilitate nondestructive examination procedure preparation, establishment of training programs, and personnel familiarization; and to Materials and Inservice Inspection for inclusion in Attachment 1 and/or the ASME Section XI ISI/NDE Program 0-SI-DXI-000-114.2 as appropriate.

Inspection Services Organization, and Materials and Inservice Inspection 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.).

**APPENDIX B**  
Page 3 of 4**2.1.2 "One-Time" Augmented Examinations**

**NOTE** It is not necessary to update Attachment 1 of this Site Standard Practice prior to performance of the requested examination.

For Augmented NDEs that are not intended to be performed on a periodic basis, the information required in Appendix B, 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. It is unnecessary to record these one-time exams on Attachment 1 of this Site Standard Practice.

**2.2 Pre-outage Requirements**

Prior to each refueling outage, a meeting shall be initiated by Materials and Inservice Inspection. Meeting attendees should include the responsible organization, Materials and Inservice Inspection, and Inspection Services Organization. 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 Materials and Inservice Inspection and 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.

APPENDIX B  
Page 4 of 4**3.0 RECORDS****3.1 QA Records**

NDE reports are maintained with implementing work orders.

**3.2 Non-QA Records**

None.



## SOURCE NOTES

Page 1 of 2

IMPLEMENTING STATEMENT	REQUIREMENTS DOCUMENT	REQUIREMENTS STATEMENT
All	STD-6.10	All
All Applicable Articles	ASME Boiler and Pressure Vessel Code - Section XI 1974 Edition, Summer 1975 Addenda, 1989 Edition	All
All Applicable Articles	ASME Boiler and Pressure Vessel Code - Section V	All
All Applicable Articles	UFSAR - SQN	All
Surveillance Requirement 4.0.5;	Technical Specifications Units 1 and 2 - SQN	All
10CFR 50.55a	Code Federal Regulations 10 CFR 50	All
As Applicable	U.S.N.R.C. Regulatory Guides	All
To provide periodic NDE for Balance of Plant Components by qualified inspection personnel.	SSP-6.3, Preventative Maintenance Program	All
To provide periodic NDE for balance of plant heat exchanger tubing by qualified inspection personnel.	BOP Heat Exchanger Tubing Components SSP-8.58, "Heat Exchanger Program"	All
To provide periodic NDE for components as applicable by qualified inspection personnel.	SSP-9.54, "Flow Accelerated Corrosion Program" O-TI-DXX-000-005.0	All

## SOURCE NOTES

Page 2 of 2

IMPLEMENTING  
STATEMENTREQUIREMENTS  
DOCUMENTREQUIREMENTS  
STATEMENT

To provide periodic NDE for components as applicable by qualified inspection personnel.

SSP-9.56, "Raw Water Fouling and Corrosion Control Program"  
0-TI-SXX-000-109.0  
0-TI-SXX-000-704.0  
0-PI-DXX-000-704.A  
0-PI-DXX-000-704.B  
0-PI-DXX-000-704.1

All

To provide periodic NDE for the acid storage tank by qualified inspection personnel.

Acid Storage Tank  
PM 00792

All

**Mechanical/Nuclear Engineering**

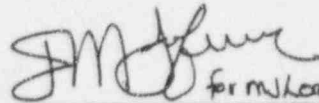
- [1] **MAINTAIN** a listing of Augmented Nondestructive Examinations.
- [2] **UPDATE** listing as necessary.
- [3] **SIGN** below.
- [4] **FORWARD** to SPS for updating Table of Contents, etc.

**SPS**

- [5] **FORWARD** to DCRM.

**DCRM**

- [6] **DISTRIBUTE** per SSP-2.7.

  
for m/lock / 10/13/95  
Mech/Nuc Engineering Manager                      Date

1. Responsible Organization (Owner) - Mechanical Maintenance

Component(s): Balance of Plant (BOP):

Condenser  
Feedwater Heaters  
Turbine Generator  
BOP Heat Exchanger  
Miscellaneous

Implementing Procedure(s):

SSP-6.3, Preventative Maintenance Program  
SSP-8.58, Heat Exchanger Program2. Responsible Organization (Owner) - Technical Support (BOP)

Component(s): Acid Storage Tank (System 14)

Implementing Procedure(s): PM 00792

3. Responsible Organization (Owner) - Materials and Inservice Inspection

a. Component(s): Various - Flow Accelerated Corrosion Examinations

Implementing Procedure(s): SSP-9.54, "Flow Accelerated Corrosion Program"  
0-TI-DXX-000-005.0

b. Component(s): Various - Raw Water Corrosion Examinations

Implementing Procedure(s): SSP-9.56, "Raw Water Fouling and Corrosion  
Control Program"  
0-TI-SXX-000-109.0  
0-TI-SXX-000-704.0  
0-PI-DXX-000-704.A  
0-PI-DXX-000-704.B  
0-PI-DXX-000-704.1

4. Responsible Organization (Owner) – Corporate PWR Fuel Engineering.

Component(s): Rod Control Cluster Assembly (RCCA) Cladding Wear Measurements.

NOTE: The RCCA rodlet cladding wear for both SQN units has been examined via the eddy current measurement NDE technique. Encircling coils were used for total area loss determinations and profilometry data taken to characterize wear scars. SQN Unit 2 RCCAs were inspected in April 1990. Results were documented (L38 890511 800 and L36 901030 800). Summaries were provided in the ISI Reports.

Because TVA has cladding wear data for each unit's RCCAs and has implemented an axially repositioning program, RCCA inspections need only to be done periodically in the future when identified by PWR Fuel Engineering. When performed, the results will be reviewed, the wear data bases updated, and specific repositioning plans revised as necessary. Any RCCA with excessive rodlet cladding wear will be replaced.

RCCA wear examinations via NDE techniques are self-imposed by TVA and do not require a special report. An examination summary shall be included in the Site Final Report discussed in this SSP whenever the RCCAs are inspected for either SQN Unit 1 or 2.

**Mechanical/Nuclear Engineering**

- [1] **MAINTAIN** an Augmented Nondestructive Examination Request Form.
- [2] **UPDATE** form as necessary.
- [3] **SIGN** below.
- [4] **FORWARD** to SPS for updating Table of Contents, etc.

**SPS**

- [5] **FORWARD** to DCRM.

**DCRM**

- [6] **DISTRIBUTE** per SSP-2.7.

*JM Johnson*  
 for M. Lorek / 10/13/95  
 \_\_\_\_\_  
 Mech/Nuc Engineering Manager                      Date

To: \_\_\_\_\_ /\_\_\_\_\_/\_\_\_\_\_  
Organization Requested to Perform Exam Date

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

**Mechanical/Nuclear Engineering**

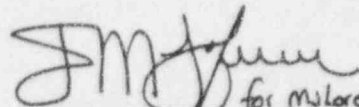
- [1] **MAINTAIN** guidelines for determining piping component support examination boundaries.
- [2] **UPDATE** guidelines as necessary.
- [3] **SIGN** below.
- [4] **FORWARD** to SPS for updating Table of Contents, etc.

**SPS**

- [5] **FORWARD** to DCRM.

**DCRM**

- [6] **DISTRIBUTE** per SSP-2.7.

  
for mlarek / 10/13/95  
Mech/Nuc Engineering Manager                      Date



## 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 Unit 1 and Unit 2, 0-SI-DXI-000-114.2 for Sequoyah Nuclear Plant. This Instruction is intended to deal with piping supports only. Equipment support drawings will be provided in the ASME Section XI ISI/NDE Program that depict the examination boundary for each equipment support.

## 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 Instructions, 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.

## **5.0 RESPONSIBILITIES**

- A. ISI/NDE 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 ISI/NDE Representative.
- B. ISI/NDE 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. ISI/NDE 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.

## **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. Supports depicted as snubbers on the support drawings are subject to examination outside the boundaries of the snubber (beyond the pins) in accordance with IWF-5300(c). The pin to pin examination of snubbers are covered by SSP-8.54.
  2. In all cases involving attachments welded to pressure retaining components and/or 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.

**6.1.1 General (Continued)**

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 and lugs adjacent to the supported pipe shall be examined. Even though the shims and lugs may not be listed on the support bill of materials, they are required to be examined.
7. Notification of Indication (NOI) form in Attachment 4 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 latest configuration controlled drawing (CCD) of the support. If a CCD does not exist, obtain the latest as-constructed drawing of the support. If an as-constructed drawing does not exist, obtain the latest as-designed drawing of the support. For new or modified supports, the drawing included in the work instruction may be utilized. Using the drawing, 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."

**6.1.1 General (Continued)**

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.

**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 of the intervening element (i.e., welds, bolting, pins, clamps, etc.) 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 and lugs adjacent to the supported pipe.

**6.2 Site Implementation**

- A. Obtain the latest CCD of the support. If a CCD does not exist, the latest as-constructed drawing shall be obtained. If an as-constructed drawing does not exist, the latest as-designed drawing shall be obtained. If during the performance of an examination, significant differences are identified between the support drawing and the support field configuration, access the Design Change Document Tracking System (DCDTS) to identify any outstanding change documents on that component support.

For each component support that does have an outstanding change documented listed on the DCDTS, ISI/NDE Representative shall determine through the work package project engineer if the work has been completed on that particular support. If the work has been completed, ISI/NDE Representative shall obtain the change document support drawing. If the work has not been completed, the examination shall be delayed until the work has been completed.

**NOTE**      **As an alternative** to obtaining the latest as configured drawings and the bill of materials, the component support examination boundary may be 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 support type 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 support type do not match:
1. The setting shall be calculated in accordance with Inspection Services Organization Program Manual (Refer to IEP series).
  2. Submit a Component Support Examination Boundary Clarification Request Form to. Upon receipt of a request, an ISI/NDE 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.

**NOTE**      See Section 7.0 for example boundaries of each examination boundary.

## 7.0

**EXAMPLES**

- A. Form – “Component Support Examination Boundary Clarification Request Form.”
- B. Example 2 – Examination Boundary A (see Drawing ISI-0436-C, Sht. 1).
- C. Example 3 – Examination Boundary B (see Drawing ISI-0436-C, Sht. 1).
- D. Example 4 – Examination Boundary C (see Drawing ISI-0436-C, Sht. 1).
- E. Example 5 – Examination Boundary D (see Drawing ISI-0436-C, Sht. 1).

COMPONENT SUPPORT EXAMINATION BOUNDARY CLARIFICATION REQUEST FORM

Plant: \_\_\_\_\_ Unit: \_\_\_\_\_ Date: \_\_\_\_\_

Component Support No.: \_\_\_\_\_ Rev.: \_\_\_\_\_

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 \_\_\_\_\_

\_\_\_\_\_



**Mechanical/Nuclear Engineering**

- [1] **MAINTAIN** an Notification of Indication Form.
- [2] **UPDATE** form as necessary.
- [3] **SIGN** below.
- [4] **FORWARD** to SPS for updating Table of Contents, etc.

**SPS**

- [5] **FORWARD** to DCRM.

**DCRM**

- [6] **DISTRIBUTE** per SSP-2.7.

  
for M. Lorek, 10/13/95  
Mech/Nuc Engineering Manager                      Date

**PART I - FINDINGS**

NOI No. \_\_\_\_\_ Plant/Unit \_\_\_\_\_ ISI Dwg./Sh. No. \_\_\_\_\_

Examination Report No. \_\_\_\_\_ Component ID \_\_\_\_\_

Description of Indication (Sketch/Photograph if Required for Clarification) :

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature of Examiner/Certification Level: \_\_\_\_\_

Date

Signature of Field Supervisor (Contractor) : \_\_\_\_\_

Date

Signature of ISI/NDE Representative: \_\_\_\_\_

Date

**PART II - DISPOSITION**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Disposition Prepared/Recorded By \_\_\_\_\_

Date

**PART III - ADDITIONAL EXAMINATIONS**

Additional Sample Required: \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_

Attach list of items in additional sample, if required.

ISI/NDE  
Representative \_\_\_\_\_ Date

**VERIFICATION OF CLOSURE**

Verification of Completed Corrective Action Required by Disposition

Reexamination Report Number, if Applicable: \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Signature of ISI/NDE Representative: \_\_\_\_\_

Date

**Mechanical/Nuclear Engineering**

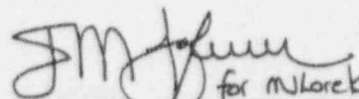
- [1] **MAINTAIN** a Field Corrected Drawing(s) Transmittal Form.
- [2] **UPDATE** form as necessary.
- [3] **SIGN** below.
- [4] **FORWARD** to SPS for updating Table of Contents, etc.

SPS

- [5] **FORWARD** to DCRM.

DCRM

- [6] **DISTRIBUTE** per SSP-2.7.

  
for M. Lorek, 10/13/95  
Mech/Nuc Engineering Date

**FIELD CORRECTED DRAWING(S) TRANSMITTAL**

TO: Representative  
ISI/NDE

Transmittal Number: \_\_\_\_\_  
(Year) (Sequential)

Plant: SQN

Unit/Outage or Date: \_\_\_\_\_

The ASME Section XI ISI/NDE Program 0-SI-DXI-000-114.2 drawing(s) listed below have been field marked with variations in configuration which were discovered during the course of inservice or preservice examinations. Please revise the controlled copy of this/these drawing(s) prior to the next refueling outage.

- |          |           |
|----------|-----------|
| 1. _____ | 7. _____  |
| 2. _____ | 8. _____  |
| 3. _____ | 9. _____  |
| 4. _____ | 10. _____ |
| 5. _____ | 11. _____ |
| 6. _____ | 12. _____ |

Signature of Examiner/Date \_\_\_\_\_

Signature of Field Supervisor \_\_\_\_\_

Drawings have been revised as necessary to reflect the appropriate changes.

\_\_\_\_\_  
Signature of ISI/NDE Representative

\_\_\_\_\_  
Date

**Mechanical/Nuclear Engineering**

[1] **MAINTAIN** a notification of additional sample results form.

[2] **UPDATE** as necessary.

[3] **SIGN** below.


[4] **FORWARD** to SPS for updating Table of Contents, ETC.

**SPS**

[5] **FORWARD** to DCRM.

**DCRM**

[6] **DISTRIBUTE** per SSP-2.7.

  
for M/Larek / 10/13/95  
Mech/Nuc Engineering Date

**SN**

**NOTIFICATION OF ADDITIONAL  
SAMPLE RESULTS**

SSP-6.10 Att. 6  
Rev 0  
Page 2 of 2

TO: \_\_\_\_\_ Transmittal Number: \_\_\_\_\_  
FROM: \_\_\_\_\_ (Year) (Sequential)

Unit \_\_\_\_\_ System \_\_\_\_\_

Component ID \_\_\_\_\_

Code Category \_\_\_\_\_ Exam Method (s) \_\_\_\_\_

Initial Sample \_\_\_\_\_ NOI Number \_\_\_\_\_

1st Additional Sample \_\_\_\_\_ NOI Number \_\_\_\_\_

2nd Additional Sample \_\_\_\_\_ NOI Number \_\_\_\_\_  
(Supports Only)

Drawing Number \_\_\_\_\_

Prepared By \_\_\_\_\_  
ISI/NDE Representative Date

Evaluation/Recommendation

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Additional Components to be Examined

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Evaluation/Recommendation  
Prepared By \_\_\_\_\_  
Date

Coordinated with ISI/NDE  
Representative \_\_\_\_\_  
Date